Apprenticeships in England – Initial or Continuing VET?

PULLEN, Charlynne

Available from Sheffield Hallam University Research Archive (SHURA) at:

https://shura.shu.ac.uk/35851/

This document is the Published Version [VoR]

Citation:

Copyright and re-use policy

Elena Quintana-Murci, Francesca Salvà-Mut, Barbara E. Stalder and Christof Nägele (Editors)

Towards inclusive and egalitarian vocational education and training:
Key challenges and strategies from a holistic and multi-contextual approach

Proceedings of the 6th Crossing Boundaries Conference in Vocational Education and Training, Palma, Mallorca, Spain, 21 to 23 May 2025

Crossing Boundaries 2025 Universitat de les Illes Balears

Quintana-Murci, E., Salvà-Mut, F., Stalder, B. E., & Nägele, C. (Eds.). (2025). Towards inclusive and egalitarian vocational education and training: Key challenges and strategies from a holistic and multi-contextual approach. Proceedings of the 6th Crossing Boundaries Conference in Vocational Education and Training, Palma, Mallorca, Spain, 21 to 23 May 2025. VETNET. https://doi.org/10.5281/zenodo.15564174

Editorial

Towards Inclusive and Egalitarian VET – A Cross-Contextual Inquiry

We are thrilled to welcome readers to the Proceedings of the 6th *Crossing Boundaries in Vocational Education and Training* conference. This dynamic scholarly event unites researchers for meaningful dialogue on vocational education and training. The contributions' diversity and quality showcase the research field's rich perspectives and the enduring significance of VET as a catalyst for educational, economic, and social change. We believe this volume will inspire fruitful discussions and encourage shared learning across various contexts, traditions, and disciplines – both during the conference and afterwards.

This volume features 70 contributions that reflect the diverse and evolving field of VET research in 2025. Centred on the theme *"Towards Inclusive and Egalitarian Vocational Education and Training: Key Challenges and Strategies from a Holistic and Multi-Contextual Approach"*, the papers tackle critical issues related to access, participation, educational outcomes, and reforms in VET across various regions and contexts.

What emerges is a colourful mosaic of viewpoints that cross disciplinary, methodological, and national boundaries. Collectively, they express a strong commitment to reevaluating VET as not just a means for labour market integration, but as a space for personal growth, social inclusion, and democratic engagement.

A key issue highlighted in many papers is the impact of structural inequalities on participation in various VET pathways and their associated career prospects. Several studies indicate persistent trends of gender segregation, socio-economic divides, and challenges faced by migrants. Additionally, some studies explore how vocational aspirations develop and are limited across different educational systems and emphasise that targeted support, along with acknowledgement of learners' backgrounds and goals, can enhance participation and outcomes.

Another key focus is on transitions and trajectories – not just from school to work, but throughout the life course. Whether examining early vocational decision-making, adult learning, or mid-career upskilling, many contributions emphasise the need for VET systems to accommodate diverse and non-linear educational journeys. This necessitates more flexible offerings, guidance structures, and recognition mechanisms that are aligned with learners' realities.

The development of VET professionals represents a third major strand. Several papers argue that inclusive VET needs a redefinition of the roles and skills of teachers, trainers, and guidance personnel. There is an emerging agreement that VET professionals require assistance to address the increasing diversity of learners alongside the evolving challenges of digitalisation, sustainability, and work-based learning.

Whether in urban areas or rural settings, and across dual systems or school-based models, the papers collectively explore how policy, culture, and context influence the opportunities and challenges of inclusive VET. Additionally, multiple contributions suggest specific strategies— such as curriculum reform, participatory governance, and cross-sectoral collaboration—that can effectively address ongoing gaps.

A particularly noteworthy feature of this volume is the consistent effort to reflect across contexts. Many authors engage in critical dialogue with practices and findings from other countries, fostering a shared learning culture.

Taken together, the papers emphasise the essential role of VET in addressing societal challenges. They also highlight that unlocking the potential of VET demands ongoing critical reflection and a steadfast commitment to equity, quality, and inclusion. This volume aids this effort – serving as an academic resource, reflecting ongoing discussions, and inviting collaborative action across boundaries.

Participants were selected based on the submission of a proposal for the conference, which underwent a rigorous double-blind review conducted by members of the VETNET community. Upon acceptance, participants were required to submit a short full paper prior to the conference, which was included in this volume of proceedings. Submitting a paper was a prerequisite for conference participation. Each short paper received additional feedback in preparation for publication. Specifically, papers were read and commented on by the editorial team and a critical friend – another participant of the conference – who engaged constructively with the work. This collaborative review structure reflects the spirit of the *Crossing Boundaries* conference: fostering dialogue, critical reflection, and joint learning.

We would like to express our sincere gratitude to our VETNET colleagues for their support during the review process – without their contributions, this publication would not have been ready in time for the conference. Above all, we thank the authors and co-authors for their commitment and scholarly engagement. Their work forms the heart of this volume. While the conference papers are published as edited volume, full responsibility for content and copyright remains with the respective authors.

We would also like to warmly acknowledge the invaluable contributions of all members of the Vocational Education and Training Research and Innovation Laboratory (LABVET) at the University of the Balearic Islands. Their dedication, creativity, and commitment were instrumental in shaping and delivering this conference. The event would not have been possible without their tireless efforts and collaborative spirit.

Our heartfelt thanks also go to CaixaBank Dualiza, the Department of Applied Pedagogy and Educational Psychology, and the Institute for Educational Research and Innovation at the University of the Balearic Islands. Their generous financial and institutional support made it possible to bring together a diverse international community of researchers and to share their work through this publication.

We hope you find the papers in this volume inspiring and thought-provoking. Our desire is that they ignite fresh ideas, stimulate critical reflection, and promote ongoing dialogue within the VET research community. We eagerly anticipate welcoming you to the next *Crossing Boundaries* conference in 2027, which presents another chance to advance our collective journey toward inclusive and progressive vocational education and training. Additional details will be shared in due course on https://vetnetsite.org.

Dr Elena Quintana-Murci
University of the Balearic Islands, Palma, Mallorca, Spain

Prof. Dr Francesca Salvà-Mut
University of the Balearic Islands, Palma, Mallorca, Spain

Prof. Dr Barbara E. Stalder, VETNET chair/link convenor of VETNET
Bern University of Teacher Education

Dr Christof Nägele, VETNET chair/link convenor of VETNET
University of Applied Sciences and Arts Northwestern Switzerland, School of Education and University of Basel

Organisers and Collaborators of the Crossing Boundaries 2025

Laboratory for Research and Innovation in Vocational Education and Training (UIB)
The Laboratory for Research and Innovation in Vocational Education and Training (VET-Lab) is a research centre within the Department of Applied Pedagogy and Educational Psychology at the University of the Balearic Islands (UIB). The VET-Lab focuses on investigating and promoting innovative practices in vocational education and training. Its mission includes analysing dropout and stopout processes, addressing gender segregation in VET, and exploring strategies to foster inclusive and egalitarian vocational education systems. The laboratory emphasizes a holistic and multi-contextual approach, considering structural, institutional, contextual, and personal factors influencing VET pathways.
For more information, please visit https://labvet.uib.eu/

The European Research Network in Vocational Education and Training (VETNET) is a leading scholarly community dedicated to advancing research and development in vocational education and training (VET). Established in 1996 as the second research network of the European Educational Research Association (EERA), VETNET encompasses a broad spectrum of VET-related research, including initial and continuing vocational training, both school-based and workplace-based learning provisions, as well as the development of pedagogic expertise for vocational and professional education.
VETNET actively promotes high-quality research and fosters collaboration among researchers, practitioners, and policymakers. It organizes conferences, publishes scholarly work, and supports emerging researchers through initiatives like the European Emerging Researchers Network (EERN-VETNET).
For more information, please visit vetnetsite.org

CaixaBank Dualiza is an initiative by the CaixaBank Foundation for Dual Training, aimed at promoting Vocational Education and Training (VET) and its dual modality in Spain. Its objective is to enhance students' employability and boost business competitiveness through three main lines of action: promoting VET, guidance, and research.
CaixaBank Dualiza has also formed partnerships with organisations such as the Spanish Chamber of Commerce to support soft skills training programmes and to host awareness events on VET. In addition, its VET Observatory provides data and analysis to support informed decision-making in the education and labour sectors.
Through these initiatives, CaixaBank Dualiza reaffirms its commitment to VET as a key tool for training workers and meeting the needs of the labour market
For more information, please visit https://www.caixabankdualiza.es/caixabank-dualiza/

The Institute for Educational Research and Innovation (IRIE) is a research centre affiliated with the University of the Balearic Islands (UIB), committed to advancing educational knowledge through research, innovation, and collaboration. Its key areas of focus include multilingualism, inclusive education, gender, VET, dropout prevention, educational technology, and teacher training. The institute leads both nationally and EU-funded projects (such as Erasmus+) and offers doctoral and postgraduate programmes in education and educational technology.

Moreover, IRIE actively promotes academic dissemination through publications, seminars, and conferences, facilitating the transfer of knowledge to education professionals and institutions. It collaborates with national and international bodies, including the Spanish Network of Institutes for Educational Research, and supports research visits from scholars at other institutions. Through this comprehensive and collaborative approach, IRIE makes a significant contribution to the improvement of educational policy and practice within a global context.

For more information, please visit https://irie.uib.cat/en/

Table of Contents
Towards Inclusive and Egalitarian VET – A Cross-Contextual Inquiry

Getting Skills Right for Food and Beverages Manufacturing Companies in South Africa

Allais, Stephanie

matseleng.allais@wits.ac.za, Centre for Researching Education and Labour, University of the Witwatersrand

Abstract

Context: The specific context for this study is food and beverage manufacturing companies in South Africa. The broader context is a set of systems for understanding skills needs and for supporting and incentivising training which work poorly, and wide criticism of the vocational education and training (VET) system. The research explores skills development and utilization at a company and industry level.
Approach: The research is conducted through a desktop review of the 13 industries that constitute the food and beverage manufacturing sector, and in-depth interviews in 50 companies, as well as industry associations.
Findings: A few specific, highly concentrated industries have specific modes of provision, and it is generally these that have stronger occupational roles for workers at the level of machine operators or production workers. In general, companies do extensive training, but it is mainly company-specific and not building a broad body of occupational expertise. Existing vocational qualifications offered through workplaces are used for recruitment more than for training.
Conclusions: The research highlights how complex the idea of employer-led VET is and emphasizes the need for a strong focus on provision systems and the role of the state in this regard.

Keywords

skills planning, skills levy, employer-led training, skill formation regime

1 Introduction

This paper presents interim findings from research into skill formation in food and beverage manufacturing companies in South Africa. A key aim is to explore possibilities for improving how sectoral skills bodies obtain insight from employers as well as fund training provision.

Sector skills bodies, usually called sector skills councils, sometimes industry skills councils, have been created in many countries for engagement with employers on skills issues. Based initially on policies in the United Kingdom (UK), and developed extensively in Australia, they are now being developed in many low- and middle-income countries. They have become a focus of policy attention because it is believed that they can ensure industry involvement in VET systems and policies, to ensure greater responsiveness and relevance to employer needs (ILO, 2021).

A related policy is skills levies, whereby an agreed tax on employers goes into a dedicated training fund. A number of African countries have set up training levies to incentivize training, and in some cases they are the main source of financing for VET (Johanson, 2009; Ngatia &

Rigolini, 2019; Palmer, 2020; Walther & Uhder, 2014). In some cases, and South Africa is a case in point, they are directly managed by the sectoral skills bodies, but in others they simply finance the formal provision of VET.

South Africa's sectoral skills bodies are called Sectoral Education and Training Authorities (SETAs). They were created in 1997 (Republic of South Africa, Department of Labour 1997) under the then Ministry of Labour through a levy-grant system that had been negotiated during the transition to democracy (Akoojee et al., 2005; Allais, 2013; Kraak, 2004, 2008; Ngcwangu, 2014). The system was set up with two main aims: to improve insight into employers' skills needs, and to improve the amount of training taking place, both by incentivizing employers to train, and by funding training to support employers' skills needs collectively. The system has been the subject of considerable evaluation, contestation, and debate, as well as a Ministerial Review (DHET, 2012; Mzabalazo and REAL, 2018; Singizi Consulting, 2007) and continue to be highly criticized.

Our research aims to explore sectoral, workplace, and occupational level skill formation issues, with a view to exploring how to improve systems for building insights into the needs of companies, and provision models for ensuring that the right kinds of training happen. This paper presents preliminary analysis mid-way through field work.

2 Problem Statement

There are various conceptual problems that lead to this research. One is the paradox of governments trying to design systems for employer leadership of VET. Another is the conundrum of the role of VET where clear and meaningful occupational roles are not apparent in workplaces. At a policy level, there is also a variety of problems. One is that South Africa's systems for understanding skills needs have many serious problems, both in terms of the insights produced and how this information is used to plan training provision (Allais, 2022; Allais & Ngcwangu, 2023). Another policy problem is in the design and implementation of systems for encouraging and supporting the training needed by employers. Research suggests that employers struggle to get support for the training that they feel is most important for their workplace—despite the fact that the purpose of the skills levy was originally to incentivize and support employers to do training (Allais & Ngcwangu, 2023). Going back to the first conceptual problem, there are high levels of dissatisfaction with the system. Increasingly, employers are not opting out. After decades of reforms with very little success, there is a need for insights into how things could be done differently, and in what ways and to what extent vocational skills development could play a meaningful role in supporting manufacturing companies.

3 Literature Review

The research is situated within a broad body of international literature on skill formation systems, alongside extensive studies conducted in South Africa that have identified weaknesses in the current systems.

In terms of the former body of research, a persistent issue in many countries is the inadequate involvement of employers in shaping training systems. A common critique is that vocational education and training (VET) systems are disconnected from employers and their specific training needs (Arias et al., 2019; Cameron et al., 2018; W. O. Lee et al., 2023; Schneider, 2023). Strategies to increase employer engagement, such as creating funding levies that give employers more control over aspects of provision, have gained popularity in many countries (Gonçalves, 2019; Gonzalez-Martinez & Gardiner, 2019; Mehotra & Singh, 2019; Palmer, 2020). Sector skills bodies, in particular, are promoted and developed in many low- and middle-income countries with the aim of facilitating employer involvement and leadership (ILO, 2021). These bodies are envisaged as platforms for stakeholder engagement, with employers playing

a key role in connecting the worlds of work and education/training. They originated in the United Kingdom (UK), where their impact on improving employer control and engagement has been mixed (Keep, 2005, 2007, 2012; Payne, 2008). They were later adopted in Australia and Canada (Hughes & Hughes, 2010) and are now being established in many low- and middle-income countries. In some contexts, sector skills bodies are combined with training levies (Payne, 2008).

Sector skills bodies are seen as important for skills anticipation. The hope is that if employers are in the driving seat, VET systems will be relevant to their needs and the broader needs of economies. However, the paradox is that they are seldom created by employers, and governments that set them up frequently struggle to get employers to participate. Further, much research suggests limitations in terms of how employers think about and are able to articulate skills needs (Gamble, 2016a, 2016b).

South Africa has a complex regulatory framework that employs a funding-driven approach, assuming that market participants will respond to specific funding levers and incentives (Allais, 2024; Allais & Ngcwangu, 2025). Employers with an annual payroll over R500,000 are required to pay a 1% payroll levy, which is then allocated through the tax system to Sectoral bodies. Employers can receive a portion of the levy back (the exact amount is subject to a current contestation) when they submit an annual workplace skills plan and training report. SETAs aggregate the employers' priorities into a Sector Skills Plan, which is used to fund and support necessary training, aside from a small portion reserved for administration and other purposes.

SETAs use two main mechanisms to disburse funds: designated 'funding windows' for employers and training providers to apply for, and bursaries. These mechanisms are informed by aggregated data from employers, as well as labour force trends and SETA research. Employers and providers can bid for funding through these channels, though Lee (2023) characterizes this process as having high transactional costs.

However, much of the data employers submit on skills needs is distorted by systemic complications (Allais & Ngcwangu, 2025). On the training side, problems (aside from corruption, of which the skills system has by no means been free) has been the absence of distinctions between funding for short-term interventions—such as an urgent training programme for a new machine—and long-term interventions—for example training more engineers.

Sector skills councils and training funds have mainly been implemented in countries without organic or well-established involvement of employers in vocational education systems. This leads to the second body of research literature—on the political economy of skill formation. Research in advanced capitalist countries suggests that national economic, social, and political factors influence how skills are developed (Buchanan et al., 2001; Busemeyer & Iversen, 2012; Busemeyer & Trampusch, 2012; Hall & Soskice, 2001). This includes factors such as when vocational specialization begins (in terms of age and level in the formal education and training system), the scope of that specialization (how broad or narrow it is), the role of companies in the vocational education and training system, and the nature and extent of workplace-based training. In contrast, research on low- and middle-income countries suggests that factors influencing skill formation may differ from those in wealthier nations, with global value chains and local labor markets playing a more significant role.

The research is located in a broad body of international literature on skill formation systems, as well as extensive research in South Africa that has examined weaknesses in the current systems. Literature on skill formation systems in the advanced capitalist countries suggests that national economic, social, and political factors shape the ways in which skills are developed—including factors such as, when (at what age and level of the formal education and training system) vocational specialization starts; the nature of specialization (how broad or narrow it is); the role of companies in the formal vocational education and training system; and the nature of

and extent of workplace-based training. Literature on low- and middle-income countries suggests that the factors that have shaped skill formation in wealthy countries may not be the same, and that global value chains and local labour markets may play greater roles; further, it suggests that industry-level skill formation may be more useful to study than national (Allais, 2023; Bogliaccini & Madariaga, 2020; Maurer, 2012; Sancak, 2022).

In summary, the ways in which skills needs are likely to change, the ways in which training is most likely to support industry, and the kinds of training that are developed within industries and sectors may be shaped by many different factors:

- At an international level, factors like value chains, demands from export markets, and international labour markets affect skill formation.
- At a national level, there is also a diverse range of factors, ranging from more direct factors like the nature and quality of the national education system, to factors like social policy and the nature of labour markets, to indirect factors like stable electricity that supports company growth.
- Dynamics in different sectors can might lend themselves to specific models of skill formation—such as dominance by international companies, high degrees of market concentration, or the nature of unionization and extent of collective bargaining. All of these may also apply at a sub-sectoral level.
- Company-specific factors—the nature of work organization, company culture, specific technology, customized processes, and many others factors may mean that company-level factors determine skills needs.
- At the occupational level some occupations may be growing, shrinking, being broken up and casualized, or changing because of, say, technology or changes to more environmentally friendly production processes.
- And skills are at least partially determined at an individual level, by the motivation, opportunities, and achievements of individuals in workplaces.

4 Methodology

The research therefore aims to explore skill formation at three levels. Firstly, it explores the nature and trajectory of different sub-sectors/ industries, and whether they lend themselves to different types of training. Secondly, it explores the ways in which skills are understood, utilized, and developed in workplaces, and the implications for building systems to gain insight into skills needs as well as supporting training. Thirdly, it explores the extent to which there are commonalities in terms of required expertise and skill across two key mid-level occupational levels, that of production workers/machine operators, and that are skilled trades workers (artisans) and technicians.

Data gathering is taking place through desk-based research studies of specific industries; in-depth interviews of 1 (in micro-enterprises) to 8 people in about 30 workplaces; workplace observations; and interviews with industry associations and trade unions. Sampling is based on ensuring a representation of workplaces across food and beverage manufacturing industries, as well as a range of company sizes, in three main geographic locations, but is also heavily affected by willingness of companies to allow access to researchers. Within workplaces, interviews are being conducted with company/ plant managers, human resource managers, training managers, production managers, machine operators, skilled crafts workers, and technicians. Field work is currently underway: the desktop studies of specific industries have been written; 20 industry association interviews have taken place, and 22 company visits and interviews have taken place. The paper presents preliminary analysis of the research to-date, as part of strengthening the remainder of the fieldwork.

5 Results To-Date

As the research is still underway, in this section I discuss some key findings that seem to be emerging, as well as reflecting on the strengths and limitations of the methodologies employed so far, and how we might try to augment what we have done to-date.

In terms of industry differences in skill formation, from the desk top review, the industries that are most likely to have specific skill formation regimes are dairy, wine, beer and malt, fish, and meat processing. Other food and beverage manufacturing companies are allocated an industrial classification code (SIC), but the classifications have little salience for thinking about skills planning or models of provision. There are factors that affect skill formation which are sector-wide, such as food health and safety legislation and regulations, and there are also many that are cross-sector—where the primary food producers and the food retailers overlap with the food manufacturers. Distinctions between large, medium, and small companies are likely to be much more salient than those between sub-sectors.

In terms of models of provision for the sector, interviews with industry associations showed how a training institutional landscape (Industry Training Boards) was either dismantled or neglected after the shift to a more state regulatory model in 1996, with the creation of the SETAs as quality assurance regulators. Prior to the creation of the SETAs, South Africa had Industry Training Boards in some economic sectors, which played an actual training role. In some industries, centralized provision models have survived, but in most they have not. The policy response initially assumed that private providers would emerge; subsequently public technical and vocational training colleges were seen as playing this role, but this has also not worked. So the key policy question is about whether, and how, SETAs should support industry-based training provision, and where they are most needed.

Further, it is clear from almost all companies visited that a considerable amount of training is taking place, and that training is a major priority for companies, and would in all likelihood be happening with or without the SETAs. This is important because a key rationale for creating the skills levy was the assumption that companies don't train outside of highly specific internal needs. The extensive training which we did find is, in many cases, very company specific, and may not enable a worker to move across companies. The training which SETAs support is intended to build broader training to support industries as a whole, and worker movement across companies. Here, findings are more concerning.

There are some training programmes that appear to be valued by companies, such as the learnerships that companies can get funding from the SETA to offer. Here, qualifications in food packaging and handling are used, and workers are employed as learners who gain work experience as well as some off-the-job learning. However, these qualifications appear to be used almost entirely for hiring purposes—for screening workers. In some cases, they are valued because they produce workers who are habituated to the culture and environment of the workplace, but, they do not, for example, replace a senior secondary school leaving certificate with Maths and Science as a hiring mechanism. In other words—company representatives describe both as viable routes into a machine operator job. This suggests that the substance of the qualification, or the types of knowledge and skills contained in it, are not what is central to its value to companies, but rather, it is playing some role in compensating for the poor education most South Africans receive in school, and some role in providing a subsidized route for habituating workers to the specific work environment and enabling employers to try them out.

This leads to some emerging findings about occupations. A key interest for the research is the extent to which the occupational categories that have been used to design new vocational qualifications are meaningful 'training occupations'. In other words, is there an occupational identity that extends beyond the job descriptions of particular workplaces, or, are production workers doing disparate jobs across companies, with little commonality. To-date we have found that there is slippage between the categories of skilled trades workers and technicians in many

companies, whereby they are often treated as overlapping occupational categories, although both are associated with clear training pathways, and skilled tradesworkers with trade tests. Where skilled tradesworkers are the focus in companies, in general the emphasis is on broader, more skilled trades workers: many companies have emphasized a preference for millwrights.

In terms of machine operators and production workers, the research to-date suggests that this occupational category does not reflect a 'training occupation'. In other words, there is little indication of a common body of expertise, knowledge, and skill even within factories, never mind across factories, at this level. Technological change could be a factor that is shifting this, as in some of the more automated factories, the work of machine operators appears to becoming more skilled, even as the number of workers employed is declining. However, in these cases it is still not clear how much mobility there would be for machine operators and production workers across companies in the sector; the work and training are specific to the specific machines and technology.

Finally, one issue that we are struggling to gain clear insights into is how to improve how we talk to employers about skills needs. As has been found by many researchers, employers emphasise 'soft skills' and being habituated to the work environment, as well as talking about training on their specific machines and production processes. This is frustrating and not helpful for improving skills planning, The problems that we are encountering highlights how hard it is to get meaningful information from employers about skills shortages, and requires considerable further reflection once the research is complete. From the research to-date, it's hard to think about what we could ask them differently in the skills planning process to encourage them to be more specific in the skills planning processes. It may be worth adding here that in general employers don't report difficulties in hiring—or finding the skills that they need.

The research to-date highlights some central conundrums with the idea of trying to encourage employers to lead VET provision. One aspect of this is what employers want to train is not what the state wants them to want: employers key focus is on their immediate specific needs, not on training beyond their specific needs as a company. Nor do they want to identify these wider skills needs. The obvious alternative is for the state to focus on building provision systems—but where states have done this, in low- and middle-income countries the providers that emerge are mainly criticized for being out of touch with employers. South Africa did, in the past, have a model that in some ways bridged this conundrum, by allowing industries to coordinate and organize their own training. While it only worked in a few industries, it might give better direction than the current model that emphasizes a regulatory role for state institutions and a regulatory role for sector skills bodies, with insufficient funds and energy being focused on actually building forms of provision that make sense for companies and industries.

References

Akoojee, S., Gewer, A., & McGrath, S. (2005). *Vocational education and training in southern Africa*. HSRC Press.

Allais, S. (2013). Understanding the persistence of low skills in South Africa. In J. Daniels, P. Naidoo, D. Pillay, & R. Southall (Eds.), *New South African Review 3* (pp. 201–220). Wits University Press.

Allais, S. (2022). Beyond 'supply and demand': Moving from skills planning' to seeing skills as endogenous to the economy. *JOVACET, 5*(1), 56–74.

Allais, S. (2023). Structural similarities of formal vocational education systems in low and middle income countries. In P. Brown, W. O. Lee, A. Green, & A. L. Goodwin (Eds.), *International Handbook on Education Development in Asia-Pacific*. (pp 923-943) Springer.

Allais, S. (2024). How the global VET toolkit weakened local colleges in South Africa. *Journal of Vocational Education and Training,* 81—100.

Allais, S., & *Ngcwangu*, S. (2023). *Supply and demand of skills in the food and beverages manufacturing sectors* [Report commissioned by the Food and Beverages Manufacturing Seta.]. Centre for Researching Education and Labour, University of the Witwatersrand.

Allais, S., & Ngcwangu, S. (2025). 'I wanna die a slow death when I'm busy with that annual training report ….':

Why employer engagement for skills planning in South Africa goes wrong. *International Journal of Educational Development*. https://doi.org/doi.org/10.1016/j.ijedudev.2025.103217

Arias, O., Evans, D. K., & Santos, I. (Eds.). (2019). The Skills Balancing Act in Sub-Saharan Africa: Investing in skills for productivity, inclusivity, and adaptability. The World Bank. https://doi.org/10.1596/978-1-4648-1149-4

Bogliaccini, J. A., & *Madariaga*, A. (2020). Varieties of Skills Profiles in Latin America: A Reassessment of the Hierarchical Model of Capitalism. *Journal of Latin American Studies*, *52*(3), 601–631. https://doi.org/10.1017/S0022216X20000322

Buchanan, J., Schofield, K., Briggs, C., Considine, G., Hager, P., Hawke, G., Kitay, J., Meagher, G., Mactintyre, J., Mounier, A., & Ryan, S. (2001). *Beyond Flexibility: Skills and Work in the Future.* NSW Board of Vocational Education and Training.

Busemeyer, M. R., & Iversen, T. (2012). Collective Skill Systems, Wage Bargaining, and Labor Market Stratification. In M. R. Busemeyer & C. Trampusch (Eds.), *The Political Economy of Collective Skill Formation*. Oxford University Press.

Busemeyer, M. R., & Trampusch, C. (2012). The Comparative Political Economy of Collective Skill Formation. In M. R. Busemeyer & C. Trampusch (Eds.), *The Political Economy of Collective Skill Formation* (pp. 3–38). Oxford University Press.

Cameron, R., Dhakal, S., & Burgess, J. (Eds.). (2018). Transitions from Education to Work: Workforce ready challenges in the Asia Pacific. Routledge.

DHET. (2012). Ministerial *Task Team on Seta Performance* [Report for the Minister of Higher Education and Training]. Department of Higher Education and Training.

Gamble, J. (2016a). From labour market to labour process: Finding a basis for curriculum in TVET. *International Journal of Training Research*, *14*(3), 215–229. https://doi.org/10.1080/14480220.2016.1254367

Gamble, J. (2016b). *Work and Qualifications Futures for Artisans and Technicians.* [Labour Market Intelligence Partnership Report 19.]. Human Science Research Council.

Gonçalves, C. U. (2019). *Financing TVET: A comparative analysis in six Asian countries* [Technical Report No. 56]. French Development Agency (Agence Française de Développement, AFD) and UNESCO.

Gonzalez-Martinez, A. R., & Gardiner, B. (2019). Financing Skills for Work in Post-2015: Mobilizing the Private Sector. In S. McGrath, M. Mulder, J. Papier, & R. Stuart (Eds.), *Handbook of Vocational Education and Training Developments in the Changing World of Work* (pp. 585–602). Springer Nature.

Hall, P., A., & Soskice, D., W. (2001). Varieties of Capitalism: The Institutional Foundations of Comparative Advantage. Oxford University Press.

Hughes, M., & Hughes, C. (2010). Industry Involvement in the Vocational Education and Training System. In *International Encyclopedia of Education* (pp. 455–462). Elsevier. https://doi.org/10.1016/B978-0-08-044894-7.00813-7

ILO. (2021). *A Resource Guide on Sector Skills Bodies*. International Labour Office, Skills and Employability Branch.

Johanson, R. (2009). *A Review of National Training Funds* [Social Protection Discussion Paper]. The World Bank.

Keep, E. (2005). Reflections on the curious absence of employers, labour market incentives and labour market regulation in English 14-19 policy: First signs of a change in direction? *Journal of Education Policy*, *20*(5), 533–553.

Keep, E. (2007). The Multiple Paradoxes of State Power in the English Education and Training System. In L. Clarke & C. Winch (Eds.), *Vocational Education: International Approaches, Developments and Systems* (pp. 161–175). Routledge.

Keep, E. (2012). Education and Industry – Taking Two Steps Back and Reflecting. *Journal of Education and Work*, *25*(4), 357–379.

Kraak, A. (2004). The National Skills Development Strategy: A new institutional regime for skills formation in post-apartheid South Africa. In S. McGrath, A. Badroodien, A. Kraak, & L. Unwin (Eds.), *Shifting Understandings of Skills in South Africa. Overcoming the Historical Imprint of a Low Skills Regime.* (pp. 116–157). HSRC Press.

Kraak, A. (2008). The education–economy relationship in South Africa, 2001–2005. In A. Kraak & K. Press (Eds.), *Human Resource Development Review 2008. Education, employment and skills in South Africa.* (pp. 1–25). HSRC Press.

Lee, G. (2023). The Transaction Costs of the South African Levy–Grant System for Skills Development. *African Journal of Employee Relations*, *47*(1), 1–17.

Lee, W. O., Brown, P., Goodwin, A. L., & Green, A. (Eds.). (2023). *International Handbook on* Education *Development in the Asia-Pacific*. Springer Nature Singapore. https://doi.org/10.1007/978-981-19-6887-7

Maurer, M. (2012). Structural elaboration of technical and vocational education and training systems in developing countries: The cases of Sri Lanka and Bangladesh. *Comparative Education*, *48*(4), 487–503.

Mehotra, S., & Singh, P. (2019). TVET Financing and Employer's Ownership in Skills Training for an Emerging

Workforce. In S. McGrath, M. Mulder, J. Papier, & R. Stuart (Eds.), *Handbook of Vocational Education and Training Developments in the Changing World of Work* (pp. 473–489). Springer Nature.

Mzabalazo and REAL. (2018). *Evaluation of the National Skills Development Strategy 2011-2016*. National Skills Authority and Department of Higher Education and Training.

Ngatia, M., & Rigolini, J. (2019). Addressing Skills Gaps: Continuing and Remedial Education and Training for Adults and Out-of-School Youths in Sub-Saharan Africa. In O. Arias, D. K. Evans, & I. Santos (Eds.), *The Skills Balancing Act in Sub-Saharan Africa: Investing in Skills for Productivity, Inclusivity, and Adaptability* (pp. 303–346). The World Bank. https://doi.org/10.1596/978-1-4648-1149-4

Ngcwangu, S. (2014). Skills Development in Post-Apartheid South Africa: Issues, Arguments and Contestations Siphelo Ngcwangu. In S. Vally & E. Motala (Eds.), *Education, Economy, and Society* (pp. 244–264). Unisa.

Palmer, R. (2020). *An Assessment of the Skills Development Levy Systems in Southern African* Development *Community Countries*. Report commissioned by the International Labour Organization.

Payne, J. (2008). Sector skills councils and employer engagement – delivering the 'employer-led' skills agenda in England. *Journal of Education and Work*, *21*(2), 93–113. https://doi.org/10.1080/13639080802090260

Sancak, M. (2022). Global production, national institutions, and skill formation: The political economy of training and employment in auto parts suppliers from Mexico and Turkey (First edition). Oxford University Press.

Schneider, S. (2023). The attractiveness of Indian Polytechnics graduates—An analysis from the (demand-side) perspective of companies and colleges. *International Journal of Training and Development*, *27*(2), 172–190. https://doi.org/10.1111/ijtd.12294

Singizi Consulting. (2007). *Seta Review*. Employment Promotion Programme, Presidency, Republic of South Africa.

Walther, R., & Uhder, C. (2014). The Financing of Vocational Training in Africa. Roles and Specificities of Vocational Training Funds. AfDB and ADEA.

Biographical Notes

Stephanie Allais is Research Chair of Skills Development and Professor of Education at the Centre for Researching Education and Labour, University of the Witwatersrand, where she researches international education and development, focused on education/ work relationships.

Navigating Life Courses: The Impact of Vocational Skills and Capital on Adult Education Choices in Sweden

Asghari, Hamid

hamid.asghari@kau.se, Karlstad University, Sweden

Abstract

Context: The decline in applicants to vocational education programmes in Sweden has led the government to implement measures such as Yrkesvux (vocational upper secondary education for adults) to train unemployed adults, including newly arrived immigrants. Yrkesvux offers vocational upper secondary education for adults without a complete upper secondary education, typically lasting one to two years. The program combines vocational training with subjects like Swedish, English, and mathematics, and includes workplace-based learning. Upon completion of the education, students receive a vocational diploma for the profession they have trained for. This study, as part of a larger project on adult vocational students' narrated experiences, uses interviews with 16 adults of Swedish and immigrant backgrounds to explore their working life and vocational studies. In this article, I focus on the experiences of two individuals, Alexander and Samed, as their stories provide contrasting perspectives on the challenges and opportunities faced by native Swedes and newly arrived immigrants. These narratives were selected to highlight the diverse experiences within the broader sample of 16 interviews. While the findings from Alexander and Samed's stories offer specific insights, they also reflect broader themes observed across the entire sample.

Approach: The research employs Bourdieu's capital theory to analyse the vocational and life experiences of these students. Narrative interviews were conducted with 16 adults, focusing on their working life and vocational studies.

Findings: The findings reveal that previous vocational skills seem to influence educational choices and career paths. Students with strong practical skills and interests in specific fields often choose vocational education that aligns with their prior experiences. However, the lack of formal recognition of these skills can pose challenges, necessitating further education to obtain formal qualifications. The study highlights the importance of economic, social, cultural, and symbolic capital in shaping students' educational and career decisions. Immigrants, in particular, face additional challenges such as learning a new language and adapting to a different cultural and educational context.

Conclusions: These findings offer valuable insights for policy development and educational programmes aimed at facilitating integration and recognising immigrants' previous experiences and skills, ultimately contributing to a more inclusive and effective vocational education system.

Keywords

vocational education, vocational skills, adult education, immigrant integration, life course

1   Introduction

The number of applicants to vocational education programmes in Sweden is decreasing, resulting in fewer trained professionals. To counteract this, the Swedish government has taken measures to train unemployed adults, including newly arrived immigrants, to become professionals. Through labour market policies such as continuing education and adult education, for example, Yrkesvux, the government aims to improve employment opportunities for these groups. Yrkesvux offers vocational upper secondary education for adults without a complete upper secondary education, where vocational training is combined with subjects such as Swedish, English, and mathematics, and includes workplace-based learning (Skolverket, 2023).

This article is part of a larger project on adult vocational students' narrated experiences of working life and vocational studies. Within the framework of the project, I have conducted narrative interviews with 16 adult men and women with both Swedish and immigrant backgrounds. In the research process, I have followed the ethical guidelines of the Swedish Research Council (2017), which include principles of informed consent, confidentiality, and the responsible handling of data. Interviews with some vocational students were conducted twice, and with some three times between 2022 and 2024. The questions in the first interview were based on open-ended questions (Riessman, 2008) and focused on the main area of vocational students' life and work experiences and their choice of vocational education and profession. By asking open-ended questions, the vocational students were given the opportunity to decide which parts of their life and work experiences to narrate. The second and third interviews were conducted as a complement to the previous interviews, where I tried to fill in the gaps that emerged after a preliminary analysis of the interview materials.

Some of the interviewees with immigrant backgrounds are newly arrived immigrants, while others were born and/or raised in Sweden or have lived in Sweden for a considerable period. Newly arrived immigrants are defined as asylum seekers or their relatives from 2015 onwards (SCB, 2018), or those new to Sweden needing labour market introduction (Kusterer & Bernhard-Oettel, 2020). In this article, due to the word limit requirement, I focus solely on the narratives of two interviewees about their working life and vocational studies. One student was born and raised in Sweden and has been given the fictitious name Alexander, and one is a newly arrived immigrant and has been given the fictitious name Samed. Alexander completed his studies at Yrkesvux in 2023, while Samed is still studying there. Alexander's and Samed's narratives were then analysed using thematic analysis within the theoretical framework of Bourdieu's (1986) capital theory, which helped to identify and interpret the different forms of capital (economic, social, cultural, and symbolic) present in their narratives. By analysing their narrated experiences of their working life and vocational studies, we can gain a deeper understanding of the factors influencing their decisions and how the education system can be adapted to better support different groups in society.

Based on this background, the research examines how adult students' previous vocational skills before vocational education influence their choice of education, viewed from a life course perspective (Elder et al., 2003; Gee & Elder, 1986). The results will be discussed in relation to Bourdieu's (1986, 1999) cultural, social, economic, and symbolic capital.

1.1 Description of the Concept of Vocational Skills

The concept of vocational skills can be described as the abilities people have acquired to perform tasks in specific situations (Ellström, 1992). It can be understood as an integration of a professional practitioner's visible and invisible knowledge, including how they act professionally (Lindberg, 2003).

Vocational skills are constantly evolving and are context-bound, meaning they must be understood in relation to their environment (e.g., Asghari, 2018, 2024; Paul, 2017). This study

is based on the Swedish educational and social context, where tax revenues, fund vocational education and the goals include that students' vocational skills should benefit society and that they should find employment in their field of study (OECD, 2021). When students' vocational skills are utilised and they work in their field of education, society benefits from the investment in their education (OECD, 2021). However, there has been no research on adult students' vocational skills prior to vocational education and how these skills influence their choice of education. This study will explore these questions.

2   Previous Research on Choices of Vocational Education

Previous research shows that students' choices of vocational education are often influenced by their social background (Avis et al., 2017; Brunila et al., 2011). Working-class youth and students with a foreign background are more likely to choose vocational education (Colding, 2006; Meriläinen et al., 2019). Several factors influence these choices, such as parental and teacher engagement (Billett, 2020; Hegna & Smette, 2017), the interest of well-known individuals in certain subjects (Sjaastad, 2012), and international political events like free movement within the EU (Pilz et al., 2018). Students choose vocational education based on an interest in practical work, job opportunities, and the potential for continued professional development (Asghari, 2023).

Newly arrived students in introductory programmes often choose vocational preparatory programmes to meet employment requirements (Fejes & Dahlstedt, 2021). Their previous life experiences and vocational skills are adapted to the Swedish state's efforts to shorten the path to employment (Brännström, 2023). Despite high study ambitions, many newly arrived students have limited educational backgrounds and experience difficulties integrating linguistically (Dahlstedt & Fejes, 2018; Wernesjö, 2020). For many newly arrived students, education is seen as a pathway to integration, with a focus on language learning and adaptation to society (Asghari, 2025).

3   Theoretical approach – Bourdieu's Capital

The theoretical foundation of this study is based on Bourdieu's (1986) theory of capital to understand the narrated life experiences of vocational students, including their vocational skills and their choices of vocational education and profession. The term capital refers to values, assets, and resources (Broady, 1990). Unlike human capital theorists such as Becker (1967), who limit the concept of capital to formal types of individual capital such as education, financial resources, and skills, Bourdieu (1986) argues that individuals benefit from a broader spectrum of capital in the form of economic, social, cultural, and symbolic capital to advance their careers. For Bourdieu (1999), these capitals are used as governing power factors that maintain status and monitor classes. Symbolic capital is not a capital in itself but a state of the other forms of capital, and a capital becomes symbolic when its value is recognised by other agents within the same field (1999). Bourdieu writes that there is a relationship between the capital a person carries and the experiences that have been internalised by the person. The decisions people make at different stages of life are related to their capital and the experiences they have acquired (Bourdieu, 1999).

4   Methodical approach – Life Course

The study employs a narrative approach (Goodson et al., 2010; Mishler, 1999) to focus on the life courses of adult vocational students, emphasising key concepts such as life events, life transitions, life trajectories, and life turning points (Elder et al., 2003; Gee & Elder, 1986). Life events are important changes that alter the course of life, such as learning a profession, marriage, divorce, and employment. Life transitions refer to the passage from one life phase to

another, such as moving from being unmarried to married, or from being unemployed to employed. Transitions involve a sense of movement and development over time. Life trajectories are long-term patterns of stability and change, influenced by life transitions. For vocational students, this could mean new patterns related to studying, working, or living in a new environment. Life turning points are pivotal events that meaningfully change the direction of a person's life, leading to new insights and directions, such as deciding to divorce or change jobs.

4.1 Analysis of Interviews

I compiled each vocational student's interview data from all interviews and structured their narrated life and vocational experiences chronologically (cf. Lieblich et al., 1998). In other words, it was I, as the researcher, who created narratives from the vocational students' stories (cf. Lieblich, 1993). To identify what was relevant for this study – in line with the constructivist perspective on narratives (Mishler, 1999) – I began by selecting a number of descriptions that contained unique life events in the vocational students' life course (cf. Abbott & Tsay, 2000; Mayer & Tuma, 1990). In the next step, I identified the vocational students' life transitions, their life trajectories, and their life turning points that were meaningful in relation to their choice of vocational education and profession (cf. Billari, 2001; Mayer & Tuma, 1990). In this way, I was able to determine whether the vocational students' vocational knowledge, from a life course perspective, was important for their choice of vocational education and profession, as well as how their vocational knowledge was utilised after completing their vocational education.

5 Results

In this section, I present the study's findings that examine how adult students' previous vocational skills may influence their choice of education, viewed from a life course perspective.

Alexander's Stories
Alexander, who is 36 years old, recounts:

> I went to school and spent my free time with friends, playing football and doing typical boy activities. I was always fascinated by engines and cars. In my small community, a neighbour repaired tractors, mopeds, and cars. I, along with his sons and other neighbourhood boys, learned a lot from him. I always wanted to become a car mechanic, but my grades were too low to get into the automotive program. Instead, I chose the business program, but I never had a passion for it. […] After upper secondary school, a friend and I opened a restaurant, which we ran until the pandemic hit. The restaurant industry suffered greatly, and we had to close down, letting our staff go. I was unemployed for a while and wanted to train as a car mechanic, but the training wasn't available nearby, and I didn't want to move. The employment office suggested I train as a CNC operator. I thought CNC technology wasn't too different from mechanics. I already knew welding and turning, so I switched paths and studied industrial technology at Yrkesvux. […] Now, I work as a CNC operator. I wanted a secure job with a steady salary, without worrying about finances or staff. It's about having security in life. Working on cars and engines is in my blood, so I enjoy fixing friends' cars and engines in my spare time; it's very relaxing for me. Although I haven't attended any official mechanic training, I know it better than many who are car mechanics.

From Alexander's story, it emerges that he has experienced several important *life events* and *life transitions* that have influenced his *life trajectories* and career choices. His interest in engines and cars has been a constant factor, but external circumstances such as the pandemic

and labour market demands have led him to change careers and education. His story also highlights the importance of security and stability in his career choices. The *life events* that emerge from his childhood and youth include playing football and spending time with friends. His interest in engines and cars, where he learned from a neighbour who repaired tractors, mopeds, and cars, is also an important part of his story. The *life transitions* are apparent in his choice of upper secondary education, where he chose the business program instead of the automotive program due to insufficient grades. Another transition is seen in his story about opening a restaurant with a friend after upper secondary school. The *life trajectories* that emerge from his story include his unemployment and training as a CNC operator. He explains that he became unemployed after the restaurant closed due to the pandemic and chose to train as a CNC operator following a suggestion from the employment office. The *turning points* in his life include the onset of the pandemic, which forced him to close the restaurant and lay off staff, and his career change from aspiring to be a car mechanic to training as a CNC operator to secure a stable job.

Alexander's previous vocational skills may have influenced his choice of education. His practical skills in mechanics and his experiences in the restaurant industry may have shaped his decisions and enabled him to adapt to new vocational challenges. His previous experiences with welding and turning made him see a connection between CNC technology and mechanics. This maybe made it easier for him to accept and adapt to this new education and career path. Although he could not follow his original dream of becoming a car mechanic, his previous skills and interests have led him to a career as a CNC operator, where he can still use his mechanical skills.

Samed's Stories
Samed, who is 28 years old, recounts:

My parents were farmers, and we eight children helped them with animal care, crop cultivation, and machine maintenance. I never wanted to go to school and didn't like studying. What would I gain from it? It wouldn't put food on the table for my family. No one in my family went to school. In our village, there was no school. The nearest school was in another village, 30 km away. It was impossible for me to walk 30 km to school and 30 km back home. Who would then work on the farm and take care of the animals? I didn't understand why I should go to school. What would I learn there? I knew everything about farming, animal care, and tractors, and I could repair them. You don't learn such things in school, right? We had to help our parents to put food on the table. […] The UN helped us come to Sweden after our village was bombed. In Sweden, I thought I needed to work to support my family, but I was told I had to learn Swedish first. Despite my skills in farming and animal care, I couldn't get a job without learning a trade. I've been in Sweden for nine years and have been studying Swedish all this time. Last year, I completed SFI [Swedish for Immigrants] and, with my social worker's help, started studying agriculture at Yrkesvux. For the first time in nine years, I feel hopeful about getting a job because I've started an internship with a farmer through school. I hope to get a job with him when I finish my vocational training next year because I must get a job, I must earn money, otherwise, I can't get my life in order. I need to create a normal life for my child, and to do that, I must get a job, so I hope to get a job with the farmer.

Emerging from Samed's narrative are *life events* such as growing up on a farm where he helped with animal care, crop cultivation, and machinery maintenance, as well as the move from his homeland to Sweden due to the war. *Life transitions* appear as the significant geographical and cultural shift from his homeland to Sweden, but also the transition from working

on the farm to starting education in a new country and language, and the transition from SFI [Swedish for Immigrants] to more specialised education in natural resource management. His *life trajectories* were characterised by practical work and responsibility from a young age, but also vocational training and integration into Swedish society. *Turning points* emerge as the moments he decided to leave his country and move to a new one, as well as the internship with a farmer that could lead to employment for him.

In summary, Samed's previous vocational skills have may have had an impact on his choice of vocational education, as well as the meeting with the social worker who suggested the vocational training. Samed's previous vocational skills seem to have provided him with a solid foundation of practical skills, relevance and applicability, motivation to achieve his goals, and opportunities for internships and future employment.

6   Discussion

The stories of Alexander and Samed highlight the need for vocational education to be flexible and adaptable, addressing the unique needs and backgrounds of students. Practical implications include conducting initial assessments to recognize prior learning, adapting courses to build on students' existing skills, providing supportive networks through mentorship programs and internships, and ensuring pathways to economic security by offering tailored career guidance and job placement services. For example, Alexander benefited from the employment office's suggestion to train as a CNC operator, which provided him with a pathway to stable employment. Samed received guidance from a social worker who helped him navigate the educational system and find an internship in agriculture, which was crucial for his integration and career development. Using Bourdieu's concepts of cultural, social, economic, and symbolic capital to analyse specific aspects of Alexander's and Samed's experiences reveals how their vocational skills and life histories have influenced their educational and professional decisions. Their narratives emphasise the importance of recognising and valuing individuals' cultural and social capital, while also creating opportunities to enhance their economic and symbolic capital through education and employment.

Cultural capital, as defined by Bourdieu (1986), encompasses the education and qualifications an individual possesses. For Alexander and Samed, cultural capital is evident in their vocational knowledge, skills, and professional qualifications. Alexander's cultural capital in mechanics, developed through practical experience, lacked formal recognition, influencing his decision to train as a CNC operator to obtain formal qualifications. Similarly, Samed's cultural capital in agriculture and animal husbandry, developed from childhood, was not formally recognised in Sweden, necessitating further education to gain formal qualifications.

Social capital refers to the networks and relationships that provide access to resources and opportunities (Bourdieu, 1986). Alexander's social capital within his community facilitated the development of his mechanical skills. Samed's social capital, rooted in family cooperation, was disrupted upon moving to Sweden, requiring him to build new networks. Yrkesvux supports the development of social capital for migrants through mentorship programs, language classes, and internships, which help students build professional and social connections within their new community. For example, Samed received guidance from a social worker who helped him navigate the educational system and find an internship in agriculture. This internship was crucial for his integration and career development, as it provided him with practical experience and connections within the agricultural community. Additionally, his training at Yrkesvux helped him improve his language skills and adapt to the Swedish educational and professional context.

Economic capital, defined as access to economic resources (Bourdieu, 1986), played a significant role in both narratives. Alexander's economic capital was impacted by the loss of his restaurant during the pandemic, prompting him to seek a stable career as a CNC operator. Samed's limited economic capital upon arriving in Sweden drove his pursuit of employment to

support his family and achieve economic stability. Symbolic capital, the prestige and recognition from society (Bourdieu, 1999), influenced both individuals. Alexander's practical skills were not formally recognised, affecting his career choices. By obtaining formal qualifications, such as a certificate in CNC operation from Yrkesvux, which is equivalent to a vocational diploma, he increased his symbolic capital. Yrkesvux is generally well-regarded in the Swedish community, providing valuable pathways to employment and integration. However, its perception may vary depending on individual experiences and public attitudes towards vocational education. Samed's skills in agriculture were similarly unrecognised in Sweden, but through education and internships, he began to build his symbolic capital.

Both Alexander and Samed had extensive practical experience in their fields prior to formal vocational education, demonstrating the importance of recognising and building on adult students' vocational skills. Yrkesvux considers these prior experiences by conducting initial assessments to identify students' existing skills and knowledge. For example, Alexander's practical skills in mechanics were acknowledged, and he was guided towards training as a CNC operator, which built on his existing competencies. Samed's background in agriculture was similarly recognised, and he was provided with tailored support and an internship opportunity to further develop his skills in the Swedish context. This approach ensures that courses are adapted to meet the specific needs and strengths of each student, facilitating a smoother transition into vocational education and employment. The lack of formal qualifications posed challenges in gaining recognition and finding relevant education and employment. Vocational education should include mechanisms to validate informal and non-formal learning, ensuring that practical experience is formally recognised. Their stories also illustrate that decisions made at different life stages are influenced by their capital and experiences (cf. Bourdieu, 1999). Vocational education should consider students' social and cultural backgrounds, providing supportive networks to help them navigate the education system and achieve economic stability. Samed's experience highlights the challenges of adapting to new cultural and educational contexts, emphasising the need for vocational education to support immigrants and other students in adapting to new systems through language instruction, internships, and guidance.

7   Conclusion

A comparison between Alexander's and Samed's life courses reveals that Samed frequently uses the word "must". From Samed's narrative, it becomes clear that upon arriving in Sweden, he encountered new demands and expectations, such as learning Swedish and obtaining a formal education to secure employment. As an immigrant in Sweden, Samed has faced both economic and practical necessities that compel him to adapt and meet certain requirements to support his family and establish a stable life. The recurrent use of "must" in Samed's narrative underscores the urgency and necessity he feels in meeting these demands. This includes attending school, learning the language, and obtaining a formal education. The integration process for immigrants is often filled with imperatives that are essential for adapting to a new society and labour market. While these demands can create a sense of pressure and stress, they are also crucial for navigating and succeeding in the new country.

Alexander does not have any "musts" in his story, which may be due to having more stability and more choices in his life. He has been able to choose to change careers and education based on his interests and economic situation, without the same level of external demands and expectations. Alexander has also had access to strong social and cultural capital within his community, which has provided him with support and opportunities to follow his interests and make career choices that suit him.

By highlighting the many "musts" that immigrants like Samed face, further research on newly arrived immigrants' choices of vocational education can contribute to a deeper understanding of the unique challenges and demands that immigrants face in their integration process.

This can provide important insights and contribute to a more nuanced understanding of immigrants' experiences and challenges in vocational education and the labour market. Such further research can also highlight the importance of support structures and networks that can help immigrants navigate these "musts" and create a more stable and successful integration. By identifying the specific demands and expectations that immigrants face, such as the need to learn a new language, adapt to different cultural norms, and obtain formal qualifications, research can provide valuable insights for policy development and educational programmes aimed at facilitating integration and recognising immigrants' previous experiences and skills. For example, newly arrived immigrants often need to complete language courses like Swedish for Immigrants (SFI) to improve their communication skills and increase their employability (cf. Reinke & Goller, 2022). Additionally, vocational training programmes like Yrkesvux offer tailored support and internships to help immigrants gain practical experience and build professional networks. These measures are crucial for helping immigrants navigate the demands of integration and achieve economic stability.

References

Abbott, A., & Tsay, A. (2000). Sequence analysis and optimal matching methods in sociology: Review and prospect. *Sociological methods & research*, *29*(1), 3-33.

Asghari, H. (2018). Defining Professional Skills from Teachers' Life Stories. In L. Moreno Herrera, M. Teräs, & P. Gougoulakis (Eds.), *Emergent Issues in Vocational Education & Training - Voices from cross-national research* (pp. 23-59). Premiss förlag.

Asghari, H. (2023). Towards industrial careers in Sweden: A narrative study of students choosing the Industrial Technology program. *SJVD-Scandinavian Journal of Vocations in Development*, *8*(1), 1-20. https://doi.org/10.7577/sjvd.5087

Asghari, H. (2024). Vocational didactics based on industrial teachers' stories: A study on vocational teaching and vocational learning in Swedish vocational upper secondary schools. *SJVD-Scandinavian Journal of Vocations in Development*, *9*(1), 91-109. https://doi.org/10.7577/sjvd.5710

Asghari, H. (2025). Newly Arrived Women's Educational and Professional Choices. *Vocations and Learning*, *18*(1), 1-22. https://doi.org/10.1007/s12186-025-09356-7

Avis, J., Orr, K., & Warmington, P. (2017). Race and vocational education and training in England. *Journal of Vocational Education & Training*, *69*(3), 292-310. https://doi.org/10.1080/13636820.2017.1289551

Becker, G. S. (1967). *Human capital and the personal distribution of income: An analytical approach*. University of Michigan, Institute of Public Administration.

Billari, F. C. (2001). The analysis of early life courses: Complex descriptions of the transition to adulthood. *Journal of Population Research*, *18*(2), 119-142. https://doi.org/10.1007/BF03031885

Billett, S. (2020). Developing a skillful and adaptable workforce: Reappraising curriculum and pedagogies for vocational education. In E. Wuttke, J. Seifried, & H. Niegemann (Eds.), *Vocational education and training in the age of digitization: Challenges and opportunities* (pp. 251-272). Verlag Barbara Budrich. https://doi.org/10.3224/84742432

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 241-258).

Bourdieu, P. (1999). Understanding. In P. Bourdieu (Ed.), *The Weight of the World. Social Suffering in Contemporary Society* (pp. 607-626). Polity Press.

Broady, D. (1990). Sociologi och epistemologi: Om Pierre Bourdieus författarskap och den historiska epistemologin. HLS förlag.

Brunila, K., Kurki, T., Lahelma, E., Lehtonen, J., Mietola, R., & Palmu, T. (2011). Multiple transitions: Educational policies and young people's post-compulsory choices. *Scandinavian Journal of Educational Research*, *55*(3), 307-324. https://doi.org/10.1080/00313831.2011.576880

Brännström, M. (2023). Mellan osynlighet och avvikelse: Nyanlända elever med kort skolbakgrund i grundskolans senare årskurser [Between invisibility and deviation: Newly arrived students with limited educational backgrounds in the later years of compulsory school] [Doctoral thesis, University of Gothenburg]. https://bit.ly/4fZeIRJ

Colding, B. (2006). Ethnicity, gender and vocational education in Denmark. *International journal of Manpower*, *27*(4), 342-357. https://doi.org/10.1108/01437720610679205

Dahlstedt, M., & Fejes, A. (2018). Futures in line? Occupational choice among migrant adult students in Sweden. *International Journal of Lifelong Education*, *38*(1), 76-87. https://doi.org/10.1080/02601370.2018.1497719

Elder, G. H., Johnson, M. K., & Crosnoe, R. (2003). The Emergence and Development of Life Course Theory. In

J. T. Mortimer & M. J. Shanahan (Eds.), *Handbook of the Life Course* (pp. 3-19). Springer US. https://doi.org/10.1007/978-0-306-48247-2_1

Ellström, P.-E. (1992). Kompetens, utbildning och lärande i arbetslivet. Publica.

Fejes, A., & Dahlstedt, M. (2021). Lifelong Learning, Migration, and Conditions for Inclusion. In K. Evans, W. O. Lee, J. Markowitsch, & M. Zukas (Eds.), *Third International Handbook of Lifelong Learning* (pp. 1-17). Springer International Publishing. https://doi.org/10.1007/978-3-030-67930-9_60-1

Gee, E. M., & Elder, G. H. (1986). Life Course Dynamics: Trajectories and Transitions, 1968-1980. *Social Indicators Research*, *18*(4), 425–428.

Goodson, I. F., Biesta, G., Tedder, M., & Adair, N. (2010). *Narrative learning*. Routledge.

Hegna, K., & Smette, I. (2017). Parental influence in educational decisions: young people's perspectives. *British Journal of Sociology of Education*, *38*(8), 1111-1124. https://doi.org/10.1080/01425692.2016.1245130

Lieblich, A. (1993). Looking at change: Natasha, 21: New immigrant from Russia to Israel. In R. Josselson & A. Lieblich (Eds.), *The narrative study of lives* (pp. 92-129). Sage Publications.

Lieblich, A., Tuval-Mashiach, R., & Zilber, T. (1998). *Narrative research: Reading, analysis and interpretation*. Sage Publications.

Lindberg, V. (2003). Vocational knowing and the content in vocational education. *International Journal of Training Research*, *1*(2), 40-61.

Mayer, K. U., & Tuma, N. B. (1990). *Event history analysis in life course research*. Univ of Wisconsin Press.

Meriläinen, R., Isacsson, A., & Olson, S. J. (2019). Secondary vocational education in Finland. *Workforce Education Forum (WEF)*, *39*(1), 43-51.

Mishler, E. G. (1999). *Storylines: craftartists' narratives of identity*. Harvard University Press.

OECD [Organisation for Economic Co-operation and Development]. (2021). *OECD Reviews of Vocational Education and Training*. OECD Publishing. https://doi.org/10.1787/59d4fbb1-en

Paul, E. (2017). Skriftbruk som yrkeskunnande i gymnasial lärlingsutbildning: Vård-och omsorgselevers möte med det arbetsplatsförlagda lärandets skriftpraktiker. Institutionen för pedagogik och didaktik, Stockholms universitet.

Pilz, M., Li, J., Canning, R., & Minty, S. (2018). Modularisation approaches in Initial Vocational Education: evidence for policy convergence in Europe? *Journal of Vocational Education & Training*, *70*(1), 1-26. https://doi.org/10.1080/13636820.2017.1392994

Reinke, H., & Goller, M. (2022). Supporting young immigrants in their transition from school to work? A staff perspective on challenges of vocational integration classes. *International journal for research in vocational education and training*, *9*(1), 92-119. https://doi.org/10.13152/IJRVET.9.1.5

Riessman, C. K. (2008). *Narrative methods for the human sciences*. Sage Publications.

Sjaastad, J. (2012). Sources of Inspiration: The role of significant persons in young people's choice of science in higher education. *International Journal of Science Education*, *34*(10), 1615–1636. https://doi.org/10.1080/09500693.2011.590543

Skolverket. (2023). Anordna yrkesutbildning inom regionalt yrkesvux. https://bit.ly/4hgxmFX

Vetenskapsrådet. (2017). *God forskningssed*. Vetenskapsrådet. https://bit.ly/4jgISD4

Wernesjö, U. (2020). Across the threshold: negotiations of deservingness among unaccompanied young refugees in Sweden. *Journal of Ethnic and Migration Studies*, *46*(2), 389-404. https://doi.org/10.1080/1369183X.2019.1584701

Biographical Notes

Dr Hamid Asghari, Associate Professor at Karlstad University, Sweden, researches the life stories of vocational teachers and students. He also focuses on the vocational skills of refugees transitioning to Sweden, examining their importance for vocational education and the labour market.

Resource-Rich and Inclusive Vocational Education: Driving Entrepreneurial Intentions in Disadvantaged Student Populations

Bahaw, Priscilla
priscilla.bahaw@uwi.edu, The University of the West Indies

Mack, Abede
amack@stfx.ca, St Francis Xavier University

Sadiq, Ghulfam
ghulfamsadiq1@gmail.com, Southwest University, Chongqing

Stephens, Ayanna
afrederick@faculty.ucc.edu.jm, University of the Commonwealth Caribbean

Abstract

Context: Vocational education has evolved from merely providing technical skills for employment to fostering self-employment and entrepreneurial careers, particularly in response to global unemployment challenges. This shift is critical in resource-constrained environments, where many youth face disadvantages due to cycles of generational poverty. While enhancing entrepreneurial intentions is now a goal within Technical Vocational Education and Training (TVET) institutes, it remains challenging in contexts where students are less resilient and more risk averse. Despite increasing efforts by vocational institutes to implement inclusive practices—such as providing diverse resources and accommodating various learning styles—little is known about the effectiveness of these initiatives in promoting entrepreneurial intentions.

Approach: This study investigates the relationship between resource support mechanisms—including financial aid, access to technology, location assistance, and business mentorship—and inclusive teaching practices in relation to entrepreneurial intentions among disadvantaged TVET students in the Caribbean. Utilizing a quantitative design, data were collected from 240 TVET students via structured surveys.

Findings: Findings reveal that inclusive teaching practices positively correlate with entrepreneurial intentions, while the four forms of resource support show no direct relationship. However, cluster analysis indicates that when both resource support and inclusive teaching are perceived as high, entrepreneurial intentions also increase.

Conclusions: The results underscore the importance of a comprehensive support system that combines resource provision with inclusive teaching to benefit disadvantaged populations. Policymakers and TVET administrators should prioritize synergistic strategies to enhance entrepreneurial intentions, paving the way for improved opportunities and outcomes for marginalized students.

Keywords

inclusive education, entrepreneurial intentions, resource support, TVET

1 Introduction

Entrepreneurship is universally recognized as a catalyst for economic growth, but its purpose and application differ across contexts. In advanced economies, entrepreneurship drives industry transformation and innovation. Conversely, in resource-constrained and economically disadvantaged regions, such as South Africa, Pakistan, and the Caribbean, entrepreneurship is positioned as a solution to combat extreme poverty and address persistent socio-economic challenges (Barbosa et al., 2024). With limited resources and income, individuals in these regions face disproportionate barriers to breaking cycles of poverty (Bahaw et al., 2025b). Unemployment remains a defining feature, and whatever earnings are generated are often allocated to immediate needs, leaving little opportunity to invest in higher education or other pathways to economic mobility (Fawaid et al., 2022). Amid these challenges, entrepreneurship offers a viable pathway to self-sufficiency, accounting for 47% of the global workforce (Stephens et al., 2024). For disadvantaged populations, creating small businesses can provide a lifeline. Therefore, it is crucial for educational systems in these disadvantaged contexts to foster strong entrepreneurial intentions and skills among young people, enabling them to earn a livelihood through self-employment (UNESCO-UNEVOC, 2023).

This necessity highlights the importance of Technical Vocational Education and Training (TVET) institutions, which offer a more immediate solution for developing economies (Avis, 2018). Unlike traditional university programs, which often require lengthy commitments, TVET programs are shorter and more accessible, allowing students to enter self-employment more quickly (Mack & Honig, 2024). TVET institutions equip students with practical skills in various trades, such as plumbing, welding, and cosmetology (Salvà-Mut et al., 2017), which require minimal capital investment to start a business. Historically, these institutions focused on preparing students for employment in the trade sector. However, as job opportunities in developing economies remain scarce, there has been a significant shift towards training graduates for self-employment (Bahaw et al., 2024). This shift has led to the integration of entrepreneurship education within TVET systems, where business acumen and an entrepreneurial mindset are increasingly infused into curricula alongside technical skills (Mack et al., 2024).

Despite these advancements, boosting entrepreneurial intentions among disadvantaged TVET students remains a significant challenge (Bakar et al., 2024). Many of these students experience generational poverty, fostering low self-efficacy and heightened risk aversion—key barriers to forming entrepreneurial intentions (Shah et al., 2024). Even with exposure to entrepreneurship education, students often lack confidence in their ability to succeed in entrepreneurial endeavors, as their lived realities prioritize survival over investment in uncertain ventures (Bahaw et al., 2025a; Bakar et al., 2024). Self-efficacy, a critical determinant of entrepreneurial intentions, remains fragile among this population (Maritz & Brown, 2013).

To address these barriers, the Chief of the Technical Cooperation Unit at UNESCO-UNEVOC, Oliver Pieume, emphasizes that entrepreneurship learning within TVET must be *"both inclusive and available"* (UNESCO-UNEVOC, 2023).This call for inclusivity is echoed by Henry et al. (2024), who highlight that many students are excluded from entrepreneurship education due to a lack of resources necessary for participation, such as transportation, materials, and internet access. Without these resources, accessing and benefiting from entrepreneurship education at TVET institutions becomes unfeasible (Sandirasegarane et al., 2016). Institutions can address these gaps by providing key physical, spatial, and personnel resources (Gonzalez-Tamayo et al., 2024). For instance, financial aid, access to information and communication (ICT) facilities, proximity to campuses, and business mentorship have the potential to positively influence entrepreneurial intentions (Aragon-Sanchez et al., 2017; Galvão et al., 2024; Henry et al., 2024).

Nonetheless, resource availability alone is insufficient. Inclusivity in entrepreneurship education extends beyond tangible resources (Henry et al., 2024). Inclusive teaching practices, which accommodate diverse learning styles, also play a crucial role in engaging disadvantaged students (Schwab et al., 2020). Past research highlights the benefits of inclusive pedagogies for student retention and academic success (Cerdà-Navarro et al., 2022; Schwab et al., 2022). Yet, their impact on fostering entrepreneurial intentions within TVET remains underexplored, revealing a critical research gap.

Given the highlighted gap, this study examines whether inclusive education at TVET institutions, characterized by i) resource support namely financial aid, ICT access, accessible locations, and mentorship and ii) inclusive teaching practices defined as differentiation and personalization of instruction, positively correlates with entrepreneurial intentions among disadvantaged students. Currently, there is limited research examining the relationship between resource provision and inclusive teaching practices in fostering entrepreneurial intentions among disadvantaged students (Aziz et al., 2021). Drawing insights from Henry et al. (2024) and Schwab et al. (2020) framework of inclusivity in education comprising of inclusive teaching and resource-centric support, this study aims to contribute to the growing body of literature on TVET, entrepreneurship, and education inclusivity by highlighting the combined role of inclusive pedagogies and resource support in fostering entrepreneurial intentions among disadvantaged students. Building on these insights, the study addresses the following research question:

- Can the provision of key resources (financial aid, ICT access, accessible locations, and business mentorship) and the use of inclusive teaching methods positively relate to entrepreneurial intentions among disadvantaged students?

2   Theoretical Framework

To answer the research question, it is essential to ground the inquiry in a robust theoretical framework that explains the mechanisms underpinning entrepreneurial intentions. Social Cognitive Career Theory (SCCT) provides a relevant lens for understanding how individual and environmental factors interact to shape entrepreneurial aspirations, particularly within the context of technical vocational education (Ambarita & Butar, 2024). SCCT posits that career-related choices, such as entrepreneurial intentions, are influenced by personal factors like self-efficacy and outcome expectations, which are significantly shaped by environmental experiences (Boutaky & Sahib Eddine, 2023).

In educational settings, an enhanced learning experience can strengthen students' confidence in their entrepreneurial abilities, thereby increasing their likelihood of pursuing business ventures. In this regard, Yesmin et al. (2024) highlight that "entrepreneurial educational support is a crucial factor in entrepreneurial intentions." Entrepreneurship education builds self-efficacy, a core component of SCCT, by fostering a belief in students that they can succeed in entrepreneurial activities (Boutaky & Sahib Eddine, 2023). However, the benefits of entrepreneurship education are not evenly distributed. The OECD/European Commission (2021) stresses the importance of 'systematic inclusivity-proofing' to ensure equitable access to entrepreneurship programs, particularly for disadvantaged populations. Further advancing this perspective, Henry et al. (2024) argue that inclusivity in entrepreneurship education extends beyond program availability to include tailored learning experiences. They emphasize that SCCT's focus on the learning experience must encompass diverse teaching methods and enhanced resource availability, particularly within contexts like technical vocational education, where structural inequities often hinder entrepreneurial aspirations. This study leverages SCCT to investigate how inclusive teaching practices and resource support relate to entrepreneurial intentions, providing a theoretically grounded approach to understanding this complex phenomenon.

3 Materials and Methods

A quantitative correlational design was employed to address the research objectives, as this study was exploratory. The focus was on disadvantaged TVET students in the Caribbean—an archipelago characterized by small, resource-constrained markets with high youth unemployment rates. This region was chosen due to calls for more research in these underexplored islands (Barbosa et al., 2024). The study examined the relationship between inclusive teaching practices, financial support, ICT support, location support, business mentorship, and entrepreneurial intentions. Inclusion criteria required TVET institutions to offer resource support, embed inclusive teaching, and deliver entrepreneurship education targeting disadvantaged students. Only one institution met these criteria—one of the largest government-funded TVET institutions in the Caribbean—known for its multiple support services and inclusive practices.

Following institutional approval, participants provided informed consent by signing consent forms and were assured anonymity. Researchers distributed printed questionnaires at the institution, resulting in 240 usable responses after data cleaning. The survey instrument used validated Likert-style scales: entrepreneurial intentions (Liñán & Chen, 2009), inclusive teaching practices (Schwab et al., 2020), and resource support perceptions (Goldan & Schwab, 2018) covering financial aid, ICT, location, and mentorship. Sample items included "My professional goal is to become an entrepreneur" and "The financial aid I receive is sufficient to cover my educational expenses." Demographic data such as sex and employment were collected using binary variables, while age was categorized. Data analysis involved correlation and K-means cluster analysis to examine relationships and identify patterns. K-means cluster analysis was used to identify natural groupings in the data, helping to explore how demographic characteristics are associated with entrepreneurial intentions.

4 Results

To address the research objective of examining the relationship between inclusive teaching practices, resource support mechanisms, and entrepreneurial intentions, data normality was assessed using skewness and kurtosis indices. Skewness ranged from -0.301 to -0.448, and kurtosis ranged from -1.262 to -1.644, indicating that the data closely followed a normal distribution (Hair et al., 2019). Reliability was evaluated using Cronbach's alpha, which ranged from 0.763 to 0.947, exceeding the acceptable threshold of 0.70 for exploratory research (Hair et al., 2019).

4.1 Descriptive Statistics

Descriptive statistics revealed that among the 240 respondents, the majority were female (67%), aged 18–21 years (64%), and unemployed (94%). Entrepreneurial intentions had the highest mean score (M = 4.07, SD = 0.97), indicating strong entrepreneurial aspirations. Inclusive teaching practices also scored high (M = 3.98, SD = 0.82), reflecting positive perceptions of inclusive pedagogical approaches in vocational education. Financial support, ICT support and location support showed moderate mean scores (M = 3.06, SD = 0.58; M = 3.08, SD = 0.68; M = 3.07, SD = 0.68, respectively), suggesting adequate access to these resources. Business mentorship had the lowest mean score (M = 2.87, SD = 0.60), indicating limited mentorship opportunities. These results suggest that the vocational institute from which the study's sample was drawn provides a reasonably inclusive environment with adequate access to resources and that there were strong entrepreneurial intentions among students.

4.2 Correlation Results

Pearson product-moment correlation tests were performed to indicate where a simple bivariate relationship exists among variables. As shown in Table 1, inclusive teaching practices

demonstrated significant positive correlations with all resource support variables, including financial support (r=.752, p <.01), access to ICT (r=.755, p <.01), location support (r=.724, p <.01), and business mentorship (r=.662, p<.01). These findings suggest that inclusive teaching practices are closely linked with the availability of these resources within vocational institutes.

Entrepreneurial intentions showed a modest yet significant positive correlation with inclusive teaching practices (r=.145, p <.05), indicating that inclusive teaching practices might play a role in fostering entrepreneurial aspirations among students. However, entrepreneurial intentions did not exhibit significant correlations with financial support, ICT support, location support, or business mentorship (p >.05), suggesting that these resource support mechanisms might not directly influence students' entrepreneurial intentions.

Notably, the strongest inter-correlations were observed among the resource support variables. Access to ICT and location support exhibited a high correlation (r=.807, p <.01), followed by the correlation between access to ICT and financial support (r=.778, p <.01). Similarly, location support and business mentorship were also strongly correlated (r=.796, p <.01), indicating that these resources are often co-provided in the vocational setting.

These results highlight the interdependence of inclusive teaching practices and resource availability within vocational education environments. While inclusive teaching practices appear to influence entrepreneurial intentions, the direct impact of resource support mechanisms on entrepreneurial intentions remains less evident, warranting further investigation into their indirect or moderating effects.

Table 1
Pearson Correlation Matrix of Variables in The Study

Variable	1	2	3	4	5
1 Inclusive teaching practices					
2 Financial support	.752**				
3 ICT support	.755**	.778**			
4 Location support	.724**	.687**	.807**		
5 Business mentorship	.662**	.635**	.648**	.796**	
6 Entrepreneurial intentions	.145*	.120	.060	.060	.073

Note. N=240. **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

4.3 Cluster Analysis

Following the correlation analysis, K-means cluster analysis was conducted to further explore the study's variables. As shown in Table 2, three distinct clusters emerged, revealing interesting patterns in the data.

Table 2
K-means clustering of variables in the study

Cluster	Inclusive teaching practices		Financial support		ICT support		Location support		Business mentorship		Entrepreneurial intentions	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
1 N=82	2.99	0.49	2.51	0.75	2.43	0.80	2.39	0.70	2.53	0.70	2.58	0.97
2 N=60	3.42	0.50	3.56	0.10	3.76	0.50	3.78	0.50	3.77	0.50	3.52	0.99
3 N=98	4.30	0.29	4.11	0.44	4.14	0.45	4.14	0.48	4.00	0.51	4.34	0.93

Note. M = Mean, SD = Standard Deviation.

Cluster 1 represents participants with low scores across all variables, including entrepreneurial intentions. Individuals in this group, who perceive lower levels of inclusive teaching practices and support mechanisms, also had the lowest entrepreneurial intentions compared to other clusters. In Cluster 2, participants had moderate scores across all variables. Individuals here perceive a moderate level of inclusive teaching practices and support mechanisms, and interestingly, their entrepreneurial intentions were also moderate. This trend of consistency across scores was also observed in Cluster 3, where participants scored high on all variables, including entrepreneurial intentions. Individuals in this group perceive that their vocational institution offers strong inclusive teaching practices and high levels of support across financial, ICT, location, and mentorship areas. This suggests that students who perceive their institution provides robust educational and support systems tend to have higher entrepreneurial intentions.

5 Discussion

This study aimed to explore the relationships between various support mechanisms and entrepreneurial intentions among disadvantaged vocational education students in a developing country context. The research specifically focused on inclusive teaching practices, financial support, ICT support, location support, and business mentorship. The findings offer valuable insights into the inclusive educational factors that may influence entrepreneurial intentions, addressing calls for such investigations in the literature (Henry et al., 2024).

The correlation analysis yielded mixed results. A significant positive correlation was found between inclusive teaching practices and entrepreneurial intentions, suggesting that when students perceive their learning environment as inclusive and supportive, they are more likely to view entrepreneurship as a viable career option. This finding highlights the importance of creating an inclusive teaching environment that nurtures entrepreneurial aspirations. However, no significant relationships were observed between entrepreneurial intentions and the other support variables— financial support, ICT support, location support, and business mentorship. This is surprising, especially given the disadvantaged backgrounds of the participants, who often face barriers such as limited access to resources. This finding stands in contrast to previous studies (Mack & Honig, 2024; Finance, 2024), where support mechanisms such as financial aid and mentorship were shown to play a critical role in shaping entrepreneurial intentions. It also raises questions about the broader contextual factors at play. If these support mechanisms are typically considered essential for student retention and academic success, why did they not demonstrate a direct impact on entrepreneurial intentions in this study?

Given the high levels of entrepreneurial intentions reported in this sample, it appears that there are more complex, underlying relationships influencing these students' entrepreneurial aspirations. These nuances were further explored through the clustering analysis. The results suggest a distinct pattern: when all support mechanisms—inclusive teaching practices, financial support, ICT support, location support, and business mentorship—are perceived as high, entrepreneurial intentions are also high (Cluster 3). Conversely, when these supports are perceived as low, entrepreneurial intentions are lowest (Cluster 1).

This indicates that, while individual support mechanisms may not directly predict entrepreneurial intentions, their cumulative effect cannot be overlooked. This study reveals that providing material and personnel resources in isolation may not be sufficient to elevate entrepreneurial intentions. Rather, the combination of multiple support mechanisms, especially when accompanied by inclusive teaching practices, creates a more conducive environment for fostering entrepreneurship. The synergistic effect of these supports appears to be more effective in nurturing entrepreneurial intentions than any single support mechanism alone.

6   Original Contributions and Practical Implications

The findings of this study contribute to the growing body of literature on the determinants of entrepreneurial intentions, particularly within vocational education settings. By examining four types of resources and the delivery of vocational educational programs using inclusive practices, this study updates the literature with new empirical insights into the factors that shape entrepreneurial intentions from an institutional standpoint and narrows the gap in studies conducted in developing country contexts. The results suggest that a holistic approach, integrating physical, spatial, and personnel resource provision along with diverse teaching pedagogies tailored for an inclusive program delivery design, is essential in promoting entrepreneurial intentions among disadvantaged students. Senior administrators allocating budgets at vocational education institutions serving disadvantaged students are encouraged to use the study's findings to reassess how they can support their students through a multipronged approach.

The significant relationship between inclusive teaching practices and entrepreneurial intentions highlights the importance of creating an engaging and supportive classroom environment that focuses on the individual and heterogeneous needs of students' learning styles. The prevalence of inclusive teaching practices varies significantly across educational settings. While many teachers implement inclusive and engaging strategies, the extent to which these practices are adopted can be inconsistent. Educational institutions should recognize that multiple support mechanisms are more effective when combined, which has practical implications for program design. Policymakers and educators should aim to provide holistic support to students by incorporating financial support, location access, ICT access, and mentorship resources, alongside inclusive teaching practices, to foster entrepreneurship. This combined approach represents an original contribution of this work. While previous studies have primarily focused on the prevalence of inclusive teaching practices and their positive effects on academic performance, we extend this inquiry to entrepreneurial intentions as a future career path. Furthermore, many past studies have examined inclusive teaching practices in isolation; however, our findings indicate that their impact is significantly strengthened when paired with various physical and human resources. This insight opens a new direction for educators, suggesting that merely providing certain resources may not be as effective as investing in training teaching staff to implement inclusive strategies. To support teachers in implementing these practices, TVET institutions can provide ongoing professional development and resources. This includes offering tailored training sessions that focus on inclusive teaching strategies, creating collaborative environments where teachers can share experiences and best practices, and ensuring access to necessary materials and support systems.

7   Limitations and Future Research

We acknowledge two key limitations in our study. First, our focus on the Caribbean, while under-researched, does not represent all developing countries. Therefore, our findings may not be generalizable to all regions with disadvantaged vocational students, as contextual factors can significantly influence outcomes. We encourage future research to replicate our study in other developing countries to enhance generalizability.

Second, although we utilized a quantitative design to identify potential relationships, a comprehensive understanding of the resources related to inclusive teaching practices and their impact on entrepreneurial intentions cannot be derived from a single quantitative study. We suggest that researchers employ mixed methods, integrating qualitative data to gain deeper insights into how vocational educational institutions influence students' entrepreneurial intentions. We recommend incorporating control variables, such as openness and attitudes toward entrepreneurship, to better isolate the relationships we examined regarding inclusive teaching,

various resource supports and entrepreneurial intentions. This adjustment addresses another limitation of our study.

While all studies have limitations, the value of our research remains significant as it lays a foundation for understanding the role of institutional resource support and inclusive practices in vocational education. This is crucial for addressing the challenges faced by resource-constrained environments in fostering entrepreneurial intentions within risk-averse and disadvantaged populations, given the promise of entrepreneurship for economic prosperity.

Finally, our data revealed anomalies where types of resource support were clustered with high or low entrepreneurial intentions but showed no direct relationship. This suggests the potential role of a missing mediator that future research should explore.

References

Ambarita, N., & Butar, S. B. (2024). Social Cognitive Career Theory on Entrepreneurial Intention of Vocational Students. *JBMP (Jurnal Bisnis, Manajemen Dan Perbankan)*, *10*(2), 224–235. https://doi.org/10.21070/jbmp.v10i2.2036

Aragon-Sanchez, A., Baixauli-Soler, S., & Carrasco-Hernandez, A. J. (2017). A missing link: the behavioral mediators between resources and entrepreneurial intentions. *International Journal of Entrepreneurial Behavior & Research*, *23*(5), 752–768. https://doi.org/10.1108/ijebr-06-2016-0172

Avis, J. (2018). Crossing Boundaries: VET, the Labour Market and Social Justice. *International Journal for Research in Vocational Education and Training*, *5*(3), 178–190. https://doi.org/10.13152/ijrvet.5.3.2

Aziz, O., Shaaban, S., & Awais Aziz. (2021). Role of Educational Institutions in Influencing Entrepreneurial Intentions: A Scoping Review. *Audit and Accounting Review*, *1*(1), 30–60. https://doi.org/10.32350/aar.11.03

Bahaw, P., Baboolal, A., Mack, A. J., & Carter-Rogers, K. (2024). Exposure to entrepreneurship education interventions reveal improvements to vocational entrepreneurial intent: a two-wave longitudinal study. *Discover Education*, *3*(145). https://doi.org/10.1007/s44217-024-00241-4

Bahaw, P., Smith, T., Short, A., & Winkel, D. (2025a). Entrepreneurial readiness of university students: a latent profile analysis approach. *Entrepreneurship Education*. https://doi.org/10.1007/s41959-025-00134-z

Bahaw, P., Stephens, A., & Mack, A. (2025b). Gender-sensitive vocational and entrepreneurship education: addressing poverty for Caribbean women. *Discover Global Society,* 3(1). https://doi.org/10.1007/s44282-025-00162-z

Bakar, K. A., Feisal, A., Mohamad, M. A., Ahmad, N. N., Mohd. Khairulnizam Sahlan, & Afif. (2024). Entrepreneurial Intention Challenge in TVET Education. *Journal of Technical Education and Training*, *16*(1), 148-160 https://doi.org/10.30880/jtet.2024.16.01.011

Barbosa, R. M., Pérez-Nebra, A. R., Villajos, E., & González-Ladrón-De-Guevara, F. (2024). The entrepreneur's well-being: current state of the literature and main theories. *Journal of Global Entrepreneurship Research*, *14*(46), 1-18 https://doi.org/10.1007/s40497-024-00413-4

Boutaky, S., & Sahib Eddine, A. (2022). Determinants of entrepreneurial intention among scientific students: A social cognitive theory perspective. *Industry and Higher Education*, *37*(2), 279-293. https://doi.org/10.1177/09504222221120750

Cerdà-Navarro, A., Quintana-Murci, E., & Salvà-Mut, F. (2022). Reasons for dropping out of intermediate vocational education and training in Spain: the influence of sociodemographic characteristics and academic background. *Journal of Vocational Education & Training*, *76*(3), 619-643. https://doi.org/10.1080/13636820.2022.2049625

Fawaid, M., Triyono, M. B., Sofyan, H., Nurtanto, M., Mutohhari, F., Jatmoko, D., Abdul Majid, N. W., & Rabiman, R. (2022). Entrepreneurial Intentions of Vocational Education Students in Indonesia: PLS-SEM Approach. *Journal of Technical Education and Training*, *14*(2), 91-105. https://doi.org/10.30880/jtet.2022.14.02.009

Galvão, A. R., Marques, C. S., Mendes, T., & Azevedo, C. (2024). How Does Perceived University Support Boost Students' Entrepreneurial Intentions? *Journal of the Knowledge Economy*. https://doi.org/10.1007/s13132-024-02441-7

Goldan, J., & Schwab, S. (2018). Measuring students' and teachers' perceptions of resources in inclusive education – validation of a newly developed instrument. *International Journal of Inclusive Education*, *24*(12), 1–14. https://doi.org/10.1080/13603116.2018.1515270

Gonzalez-Tamayo, L. A., Olarewaju, A. D., Bonomo-Odizzio, A., & Krauss-Delorme, C. (2024). University student entrepreneurial intentions: the effects of perceived institutional support, parental role models, and entrepreneurial self-efficacy. *Journal of Small Business and Enterprise Development*, *31*(8), 205–227. https://doi.org/10.1108/jsbed-09-2022-0408

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning Emea.

Henry, C., Wu, W., Moberg, K., Singer, S., Gabriel, B., Valente, R., Carlos, C., & Fannin, N. (2024). Exploring inclusivity in entrepreneurship education provision: A European study. *Journal of Business Venturing Insights*, *22*, e00494. https://doi.org/10.1016/j.jbvi.2024.e00494

Liñán, F., & Chen, Y.-W. (2009). Development and Cross-Cultural Application of a Specific Instrument to Measure Entrepreneurial Intentions. *Entrepreneurship Theory and Practice*, *33*(3), 593–617. https://doi.org/10.1111/j.1540-6520.2009.00318.x

Mack, A. J. (2024). Funding and its impact on the administration and organisational efficiency of technical vocational education and training institutions. *Discover Education*, *3*(221). https://doi.org/10.1007/s44217-024-00305-5

Mack, A., & Honig, B. (2024). Comparing Factors Influencing Entrepreneurial Self-Efficacy Between Vocational and Academic Post-secondary Students. *Entrepreneurship Education and Pedagogy*, *7*(4), 494-528. https://doi.org/10.1177/25151274231211555

Mack, A., Carter-Rogers, K., Bahaw, P., & Stephens, A. (2024). Entrepreneurial knowledge and skill exposure in vocational education: Development of a new assessment scale. *Discover Education* , *3*(237). https://doi.org/10.1007/s44217-024-00331-3

Maritz, A., & Brown, C. (2013). Enhancing entrepreneurial self-efficacy through vocational entrepreneurship education programmes. *Journal of Vocational Education & Training*, *65*(4), 543-559. https://doi.org/10.1080/13636820.2013.853685

OECD/European Union. (2021). *The Missing Entrepreneurs 2021 Policies for Inclusive Entrepreneurship and Self-Employment*. OECD Publishing, Paris. https://doi.org/10.1787/71b7a9bb-en

Salvà-Mut, F., Tugores-Ques, M., Adame-Obrador, M. T., & Oliver-Trobat, M. F. (2017). Labour market participation of Spanish youth with an intermediate or higher vocational education and training diploma. *Educar*, *53*(2), 357–378. https://raco.cat/index.php/Educar/article/view/327337

Sandirasegarane, S., Sutermaster, S., Gill, A., Volz, J., & Mehta, K. (2016). Context-Driven Entrepreneurial Education in Vocational Schools. *International Journal for Research in Vocational Education and Training*, *3*(2), 106–126. https://doi.org/10.13152/ijrvet.3.2.3

Schwab, S., Alnahdi, G., Goldan, J., & Elhadi, A. (2020). Assessing perceptions of resources and inclusive teaching practices: A cross-country study between German and Saudi students in inclusive schools. *Studies in Educational Evaluation*, *65*, 100849. https://doi.org/10.1016/j.stueduc.2020.100849

Schwab, S., Sharma, U., & Hoffmann, L. (2019). How inclusive are the teaching practices of my German, maths and english teachers? – psychometric properties of a newly developed scale to assess personalisation and differentiation in teaching practices. *International Journal of Inclusive Education*, *26*(1), 1–16. https://doi.org/10.1080/13603116.2019.1629121

Shah, N., Bano, S., Saraih, U. N., Abdelwahed, N. A. A., & Soomro, B. A. (2024). Boosting entrepreneurial intentions among potential TVET entrepreneurs of higher education institutes. *Education + Training, 66(*7)*, 981-1006*. https://doi.org/10.1108/et-07-2023-0300

Stephens, A., Mack, A., & Bahaw, P. (2024). Who they are, and what they do: perspectives on work–life balance among entrepreneurs and wage earners. *Humanities and Social Sciences Communications*, *11*(1749). https://doi.org/10.1057/s41599-024-04338-x

UNESCO-UNEVOC. (2023). *How inclusive entrepreneurial learning can benefit disadvantaged youth*. UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training. https://unevoc.unesco.org/home/Inclusive+entrepreneurial+learning+for+disadvantaged+youth#:~:text=%E2%80%9CInclusive%20entrepreneurial%20learning%20offers%20skills,Cooperation%20Unit%20at%20UNESCO%2DUNEVOC.

Yesmin, Mst. N., Hossain, M. A., Islam, M. S., Rahman, M. M., Jahan, N., & Kim, M. (2024). Entrepreneurial intentions and the role of educational and social support: do the self-efficacy and the theory of planned behavior variables matter? *RAUSP Management Journal, 59* (4), 366-385. https://doi.org/10.1108/rausp-03-2024-0053

Biographical Notes

Dr Priscilla Bahaw is an Assistant Professor (lecturer) at the University of the West Indies in Trinidad and Tobago. She also serves as Associate Chair of the university's regional research cluster on Entrepreneurship. Her research focuses on empowering minority entrepreneurs through entrepreneurship education and has made significant contributions to research on vocational institutions and their shift towards entrepreneurship in her country.

Dr Abede Mack is an Assistant Professor at St. Francis Xavier University in Canada. His research centers on entrepreneurship and technical vocational education and training (TVET) where he particularly examines the influence of entrepreneurship among higher education and TVET students, exploring the varying interests and outcomes entrepreneurship brings to these two streams of education.

Mr Ghulfam Sadiq is a postgraduate student at the Faculty of Education, Southwest University, Chongqing, China. He is mainly engaged in research on the research competency development of undergraduate students through technology-enhanced learning environments. He also focuses on opportunity-propensity frameworks to explore different variables that play significant roles in developing research competency.

Dr Ayanna Stephens is an Assistant Professor at the University of the Commonwealth Caribbean (UCC) in Jamaica where she facilitates graduate-level courses in the areas of Entrepreneurship and Business Management. Her research interests include various aspects of the entrepreneurship phenomenon, and she has presented and published portions of her work in journals, book chapters, and local and international conferences.

New Competence Requirements for Trainers in Swiss Apprenticeships

Barabasch, Antje
antje.barabasch@ehb.swiss, SFUVET

Keller, Anna
anna.keller2@ehb.swiss, SFUVET

Abstract

Context: New learning cultures in basic vocational training in Swiss companies show that greater personal responsibility, teamwork, individualised learning pathways, early promotion of leadership skills and the development of transversal skills, in general, are being promoted. This goes hand in hand with new requirements for vocational trainers in training companies to redesign training and to accompany learners in the learning process. In addition to the status of initial and further training of trainers, the paper addresses existing job profiles and needs for competence development.
Method: Based on findings from 9 case studies on innovation in vocational education and training in Swiss companies, the paper addresses competence requirements for trainers. Findings: Vocational trainers need various new skills, such as a willingness to change and flexibility, trusting and constructive communication, and error reflection, as well as didactic skills regarding the organization of self-organized learning and the transfer of responsibility.
Conclusion: Trainers' coaching skills, pedagogical knowledge, and expertise in coping with psychological difficulties among apprentices become more relevant. They require further training, either through specific courses or workplace learning and peer coaching.

Keywords

apprenticeships, workplace learning, trainers, learning cultures, qualitative case study

1 Introduction

In times of labour shortage and a decline of interest in manual labour among young people, preventing dropouts and stop out processes in apprenticeships becomes particularly important. A positively perceived workplace experience within apprenticeships that is accompanied by workplace trainers, who actively stimulate reflection on action as much as creativity and participation, can support the enthusiasm for an occupational field or a specific profession. It helps to build up a vocational identity and maintain apprentices in their apprenticeship programs.

Vocational trainers play a key role in creating a supportive workplace learning environment and they often serve as role models for the next generation of employees. The demands placed on vocational trainers are high and constantly changing, due to innovations in products and processes in the professions and the use of new media and technologies, but also due to changing expectations of young people and society (Wenger & Lamamra 2024). For example, personalized learning, which allows learners to plan their learning goals and learning processes in a self-organized manner and to implement them independently (Seufert & Guggenmos 2024),

leads to new qualification demands for trainers. The reasons for the personalization trend lie in the increasing need for individual fit (Bray & Mc-Claskey 2015), heterogeneity (Bohl, Budde, Rieger-Ladich 2023), the possibilities of using digital media, and the demand of the world of work for very different skills profiles (Becker, Spöttle, Windelband 2023), including interdisciplinary skills (Barabasch & Fischer, 2023). As a result of these new demands, new learning cultures are developing in vocational education and training that enable learners to acquire professional skills in a more self-determined and flexible way.

While self-directed learning can enable individual skills development, it is also a major challenge to accompany this adequately. Tasks must be understood, instruction and coaching must be planned on this basis. Self-motivation to learn and act, which arises from positive emotions towards the learning object and the work task, and self-reflection or metacognition, which focuses on and controls one's own learning, must be promoted. Approaches, such as problem-solving and research-based learning as well as coaching by trainers is indicative (Konrad, 2024). For this reason, Swiss companies are increasingly focusing on a more flexible orientation towards building practical skills in the context of work-integrated learning (Schönbacher & Pem, 2022). Nonetheless, it is a challenge for companies to enable self-directed learning. This must be seen in particular against the background that trainers in vocational training companies usually take on a dual role: over 90% are responsible for both training and professional tasks. This leads to a conflict between the interests of the company, their own interests as employees, and the qualification needs of the trainees (Grollmann & Ulmer 2020).

Research Questions

1. How are trainers at the workplace qualified? Which new qualification requirements need to be addressed?
2. How does instruction at the workplace need to change in order to address current challenges in terms of training needs, integration and inclusivity and new expectations and social needs of apprentices?
3. How can vocational training be designed to effectively address the challenges associated with the demanding role of in-company trainers?

2 Vocational Trainers in Companies

The Swiss framework curriculum for vocational trainers provides for two training paths: Specialists can complete the vocational trainer course, which comprises 40 learning hours and is completed with a course certificate. Alternatively, there is the vocational trainer course with 100 learning hours (equivalent to 3 ECTS), which is completed with a qualification procedure and diploma. In addition, vocational trainers usually have a Federal Certificate of Competence (EFZ) and at least two years of practical experience in the teaching field. Vocational trainer courses are offered by various private providers, including industry associations and further education providers. These courses are based on the general standards of the training plan for VET professionals (SERI, 2015), which can be adapted to suit specific sectors. Table 1 provides an overview of these standards, which serve as a basis for the design of vocational training courses.

3 Findings

It became clear in the interviews that the organization of work has changed in many of these large companies. Responsibility is increasingly being delegated less to individuals and more to teams, which is why teamwork is being tested more in training. Many apprentices are involved in real work tasks and meaningful activities right from the start. They are responsible

Table 1
Standards for the training of vocational trainers in companies

Vocational trainers in training companies address the concerns and questions of apprentices. They implement measures that strengthen the self-confidence of apprentices as future professionals and consolidate the basis of trust with other people in the company.
Vocational trainers in training companies plan the timing and content of practical basic training in coordination with the other learning venues. They implement the training plans of the relevant ordinance within the company environment.
They have methods at their disposal to explain the work processes and accompany the learners through the various work steps. They review their work using quality assurance and development methods.
Vocational trainers in training companies use selection, support, and assessment methods in a target-oriented manner.
Vocational trainers in training companies have methods at their disposal to implement the relevant vocational training and labor law provisions as well as occupational safety, environmental and health-related principles in such a way that the learners act accordingly.
They are aware of learners' problems that arise in connection with adolescence, gender roles, the circle of friends, separation from the parental home, origin, school fatigue, job search, etc. They are familiar with the counseling services available and are able to use them in a targeted manner in the interests of the learners.

Note. Adapted from SERI (2015, p. 15-16).

for the end-to-end delivery of a product or service, usually as part of a team - a learning approach that can increase intrinsic motivation (Appelbaum et al. 2000). Vocational trainers are convinced that in departments with high innovation pressure, it is important that learners learn in the real world of work, i.e. in the context of productive work, and not in the context of constructed learning tasks or upstream courses 'off the job', as this content can quickly become outdated.

Looking across all the large companies in the different sectors, it became clear that there were parallels with regard to the central topics in training. Fundamental trends of change emerged (e.g. more autonomy and independence in the completion of work tasks, mobility between work locations and work areas, participation and co-design of learners with regard to changes in training, alternative ways of recruiting new learners, new process design or the use of digital tools) which point to significant developments and innovations in the Swiss VET landscape. The results show that changes in the organization of work also lead to changes in practical vocational teaching and learning. As a result, vocational trainers need various new skills, such as a willingness to change and flexibility, trusting and constructive communication and error reflection, as well as didactic skills with regard to the organization of self-organized learning and the transfer of responsibility, which are outlined below.

The vocational trainers and other employees who accompany the learners must be aware of current trends and developments, as well as new forms of cooperation, and pass on this knowledge. At the same time, they are also familiar with the framework conditions of the real world of work, which follow the laws of rationality, effectiveness and efficiency. The associated pressure to perform, which can be felt by learners under certain circumstances, must be adequately assessed and, if necessary, balanced by the vocational trainers. At the same time, some trainers are also under significant production pressure, in addition to their training responsibilities. In relation to learning a profession and socialization into a work culture, a variety of processes of understanding, interpretation and re-interpretation take place. The process of reflecting on experiences in this complex learning process must be expertly accompanied. The following situation descriptions indicate important support tasks and competence requirements, but also the challenges that arise in this context.

A Supporting reflection

Trainers can support learning from practical experience with constructive and timely feedback. In this context, it is particularly important to maintain a proactive, constructive and timely discussion about errors. This is about recognizing the error, identifying the causes and considering the right course of action. Trusting communication is required for support to be accepted.

B Enabling diverse learning experiences

The increased mobility of learners is changing the traditional image of the vocational trainer who works with learners over a period of three or four years. If the learners learn in different internal or external company contexts, they will be supervised by different vocational trainers at the different practice locations. Both sides have to adapt to changing support relationships and changing people. In the context of training courses characterized by mobility and personalization, vocational trainers take on important coordination and networking tasks. They must ensure that suitable practical placements are available, mediate between them and oversee the entire skills acquisition of the learners. It may also be necessary to assess the quality of the various work placements.

C Recognizing and promoting individual potential

Vocational trainers need empathy, sensitivity and the ability to build trust. They should support learners in their learning process primarily by asking questions. It is important to build strong social relationships with learners so that vocational trainers can have conversations in which learners feel comfortable talking about themselves, their challenges and their interests and development aspirations. Through the exchange with practical trainers, they receive feedback on the learners' performance. From this overall impression, conclusions can be drawn about particular talents or early aptitude for leadership. Vocational trainers can use this knowledge to provide learners with more targeted support.

D Enabling learners to help shape the program and take responsibility

By ensuring that apprentices work with people who respect each other and form a good team in areas that suit them, vocational trainers not only ensure that apprentices are satisfied with their vocational training, but also contribute to their motivation and commitment. In particular, their need for self-realization and co-design should be taken into account in the planning of workplaces, work tasks and free spaces for the design of vocational training. It is also important to be able to assess how much guidance is actually necessary.

4 Conclusion

The innovative strength of Swiss companies and Switzerland's successful performance in international innovation statistics are attributed, among other things, to high-quality vocational education and training (Backes-Gellner & Pfister, 2019). However, in order to remain attractive to both employers and learners, VET must respond to the changing demands of the world of work and society - it must itself be innovative. Learners' experiences show that approaches to individualizing their learning paths, promoting personal initiative and autonomous working and learning significantly support their preparation for modern workplaces and practices. These trends of change are observed in large companies and cannot be directly applied to SMEs, where many apprentices in Switzerland are trained. SMEs may lack dedicated HR staff to manage apprenticeship training and may not be able to offer apprentices experience in multiple departments. To provide diverse learning opportunities, SMEs could, however, rely on partnerships with other companies – for example, by joining a training network that also handles training planning and supervision externally. It can be assumed that the new learning cultures at large vocational training players in Switzerland could shape the future direction of vocational

education and training. These examples may not only reflect current trends but also inspire and drive the development of the broader vocational education landscape.

The empirical case studies make clear that there are new new requirements for vocational trainers. Today, they need extended skills in learning support and coaching as well as pedagogical knowledge and expertise in coping with psychological difficulties among apprentices. In addition, traditional tasks, such as guiding learners through work steps, assessing their performance and implementing labour law frameworks remain central. For trainers, the personalized learning approach poses numerous challenges and requires further training in coaching and mentoring skills, in-depth psychological knowledge of self-regulation, concentration, self-motivation, perseverance and resilience, pedagogical strategies for individualizing learning as well as the integration and synthesis of experience-based learning and theoretical knowledge. Exchange with peers and mutual learning from experiences and the resulting conclusions can be very helpful for trainers, especially because the new approaches to personalized learning have often not been experienced in their educational biography.

References

Appelbaum, E., Bailey, T., Berg, P., & Kalleberg, A. L. (2000). *Manufacturing advantage: Why high-performance work systems pay off.* ILR Press.

Backes-Gellner, U. & Pfister, C. (2019). Beitrag der Berufsbildung zu Innovation. Bern: SBFI. Beitrag der Berufsbildung zu Innovation (29.10.2024).

Barabasch, A. & Fischer, S. (2023). Editorial zu bwp@ Spezial 20, 1-5. https://www.bwpat.de/spezial20/editorial_spezial20.pdf

Becker, M., Spöttl, G., & Windelband, L. (2023). Beruflichkeit – nur ein Mythos? *bwp@ Berufs- und Wirtschaftspädagogik – online, 45*, 1–35. https://www.bwpat.de/ausgabe45/becker_etal_bwpat45.pdf

Bohl, T., Budde, J., & Rieger-Ladich, M. (2023). Umgang mit Heterogenität in Schule und Unterricht. Grundlagentheoretische Beiträge und Reflexionen. UTB Verlag.

Bohnsack, R. (2003). Praxeologische Wissenssoziologie. In R. Bohnsack, W. Marotzki, & M. Meuser (Eds.), *Hauptbegriffe qualitativer Sozialforschung.* Leske+Budrich.Bray, B. & McClaskey, K. (2015). *Make learning personal. The what, who, WOW, where, and why.* Sage.

Grollmann, P. & Ulmer, P. (2020). Betriebliches Bildungspersonal – Aufgaben und Qualifikation. Handbuch Berufsbildung (pp. 533-545). BIBB.

Konrad, K. (2024). Selbstgesteuertes Lernen neu denken. Beltz.

Schönbächler, M. & Pem, L. (2022). So gelingt Handlungskompetenzorientierung. Ein didaktisches Konzept für die Berufsbildung. Hep.

SBFI Staatssekretariat für Bildung, Forschung und Innovation (2015). *Rahmenlehrpläne Berufsbildungsverantwortliche.* https://www.sbfi.admin.ch/sbfi/de/home/bildung/bwb/bb-steuerung/bb-verantwortliche.html

Seufert, S. & Guggenmos, J. (2024). Neue Formen der Lernortkooperation mithilfe künstlicher Intelligenz. *ZBW, Beiheft 31*, 183-214.

Wenger, M. & Lamamra, N. (2024). Analysing the continuing education needs of Swiss in-company trainers: An approach based on the latent class analysis. *Journal of Vocational, Adult and Continuing Education and Training (JOVACET), 7*(1), 151–179.

Zaynel, N. (2018). Prozessorientierte Auswertung von qualitativen Interviews mit Atlas.ti und der Grounded Theory. In A. Scheu (Ed.), *Auswertung qualitativer Daten* (pp. 59-68). Springer.

Biographical Notes

Dr Antje Barabasch is head professor for vocational education and training at SFUVET. Her research is concerned with new learning cultures in VET in enterprises, creativity development and creative approaches to VET, teacher training as well as VET policy transfer.

Dr Anna Keller is a research associate in the "Learning Cultures and Didactics" research field at SFUVET. She has conducted intensive research into innovations in vocational education and training and the changing roles of teachers.

Beyond Skills: The Multifaced Role of Vocational Education in Post-Soviet Azerbaijan

Bayramli, Majid
mbayramli@gmail.com, ADA University

Abstract

Context: This article examines the vocational education and training system in Azerbaijan, revealing its role beyond the widely accepted objectives of employability and social inclusiveness. Vocational education and training (VET) systems are commonly promoted as mechanisms for improving employability and enhancing social inclusion (Tchibozo, 2022). However, in transitional and resource-constrained contexts such as post-Soviet Azerbaijan, these objectives were often undermined by systemic limitations. Despite challenges such as outdated infrastructure, weak labour market linkages, and limited evidence of skills acquisition, the Azerbaijani government maintained and promoted its VET system. This apparent contradiction raised critical questions about the actual function VET served in such settings.

Approach: The study employed a qualitative case study methodology to examine the role of the VET system in Azerbaijan prior to reforms initiated in 2016. Data were drawn from policy documents, official reports, and semi-structured interviews with key stakeholders involved in the VET sector. Guided by historical institutionalism, the analysis explored how Soviet-era legacies—particularly the concept of *vospitanie* (upbringing)—shaped the persistence and use of VET as a tool for social management. This theoretical framing enabled a deeper understanding of how inherited institutional logics constrained reform and maintained systems with limited capacity for skills development.

Findings**:** The study revealed that Azerbaijan's VET system was maintained not despite its dysfunction, but because of the alternative functions it served. In the absence of meaningful skills development, VET operated as a social management tool—a state mechanism to absorb potentially disaffected youth, limit access to higher education, and project alignment with international reform agendas. Its endurance reflected not policy failure, but a strategic use of inherited institutions for political stability, social containment, and symbolic modernisation, underpinned by strong path dependency and the repurposing of the Soviet concept of *vospitanie*.

Conclusions: This study reframes how VET should be understood in transitional contexts, showing that its persistence cannot be explained solely through developmental or economic rationales. It highlights the importance of analysing education systems through the lens of political utility and institutional legacy. For international reform actors, the findings underscore the need to move beyond normative assumptions and engage with how global models are repurposed in practice.

Keywords

vocational education, social management, vet policy, post-soviet education, policy adaptation

1 Introduction

The role of vocational education and training has been widely debated in academic literature and among policymakers, particularly in recent decades, as it has been influenced by social, political, and economic disruptions in an increasingly globalised world. Traditionally, VET has been conceptualised as a tool for workforce development, grounded in human capital theory (Becker, 2002), and as a mechanism for promoting equity and active citizenship, reflecting education as a human right theory (Edwards et al., 2018; Verger et al., 2014). The role of the VET system, based on these frameworks, is primarily directed towards equipping individuals with skills to participate in the labour market while also addressing broader policy goals for economic development. This approach is further endorsed by multilateral organisations, which use their agenda-setting power as well as their hard and soft policy instruments (Edwards & Moschetti, 2021; Melnyk, 2023). Notably, UNESCO has traditionally advocated for the "education-as-a-human-right" concept, whereas organisations such as the OECD and the World Bank prioritise the employability and economic development functions of the VET system (Edwards et al., 2018; Maurer & Gonon, 2014). Consequently, VET models that are predominantly transferred and adopted as policy solutions globally are primarily utilised to address structural economic challenges, such as unemployment, as well as social issues, including inclusion and equity (Pilz 2016).

The literature also highlights that the outcomes of global education policies, especially transferred VET policies, diverge significantly worldwide. The main reasons for this divergence include the level of industrialisation, the development and willingness of the private sector to cooperate with the VET system, funding availability, and the socio-economic context (Allais, 2012; Doner & Schneider, 2020). Thus, this results in different policy outcomes even within seemingly homogeneous systems, such as those in the EU (Langthaler et al., 2022; Maurer, 2012; Maurer & Gonon, 2014). Therefore, it is considered that each country transfers, adopts, and conceptualises its VET policies differently, depending on its local political, economic, and social context.

Nevertheless, a key characteristic in the existing literature is its near-exclusive focus on VET as a system for skills development (Li & Pilz, 2023; Scheuch et al., 2021; Tchibozo, 2022). The role of VET as part of the skills development system assumes that the primary mechanisms utilized are training and upskilling individuals, enabling them to engage in productive labor, which would contribute to their individual and communal well-being (Mcgrath, 2012; Mcgrath & Powell, 2016). However, this view assumes that for the training and upskilling to take place, the VET systems are adequately resourced and effectively managed. Nevertheless, this approach fails to explain the role of VET when the system faces inadequate funding, outdated infrastructure, a lack of qualified staff, and insufficient teaching materials, which prevent possible skills development (Kingombe, 2012; Melnyk, 2023; Wolf, 2020). Remarkably, even in such contexts, governments continue to promote VET enrolment and maintain these systems despite their inability to achieve their primary objectives. This raises an important and underexplored question: What functional role does VET play in contexts where skills development is not taking place?

This paper investigates this paradox by focusing on Azerbaijan, a post-Soviet country where systemic challenges hindered VET's ability to function as a skills development system up until 2016 when the reform started in the system. This discussion challenges dominant theoretical frameworks in VET literature. Both human capital theory and citizenship theory presuppose an upskilling component as central to VET's purpose (Aziz, 2015; Tsakiris, 2014; van der Velden & Bijlsma, 2019). However, these frameworks fail to capture the socio-political functions of VET in contexts where skills development is secondary to other policy goals. By introducing the concept of VET as a social management tool, this paper seeks to expand the

theoretical discourse and offer a new lens for understanding the role of VET in transitional and resource-constrained economies.

Through a qualitative case study of Azerbaijan, this paper contributes to both theoretical and practical debates on VET policy. It examines why governments persist in maintaining and promoting VET systems that fail to deliver skills development, exploring the socio-political functions these systems fulfil. By addressing this research gap, the study provides critical insights into the multidimensional roles of VET, particularly in post-Soviet and transitional economies, and challenges prevailing assumptions about the purpose and potential of vocational education.

1.1 The Case of Azerbaijan

Up until the reform initiatives Azerbaijan's vocational education and training system had not been evolved significantly since the country gained independence from the Soviet Union in 1991. Under Soviet rule, the VET system was an integral part of the planned economy (Zajda, 1984). Most vocational schools were directly linked to factories, plants, and other industrial establishments, ensuring that graduates had predefined roles within these industries. This structure eliminated the need for private sector involvement, as the economy operated under state control. The higher education system in the USSR was highly selective, offering limited access and reserving opportunities for an elite minority (Glowka, 1986). Consequently, a majority of students were directed towards VET, which included initial vocational education embedded in secondary education and specialised secondary education which played a role of higher VET (Zajda, 2008). The latter allowed students to obtain both matriculation and trade qualifications, akin to what might now be considered short-cycle higher education.

The collapse of the Soviet Union brought about profound economic, political, and social challenges for Azerbaijan, as well as in other Post-Soviet countries (Silova et al., 2007). The shift to a market economy disrupted the industries that had previously sustained the VET system, leaving vocational schools without the industrial partners essential to their functioning (Aliyev & Suleymanov, 2015). This transition coincided with recommendations from international organisations such as the International Monetary Fund (IMF) and the World Bank, which encouraged post-Soviet governments to reduce public spending (IMF, 1997, 1999; World Bank, 1999). Education, including the VET sector, was among the hardest-hit areas. Funding shortfalls severely limited the ability of the Azerbaijani government to modernise or even maintain its education system.

By 2015, reports from international organisations painted a grim picture of Azerbaijan's VET system, despite the country's significant revenues from oil and gas exports (European Training Foundation, 2014; Government of Azerbaijan, 2016; Siegel et al, 2017). The sector faced systemic challenges. Most vocational schools operated with infrastructure that had not been renovated for over 30 years, lacking modern laboratories and technical equipment essential for practical training. The teaching workforce was similarly outdated, with many instructors relying on Soviet-era materials and methodologies. Low salaries deterred new entrants to the profession, leaving the system staffed primarily by older, less-qualified teachers whose skills often fell below international standards. These systemic deficiencies meant that the VET system struggled to provide students with relevant skills, further exacerbating its decline.

By 2020, the Azerbaijani economy remained heavily dependent on revenues generated from commodity exports and on funding its education and VET systems primarily through the state budget, while the private sector remained weak and had little cooperation with the VET system (Aliyev & Suleymanov, 2015). Small and medium-sized enterprises, being newly developed, were scarce and fragmented, with minimal links to the VET sector. As a result, this lack of connection between industry and the VET system led to a predominantly supply-driven model, where labour market needs were not considered in the curriculum, further contributing

to high unemployment among VET graduates (Castel-Branco, 2008). Nevertheless, by 2015, the VET system remained functional, enrolling over 25,000 students and employing approximately 3,000 academic and administrative staff (Government of Azerbaijan, 2022). The government not only maintained the system but also continued to encourage students completing compulsory ninth grade to enrol in VET, even though the system did not provide meaningful opportunities for training, upskilling, or employment upon graduation

The government's persistence in maintaining the VET system raises questions about its primary motivations and the role of VET within the country's broader socio-political context. This prompts the question: why does the government continue to promote a system that lacks the capacity to provide meaningful skills development? Hence, this research aims to investigate this paradox by examining the system's potential functions beyond skills training. Identifying the role of VET systems beyond their traditional skills development function, particularly in economies where systemic deficiencies and socio-political priorities intersect, is the main objective of this study.

2   Methods

This research critically examines Azerbaijani vocational education and training system from a historical perspective, proposing an alternative view of VET as a mechanism for social governance. Employing an interpretative case study methodology rooted in historical institutionalism, the study analyses how institutions, decision-making processes, and interactions shape policies and their outcomes. This framework enables a nuanced exploration of how historical decisions and socio-political contexts influence the dynamics of Azerbaijan's VET system.

VET has traditionally been understood through the human capital theory, where the primary aim is to upskill individuals to generate economic productivity for themselves and economy (Aziz, 2015). Multilateral organisations such as the World Bank and UNESCO have reinforced this perspective, framing VET as a solution to issues like unemployment, economic inequality, and skills mismatches in the labour market. Citizenship theory, while similarly emphasizing upskilling, shifts the focus towards fostering social cohesion and building inclusive societies (Zancajo & Valiente, 2019). Although these frameworks differ in their objectives, both rely heavily on capacity-building within education systems, thereby positioning VET as a mechanism for achieving socio-economic goals.

Alternatively, critical perspectives that highlight the political and institutional dimensions of education systems, as proposed by Bourdieu and Bernstein, may challenge these conventional understandings. For example, the phenomenon that VET can serve as a means for governments to align educational objectives with broader socio-political priorities can be explained through Bourdieu's analysis of social reproduction (Bourdieu, 2018) or Bernstein's insights into how educational structures sustain power hierarchies (Bernstein, 2018). These concepts suggest that education systems, as tools of policy, may be utilised differently depending on the government's ideological, institutional, political, and economic agenda. Furthermore, scholars such as Stephen J. Ball (1998) and Michael W. Apple (2001) support these ideas, arguing that policy frameworks and the economic agendas of governments can, in principle, influence education policies, shaping how governments perceive and utilise the education system.

This research adopts a qualitative case study methodology, incorporating policy analysis through document examination and stakeholder interviews as principal data sources. Data collection was conducted during a doctoral research project at the University of Glasgow between June and December 2022. To investigate the complexities of vocational education and training policy reform in Azerbaijan, both primary and secondary data were utilised. A purposive sampling strategy was employed to select key policy documents, including legislation, government

strategies, and reports from international organisations. In total, twenty documents were analysed to trace the evolution of VET policies and discern the priorities of various stakeholders. Additionally, semi-structured interviews were conducted with twenty-four policymakers, institutional leaders, and experts involved in shaping Azerbaijan's VET system. The semi-structured format permitted participants to elaborate on their experiences, while enabling the researcher to delve into emerging themes and unforeseen issues more thoroughly.

Data analysis employed a hybrid deductive-inductive approach, which provided the flexibility to test existing theoretical frameworks while remaining open to new insights emerging from the data. Thematic analysis, as outlined by Braun and Clarke (2021), was applied to identify recurring patterns and themes across the data. This enabled the integration of empirical findings with participants' lived experiences, offering a rich and contextualised understanding of VET policy dynamics. To complement thematic analysis, discourse analysis was conducted to examine how policy narratives and institutional practices are framed within intersecting national and global contexts. The use of NVivo software facilitated systematic coding and ensured a structured approach to handling large volumes of qualitative data.

Ethical approval was obtained from the University of Glasgow College of Social Sciences Ethics Committee before commencing data collection. All participants provided informed consent and were assured of anonymity and confidentiality. Personal identifiers were removed during data processing to protect the privacy of interviewees. Reflexivity was embedded throughout the research process to minimise potential bias and uphold the integrity of the findings.

3   Findings

This study investigates the factors that motivate governments to sustain vocational education and training systems, even when these systems are not effective in developing skills. It explores how governments repurpose these systems beyond their primary roles in workforce training and preparation. The findings indicate that in Azerbaijan, the vocational education and training system serves multiple functions beyond skill acquisition, influenced by historical legacies, policy frameworks, and socio-economic dynamics.

An analysis of policy documents and reports by international organisations reveals that until 2016, when major reforms in Azerbaijan's VET system began with the establishment of the VET Agency and the adoption of the VET Roadmap, the system had remained largely unchanged for over 25 years since independence (European Training Foundation, 2020; European Union, 2019). During this period, the VET system remained stable in terms of financing, student enrolment, and the number of people employed within the sector. The Strategic Roadmap for Vocational Education and Training in the Republic of Azerbaijan identifies several critical challenges within the system. These include obsolete and non-functional infrastructure; curricula and teaching materials that do not align with current requirements; insufficient competency levels and low remuneration among vocational education and training personnel; and a disparity between graduates' skills and labour market demands. Furthermore, it notes that numerous vocational education and training institutions are not being used for their intended purposes (Government of Azerbaijan, 2016).

Similarly, The European Union's technical assistance project report emphasizes enduring structural weaknesses in Azerbaijan's vocational education and training system. It points to the lack of a clear development strategy, an incomplete legal framework, and a persistent mismatch between the skills provided and labour market demands. Additional challenges mentioned as outdated curricula and teaching materials, insufficient funding for vocational schools, and limited human resource capacity in both management and teaching staff. The report also highlights obsolete infrastructure and inadequate teaching resources as major concerns within the system (European Union, 2019).

Nevertheless, by 2016, Azerbaijan's VET system comprised 1,673 teaching staff and 24,482 students across 113 VET institutions. The system's financing amounted to 34 million AZN (approximately 20 million USD), representing 1.98% of the total education budget of 1,7 billion AZN (approximately 1.008 billion USD). Prior to 2015, the VET system did not receive direct state budget allocations and was instead financed as part of the overall education budget (Government of Azerbaijan, 2022).

Furthermore, findings indicated that despite recurring concerns in policy documents about significant financial shortages in the VET system, the government did not pursue privatization as a solution. Instead, it chose to retain VET institutions within the framework of the public education system. Even today, private sector involvement remains minimal, with only one private VET institution operating in the country. This indicates a continued policy preference for state control over vocational education rather than market-driven reforms.

One of the key findings of this research is that vocational education and training in Azerbaijan has retained a crucial function of upbringing, alongside its primary role in skills development. This reflects the Soviet legacy in education, where the principle of training-upbringing (обучение-воспитание) remains deeply embedded in policy frameworks such as the Law on Education and the Vocational Education Law of Azerbaijan (Government of Azerbaijan, 2018). The enduring role of VET as a socialization tool is evident in both policy documents and stakeholder interviews, where respondents repeatedly emphasized that ensuring student attendance remains a central objective of the VET system, even in cases where formal skills training is inactive or ineffective. The historical function of VET as a means of social control rather than purely an economic mechanism was clearly articulated by interviewee, who stated:

> During the Soviet era, vocational education was designed not just to provide employment but also to ensure that the most vulnerable students were engaged in an institutional setting rather than left on the streets. (Ministry of Economy representative, line 14)

A similar sentiment was echoed by another interviewee, who highlighted that demographic and economic considerations played a significant role in sustaining VET:

> As the country experienced economic shifts after the oil contracts, the government recognized that a large number of ninth-grade graduates were not transitioning to higher education or structured employment. The challenge was how to absorb this population. The decision was made to direct them into vocational education as a means to prevent future social and economic risks. (Former VET manager, line 223)

This perspective was further reinforced by a yet another interviewee, who framed the issue as a political necessity rather than an educational one:

> With nearly 100,000 graduates per year, allowing all of them to take the university entrance exam was seen as a risk. In reality, only about 50 percent could pursue higher education, leaving a large segment of students without clear options. Vocational education became the designated pathway to accommodate those who otherwise had nowhere to go. (Labour Ministry representative, line 89)

Another key finding from stakeholder interviews is that the primary quality metric for VET institutions remains student attendance rather than educational outcomes. A interviewee noted:

> In secondary schools, quality is measured by university admission rates, Olympiad results, or student placements abroad. But how do we measure quality in VET? Right now, the only indicator we use is how many students are still attending. This reflects

> a fundamental issue—VET is still assessed based on its ability to keep students within the system rather than on the quality of their education or employability. (Regional VET school manager, line 222)

The findings of this study also reveal that the Law on Vocational Education in Azerbaijan explicitly states that the purpose of vocational education is to "shape the education of students in the spirit of moral and human values, based on the interests of the state and the ideology of Azerbaijanism"(Government of Azerbaijan, 2018, line 258). This objective highlight that the VET system is not primarily focused on skills development but rather on ideological and moral upbringing, aligning with the state's nationalistic agenda.

Further investigation into the parliamentary hearings on the VET law provides critical insights. Despite drawing inspiration from European models, Azerbaijani decision-makers deliberately incorporated the concept of Azerbaijanism (Azerbaijani nationalism) into the law. This sparked debates among Members of Parliament (MPs), with some arguing that vocational education should not be influenced by nationalism or ideology. However, the inclusion of Azerbaijanism was defended as essential for fostering national identity and values. For example, during the parliamentary hearings, one MP argued:

> Today, those who sit in Europe and slander our state, nation, and land have no sense of responsibility towards Azerbaijani values, neither in their upbringing nor their education... This is why we will not remove a single word or letter from the provisions related to Azerbaijanism in the Law. (Milli Majlis, 2018, p. 17)

This statement underscores the nationalistic approach of local decision-makers, who prioritized ideological objectives over purely educational or skills-based goals. Even though the reforms were framed as modernization efforts, the emphasis on Azerbaijanism reveals a deliberate effort to use VET as a tool for ideological upbringing and state-building, rather than solely for workforce preparation.

The use of VET as a state mechanism for social integration rather than purely for workforce preparation is consistent with findings from previous research on Soviet and post-Soviet education systems. Scholars discussed how VET in the USSR functioned as both a technical training system and a state-controlled ideological apparatus, ensuring that students were moulded into politically compliant and socially disciplined citizens (Chankseliani, 2017; Silova & Palandjian, 2018). This dual function of VET had persisted in Azerbaijan, where its role extends beyond market-driven education policies to serve as an institutional safeguard against youth disengagement and socio-economic instability.

Thus, the Azerbaijani government's utilization of VET extends beyond workforce development, positioning it as an instrument for social stabilization and political management. While globally, vocational education is framed as a mechanism for economic growth, in Azerbaijan, it remains a policy tool to absorb excess youth into structured institutions, reinforcing its historical role as an apparatus of upbringing rather than just skills training.

4 Conclusion

This study examined the vocational education and training system in Azerbaijan, identifying its role beyond the widely accepted objectives of employability and social inclusiveness (Tchibozo, 2022). While much of the literature frames VET within these two domains, this research highlighted an additional social management role within the Azerbaijani context. The findings indicated that, rather than functioning as a mechanism for skill development or economic productivity, the VET system was maintained as a means to absorb youth into stat run VET institutions. Despite limited evidence of meaningful learning outcomes, the government

continued to maintain and direct students into the system, suggesting that VET primarily served political and social stability objectives rather than genuine workforce preparation.

Utilising the historical institutionalism perspective, it is evident that Azerbaijan's Soviet past has influenced its present institutional and political systems, as well as its decision-making structures, which in turn continue to shape present-day VET policies (Pierson & Skocpol, 2002; Thelen, 2003). Hence, the concept of "upbringing" (vospitanie), which was a core function of the Soviet education system, remains an integral part of the training system. It primarily shapes the dual role of the VET system even after independence, influencing decision-making for over 35 years (Silova, 2009; Silova et al., 2017). Nevertheless, although the Soviet system no longer exists, elements from the previous system can be integrated into the new one, depending on the government's vision and priorities. Hence, the role of VET is not only limited to skills development but also serves as a tool for social management. This function does not require vast investment in the system but yields significant benefits for the state.

Thus, while the original Soviet concept of upbringing was rooted in ideological conformity, its post-Soviet adaptation in Azerbaijan reflects a broader strategy of youth management. The VET system functions as a mechanism to absorb and discipline youth, mitigating risks, even if it fails to fulfil its stated purpose of workforce preparation.

Although some scholars already critiqued the tokenistic nature of some VET systems (Langthaler et al., 2022; Melnyk, 2023; Silova et al., 2020; Wolf, 2020) yet this study extended that critique by demonstrating how a VET system could persist without skill acquisition being a priority. Drawing on Bourdieu's social reproduction's theory (Bourdieu, 2018), this research further explained how VET could serve as an instrument of social management, reinforcing existing socio-economic hierarchies. Additionally, this study contributed to academic discourse by illustrating how historical legacies shaped contemporary policies, particularly the ways in which centralized state influence and Soviet-era institutional structures continued to define VET's role.

This study also contributes to the broader literature on post-Soviet education systems. Nevertheless, it always acknowledges a primary limitation which is its focus on Azerbaijan as a single case study, which constrains the broader applicability of findings. This finding further underscores the need for comparative research across post-Soviet states to assess how historical legacies shape contemporary VET policies and whether alternative models have successfully broken away from these institutional constraints. Hence, the findings of this study hold important implications for international donor organizations and policymakers involved in vocational education and training reforms, particularly in developing and transitional economies. When supporting VET reforms, donor organizations often assume that global best practices can be universally applied. However, as Olsen (2023) indicated, national policies in developing countries are often constrained by factors such as historical institutional frameworks, prevailing political agendas, economic constraints, and existing governance structures. Governments may use the tools available to them not necessarily in the way they are intended globally but based on their immediate functional needs.

References

Aliyev, K., & Suleymanov, E. (2015). Macroeconomic analysis and graphical interpretation of Azerbaijan economy in 1991–2012. *Expert Journal of Economics, 3*, 40–49.

Allais, S. (2012). Will skills save us? Rethinking the relationships between vocational education, skills development policies, and social policy in South Africa. *International Journal of Educational Development, 32*(5), 632–642. https://doi.org/10.1016/j.ijedudev.2012.01.001

Apple, M. W. (2001). Comparing neo-liberal projects and inequality in education. *Comparative Education, 37*(4), 409–423. https://doi.org/10.1080/03050060120091229

Aziz, A. (2015). The operational value of human capital theory and cultural capital theory in social stratification. *Citizenship, Social and Economics Education, 14*(3), 230–241. https://doi.org/10.1177/2047173416629510

Ball, S. J. (1998). Big policies/small world: An introduction to international perspectives in education policy. *Comparative Education, 34*(2), 119–130. https://doi.org/10.1080/03050069828225

Becker, G. S. (2002). The age of human capital. In E. P. Lazear (Ed.), *Education in the twenty-first century* (pp. 3–8). Hoover Institution Press. https://www.hoover.org/sites/default/files/uploads/documents/0817928928_3.pdf

Bernstein, B. (1971). On the classification and framing of educational knowledge. In M. F. D. Young (Ed.), *Knowledge and control: New directions for the sociology of education* (pp. 47–69). Collier-Macmillan. https://people.bath.ac.uk/edspd/Weblinks/MA_CS/PDFs/Session%202/Bernstein%20volume%203%20chapter%205.pdf

Bourdieu, P. (1973). Cultural reproduction and social reproduction. In R. Brown (Ed.), *Knowledge, education, and cultural change* (pp. 71–112). Tavistock Publications. https://edu301s2011.files.wordpress.com/2011/02/cultural-reproduction-and-social-reproduction.pdf

Braun, V. (2021). *Thematic analysis: A practical guide*. SAGE Publications.

Castel-Branco, E. (2008). Labour market and VET challenges and perspectives for countries participating in the European Neighbourhood Policy: Southern Caucasus – Azerbaijan. *European Training Foundation*. https://www.etf.europa.eu/sites/default/files/m/C12578310056925BC12575EB0037C2E4_NOTE7TPDWM.pdf

Chankseliani, M. (2017). Charting the development of knowledge on Soviet and post-Soviet education through the pages of comparative and international education journals. *Comparative Education, 53*(2), 265–283. https://doi.org/10.1080/03050068.2017.1293407

Doner, R., & Schneider, B. R. (2020). Technical education in the middle income trap: Building coalitions for skill formation. *The Journal of Development Studies, 56*(4), 680–697. https://doi.org/10.1080/00220388.2019.1595597

Edwards, B., Okitsu, T., Costa, R. D., & Kitamura, Y. (2018). Organizational legitimacy in the global education policy field: Learning from UNESCO and the Global Monitoring Report. *Comparative Education Review, 62*(1), 31–63. https://doi.org/10.1086/695440

Edwards, D. B., & Moschetti, M. (2021). The sociology of policy change within international organisations: Beyond coercive and normative perspectives – towards circuits of power. *Globalisation, Societies and Education, 19*(1), 55–69. https://doi.org/10.1080/14767724.2020.1806043

European Training Foundation. (2014). *Evaluation of the state programme for TVET development in Azerbaijan 2007–2012*. https://www.etf.europa.eu/sites/default/files/m/2FDC9706347220ADC1257CD700522DB3_Azerbaijan%20TVET%20state%20programme%20evaluation.pdf

European Training Foundation. (2020). *Policies for human capital development: Azerbaijan – an ETF Torino Process assessment*. https://www.etf.europa.eu/sites/default/files/2020-06/04_trp5_etf_assessment_azerbaijan.pdf

European Union. (2019). *EU support to vocational education and training in Azerbaijan*. https://www.eeas.europa.eu/sites/default/files/niras_ta_vet_project_pif.pdf

Glowka, D. (1986). Problems of access to higher education in the USSR. In G. Tomiak (Ed.), *Western perspectives on Soviet education in the 1980s* (pp. 123–137). Palgrave Macmillan. https://doi.org/10.1007/978-1-349-07179-1_7

Government of Azerbaijan. (2016). Strategic roadmap for the development of vocational education and training in the Republic of Azerbaijan. https://monitoring.az/assets/upload/files/6381dda5389fb17755bbb732a9c7d708.pdf

Government of Azerbaijan. (2018). Law No. 1071-VQ of 24 April 2018 on vocational education. https://natlex.ilo.org/dyn/natlex2/r/natlex/fe/details?p3_isn=114485

Government of Azerbaijan. (2022). Metadata on statistical reports. The State Statistical Committee of the Republic of Azerbaijan. https://www.stat.gov.az/menu/13/?lang=en

International Monetary Fund. (1997). IMF approves second combined ESAF/EFF financing for Azerbaijan. https://www.imf.org/en/News/Articles/2015/09/14/01/49/pr9762

International Monetary Fund. (1999). Azerbaijan: Selected issues. https://www.elibrary.imf.org/view/journals/002/1999/078/article-A001-en.xml

Kingombe, C. (2012). Lessons for developing countries from experience with technical and vocational education and training. https://www.theigc.org/sites/default/files/2014/09/Kingombe-2014-Working-Paper.pdf

Langthaler, M., Wolf, S., & Schnitzler, T. (2022). The political economy of skill formation in a rentier state: The case of Oman. *International Journal for Research in Vocational Education and Training, 9*(1), 23–43. https://doi.org/10.13152/ijrvet.9.1.2

Li, J., & Pilz, M. (2023). International transfer of vocational education and training: A literature review. *Journal of Vocational Education & Training, 75*(2), 185–218. https://doi.org/10.1080/13636820.2020.1847566

Maurer, M. (2012). Structural elaboration of technical and vocational education and training systems in developing

countries: The cases of Sri Lanka and Bangladesh. *Comparative Education, 48*(4), 487–503. https://doi.org/10.1080/03050068.2012.702011

Maurer, M., & Gonon, P. (2014). The challenges of policy transfer in vocational skills development: National qualifications frameworks and the dual model of vocational training in international cooperation (Vol. 12). *Peter Lang*. https://unesdoc.unesco.org/ark:/48223/pf0000230230

McGrath, S. (2012). Vocational education and training for development: A policy in need of a theory? *International Journal of Educational Development, 32*(5), 623–631. https://doi.org/10.1016/j.ijedudev.2011.12.001

McGrath, S., & Powell, L. (2016). Skills for sustainable development: Transforming vocational education and training beyond 2015. *International Journal of Educational Development, 50*, 12–19. https://doi.org/10.1016/j.ijedudev.2016.05.006

Melnyk, O. (2023). International organisations and policy-making in VET systems of developing countries. In L. M. Herrera, M. Teräs, J. P. Gougoulakis, & M. Kontio (Eds.), *Learning, teaching and policy making in VET* (pp. 370–389). Atlas Förlag. http://nbn-resolving.de/urn:nbn:de:bsz:352-2-1e52kjm0ua8c33

Olsen, B. (2023). Government decisionmaking on education in low-and middle-income countries: Understanding the fit among innovation, scaling strategy, and broader environment. *Center for Universal Education at The Brookings Institution.* https://www.brookings.edu/articles/government-decisionmaking-on-education-in-low-and-middle-income-countries/

Milli Majlis. (2018). Public hearing transcripts on the draft Law of the Republic of Azerbaijan on vocational training (second hearing). https://meclis.gov.az/news-cari.php?id=322&lang=az

Pierson, P., & Skocpol, T. (2002). Historical institutionalism in contemporary political science. In I. Katznelson & H. V. Milner (Eds.), *Political science: The state of the discipline* (pp. 693–721). W.W. Norton. https://scholar.harvard.edu/thedaskocpol/publications/%E2%80%9Chistorical-institutionalism-contemporary-political-science%E2%80%9D

Scheuch, I., Bohlinger, S., Bieß, A., & Nguyen, H. L. (2021). Mapping research on European VET policy with a systematic literature review method: A pilot study. *International Journal for Research in Vocational Education and Training, 8*(4), 113–137. https://doi.org/10.13152/ijrvet.8.4.6

Siegel, M., Melegh, A., Nazarov, I., Wagner, V., & Belukova, E. (2017). Determination of the demand for foreign labour force in the labour market of Azerbaijan. *International Centre for Migration Policy Development.* https://www.icmpd.org/file/download/48398/file/Determination%2520of%2520the%2520Demand%2520for%2520Foreign%2520Labour%2520Force%2520in%2520the%2520Labour%2520Market%2520of%2520Azerbaijan%2520EN.pdf

Silova, I. (2009). Varieties of educational transformation: The post-socialist states of Central/Southeastern Europe and the former Soviet Union. In R. Cowen & A. M. Kazamias (Eds.), *International handbook of comparative education* (pp. 295–320). Springer. https://doi.org/10.1007/978-1-4020-6403-6_19

Silova, I., Johnson, M. S., & Heyneman, S. P. (2007). Education and the crisis of social cohesion in Azerbaijan and Central Asia. *Comparative Education Review, 51*(2), 159–180. https://doi.org/10.1086/512022

Silova, I., & Palandjian, G. (2018). Soviet empire, childhood, and education. *Revista Española de Educación Comparada, 31*, 147–171. https://doi.org/10.5944/reec.31.2018.21592

Silova, I., Rappleye, J., & Auld, E. (2020). Beyond the Western horizon: Rethinking education, values, and policy transfer. In G. Fan & T. S. Popkewitz (Eds.), *Handbook of education policy studies* (pp. 3–29). Springer. https://doi.org/10.1007/978-981-13-8347-2_1

Silova, I., Sobe, N. W., Korzh, A., & Kovalchuk, S. (2017). Introducing research dilemmas in post-socialist education contexts. In I. Silova, N. W. Sobe, A. Korzh, & S. Kovalchuk (Eds.), *Reimagining utopias: Theory and method for educational research in post-socialist contexts* (pp. 1–12). SensePublishers. https://doi.org/10.1007/978-94-6351-011-0_1

Tchibozo, G. (2022). *The European Union's policy for vocational education and training*. Stylit. https://www.researchgate.net/publication/360187225

Thelen, K. (2003). How institutions evolve: Insights from comparative historical analysis. In J. Mahoney & D. Rueschemeyer (Eds.), *Comparative historical analysis in the social sciences* (pp. 208–240). Cambridge University Press. https://doi.org/10.1017/CBO9780511803963.007

Tsakiris, D. (2014). Human capital and human action in lifelong learning: Questions concerning the revival of a seemingly obvious theory. In G. K. Zarifis & M. N. Gravani (Eds.), *Challenging the 'European area of lifelong learning'* (pp. 109–119). Springer. https://doi.org/10.1007/978-94-007-7299-1_10

van der Velden, R., & Bijlsma, I. (2019). Effective skill: A new theoretical perspective on the relation between skills, skill use, mismatches, and wages. *Oxford Economic Papers, 71*(1), 145–165. https://doi.org/10.1093/oep/gpy028

Verger, A., Edwards, D. B., & Altinyelken, H. K. (2014). Learning from all? The World Bank, aid agencies and the construction of hegemony in education for development. *Comparative Education, 50*(4), 381–399. https://doi.org/10.1080/03050068.2014.918713

Wolf, S. (2020). Tools and means to understand different TVET models in developing countries: An approach to

the epistemological opening up of international TVET in development cooperation. In M. Pilz (Ed.), *Comparative vocational education research* (pp. 57–78). Springer. https://doi.org/10.1007/978-3-658-29924-8_4

World Bank. (1999). *World Bank board discusses Azerbaijan's country assistance strategy* [CAS Public Information Note No. 23]. http://documents.worldbank.org/curated/en/1999/07/439598/world-bank-board-discusses-azerbaijans-country-assistance-strategy

Zajda, J. (1984). Recent educational reforms in the USSR: Their significance for policy development. *Comparative Education, 20*(3), 405–420. http://www.jstor.org/stable/3098883

Zajda, J. (2008). Education for work in the USSR: Vocational education and training during the 1970s. *Political Crossroads, 15*(1), 87–106. https://doi.org/10.7459/pc/15.1.07

Zancajo, A., & Valiente, O. (2019). TVET policy reforms in Chile 2006–2018: Between human capital and the right to education. *Journal of Vocational Education & Training, 71*(4), 579–599. https://doi.org/10.1080/13636820.2018.1548500

Biographical Notes

Dr Majid Bayramli is a policy analyst and education consultant with experience in VET reforms. He earned his PhD in Education from the University of Glasgow and currently lectures on education policy at ADA University and Azerbaijan State Pedagogical University.

German Skilled Labour in the Context of Digital Transformation: Insights into the Technology Readiness

Bergmann, Dana

dana.bergmann@uni-osnabrueck.de, Osnabrück University

Abstract

Context: The world of work is characterized by technological change processes that lead, among other things, to the emergence of new business processes, workflows and communication channels (e.g. Ramin, 2022). Based on the considerations of the MTO 1model (Ulich, 2013), the human, technological and organizational factors are interdependent. The "human factor", i.e. the employees themselves, plays a significant role in the digital transformation.

Approach: To this end, an online-based quantitative survey was conducted in German companies. The aim is to analyze the technology readiness of selected groups of employees in Germany. Central aspects such as technology acceptance, technology competence beliefs and technology control beliefs are analyzed with the help of the technology acceptance model (Neyer et al., 2012) and examined together with the employees' professional self-efficacy scale. The study focuses on the following questions: 1) What is the level of technology readiness among employees? 2) To what extent do demographic factors such as age, gender and level of education influence the technological readiness of adults towards new digital technologies? 3) What role does professional self-efficacy play?

Findings: With regard to technology acceptance, it can be stated that this is slightly below average. Although acceptance of technology is present, it is not particularly pronounced among the employees surveyed. With regard to conviction in technological competence, it can be seen that this is well below average. With regard to technology control convictions, it is clear that these are also slightly below average. In addition, there is a significant positive correlation between acceptance of technology and professional self-efficacy, which indicates that higher values in acceptance of technology tend to go hand in hand with higher values in professional self-efficacy expectations.

Conclusions: Overall, it can be seen that individual trust and the willingness to accept and use new technologies in the organization are rather limited. It can be assumed that there is a certain degree of skepticism or concern about new technologies. In a professional context, this can lead to employees feeling less comfortable or working less, for example. This in turn implies that employees with below-average acceptance of technology may need additional professional development. In order to develop technology readiness with its corresponding facets, it is important to identify and implement specific training and further education requirements that focus on the individual needs of the diverse workforce.

Keywords

digitalization, technology readiness, professional self-efficacy, employees

1   Introduction

The world of work is characterized by technological change processes. Among other things, new technologies lead to the emergence of new business processes, workflows and communication channels (e.g. Ramin, 2022; Bejaković & Mrnjavac, 2020). Digital change is not a target state, but an accelerated process that is both a condition and the subject of vocational education and training. In the context of the changing world of work, the responsibility for skills development is shifting to companies and employees, so that they are increasingly required to react to the pressure of transformation and proactively shape change.

Based on the considerations of the MTO-model (Mensch-Technik-Organisation) model (Ulich, 2013), the human, technological and organizational factors are interdependent. For example, every time a new technology is introduced, both the organizational processes and the skills required by employees change, and vice versa. It can therefore be assumed that companies must be able to balance the human, technological and organizational factors in the context of digital change (Häring et al., 2023). Based on this context, digital transformation raises the question of which (technological) skills are relevant for employees on the one hand and which organizational (support) measures are important on the other.

In view of demographic developments and the ongoing shortage of skilled workers, vocational education and training is also confronted with an increasingly diverse workforce, making the targeted skills development of skilled workers ever more important (Ramin, 2022; Nägele & Ertl, 2023). With regard to technological change, there is a growing risk of a digital divide or inequality, which can manifest itself in terms of access, use and profit (see Dijk 2019, Bergmann et al. 2022). Even though digital participation is increasing in Germany, for example, there are clear differences between the various age groups: While 14 to 27-year-olds, for example, have a Digital Index score of 67 points, the figure for 58 to 67-year-olds, by contrast, is 58 points (see Initiative D21 e. V., 2024).

At the same time, digital change not only reveals a technological dimension, but also an individual and organizational one. This article focuses in particular on the perspective of employees in the company and their view of the technological dimension. In this context, their willingness to embrace technology is examined on the basis of the central aspects of technology acceptance, technology competence beliefs and technology control beliefs (Neyer et al., 2016) and placed in relation to professional self-efficacy.

After a theoretical positioning and a description of the methodological approach, the results of the survey are presented. Finally, implications for vocational training are derived in the discussion.

2   Theoretical Framework

2.1 Technology Readiness

The term "digitalization" covers a broad spectrum of phenomena, from everyday technologies to complex concepts such as Industry 4.0 and artificial intelligence (Lozic, 2019). In order to make the employees' perspective on digitalization in the company tangible, the concept of "technology readiness" outlined by Neyer et al. (2012) is applied in this analysis.

The concept of technology readiness, which is based on the technology acceptance model according to Davis (1989), deals with the willingness of individuals and organizations to accept and use new technologies. Neyer et al. (2012) propose an integrative model with their further development of the concept of technology readiness, which includes the facets of technology acceptance, technology competence conviction and technology control conviction.

Following Davis (1989), they define technology acceptance as an "explicitly represented attitude characteristic that reflects the subjective evaluation of technological progress" (Neyer

et al., 2012, p. 88). The focus here is primarily on the personal relationship to technology and interest in technical innovations (ibid.). Based on the concept of competence beliefs (Krampen, 1991), Neyer et al. (2012) understand technological competence beliefs as "the subjective expectation of possibilities for action in technology-relevant situations" (ibid., p. 88). They represent a specific self-concept of one's own abilities, which reflects both biographical experiences in dealing with familiar technologies and the subjectively expected ability to adapt to unfamiliar technologies (ibid.). Technology control beliefs can be identified as a further facet of technology readiness. These are individual expectations of influence and control over technical processes and their effects in the (professional) environment as perceived by the individual (ibid.; Krampen, 1991).

Although there has been some work on technology readiness in companies at an organizational level in recent years, this relates either to individual facets (e.g. technology acceptance, Frings et al., 2023) or to individual sectors (e.g. outpatient care) (Rothenbusch, Mehner & Kauffeld, 2023).

Overall, the concept of technology readiness makes it clear that the successful use of technology depends on individual attitudes and beliefs with regard to competence and control. Consequently, it provides a theoretical framework to examine the adaptability of professionals of different age groups in dealing with digital technologies and to shed light on both the potential challenges and opportunities of digitalization in the context of a changing world of work. As outlined at the beginning of the MTO model (Ulich, 2013), the organizational and technological dimensions are just as important as the individual level (people).

2.2 Occupational Self-Efficacy

Occupational self-efficacy, which is derived from the psychological concept of self-efficacy and represents a domain-specific focus (Abele et al., 2000), describes a person's individual expectation and confidence in their own abilities to cope with certain occupational tasks on their own and to successfully master challenges in the work environment (ibid.; Anderson & Betz, 2001; Bandura, 1977).

From a theoretical perspective, the concept of career self-efficacy expectation refers to a motivational (the "will") and a skill-related component (the "ability") (Abele et al., 2000). From a meta-analytical perspective, it can be stated that high career self-efficacy is associated with high self-confidence, a strong professional identity, support from colleagues, a positive expectation of career progression and less career-related indecision (Choi et al., 2012) and represents a protective factor against career exhaustion (Shoji et al., 2015). In addition, career self-efficacy is related to career-related choice behavior and achievement striving, among other things (Abele et al. 2000; Hackett & Betz, 1995).

In summary, it can be stated that occupational self-efficacy is an essential individual component of employees, especially against the backdrop of a rapidly changing world of work, which is accompanied by uncertainty and unpredictability, e.g. digital transformation. It is primarily about the conviction that one can successfully overcome possible obstacles and barriers that stand in the way of achieving goals with one's own abilities and skills (Abele et al., 2000; Ajzen, 2006).

3 Methodology

3.1 Research Questions

Overall, it is clear from the research outlined above that individual factors are becoming increasingly important in terms of technology readiness. Individual attitudes and beliefs (here in relation to the relevant technologies) play a key role, particularly against the backdrop of the

digital transformation. Dealing with one's own abilities and skills as well as one's own awareness and confidence "in oneself" are becoming increasingly important in times of digital change.

Even if there are studies on technology readiness and professional self-efficacy, it can be stated that the perspective of employees in the company plays a rather subordinate role. In addition, hardly any demographic factors (age, gender, position in the company) were taken into account and considered in their context.

The study focuses on the following questions: 1) What is the level of technology readiness among employees? 2) To what extent do demographic factors such as age, gender and level of education influence the technology readiness of adults towards new digital technologies? 3) Is there positive correlation between technology readiness and self-efficacy?

3.2 Instrument

For this study, an online-based quantitative survey was conducted in German companies to determine employees' technology readiness and professional self-efficacy. The measuring instrument is based on the adaptation of the validated questionnaires on technology readiness and professional self-efficacy. The questionnaire comprises questions:

- on technology readiness in the professional environment (e.g. directly at one's own workplace, in the work group, in the department, in the company, etc.) (Neyer et al., 2012); technology readiness is understood as a three-factor construct that includes the facets of technology acceptance (four items, 5-point Likert scale, example item: "I am very curious about new technical developments. "), technology competence beliefs (four items, 5-point Likert scale, example item: "I find it difficult to deal with new technologies - I just can't") and technology control beliefs (four items, 5-point Likert scale, example item: "What happens when I deal with new technical developments is ultimately under my control").
- on company support options in dealing with new technologies (four items, 5-point Likert scale, example item: "Whether I am successful in using modern technology in my professional environment depends largely on company support options.")
- on the expectation of occupational self-efficacy (Knispel, et al., 2021)

In addition, further socio-demographic data was collected (gender, age, sector of the company, number of employees, position in the company). The data was processed and analyzed using the statistical software R.

With regard to the instrument on technology readiness, the confirmatory factor analysis confirmed the three-dimensional structure of the scale with excellent model fit ($\chi^2(41) = 27.27$, $p = .951$; CFI = 1.000; TLI = 1.065; RMSEA = 0.000). All standardized factor loadings were significant ($p < 0.05$) and ranged between .517 and .918. The internal consistency measures were satisfactory (Cronbach's alpha: technology acceptance = .85; technology competence conviction = .80; technology control conviction = .72). While technology acceptance and technology competence conviction correlated significantly ($r = .317$, $p < 0.05$), technology control conviction showed no significant correlations with the other two factors. These results indicate that the scale validly measures the three theoretically assumed constructs.

4   Findings

4.1 Sample

The total sample (currently) consists of 70 participants and is made up as follows:

Table 1
Sample

characteristic	
gender	30 female (42.9 %)
	27 male (38.6 %)
	1 diverse (1.4 %)
age	before 1956: 0
	1956 - 1965: 2 (4,3 %)
	1966 - 1980: 18 (25,7 %)
	1981 - 1995: 34 (48,6 %)
	1996 - 2008: 15 (21,4 %)
industry	1 = Industry (without construction): 32 (45,7 %)
	2 = Construction industry: 7 (10,0 %)
	3 = IT, information and communication: 2 (2,9 %)
	4 = Media: 0
	5 = Trade: 9 (12,9 %)
	6 = Gastronomy and accommodation: 0
	7 = Event industry: 0
	8 = Traffic (transport/logistics): 1 (1,4 %)
	9 = Banking/insurance: 2 (2,9 %)
	10 = Business-orientated services: 3 (4,3 %)
	11 = Health/care: 0
	12 = Real estate: 0
	13 = Other services: 8 (11,4 %)
	14 = Other industry, namely: 6 (8,6 %)
position	Trainees: 3 (4.3 %)
	Executive position: 32 (45.7 %)
	Managerial position: 34 (48.6 %)

In the sample, it can be stated that the female and male genders are well balanced. Age shows a slight heterogeneity: While just under half of the respondents were born between 1981 and 1995, 25.7% were born between 1966 and 1980 and 21.4% between 1996 and 2008. Only three people (4.3%) were born between 1956 and 1965. The majority of respondents (45.7%) come from industry. 12.9 % work in trade and 11.4 % in other service professions. With regard to their position in the company, 48.6% have a managerial role and 45.7% an executive role. Only 4.3 % of those surveyed were trainees.

4.2 Technology Commitment

The following (descriptive) result can be seen with regard to readiness for technology (see Table 2): With regard to technology acceptance, it can be stated that it is slightly below average. Although acceptance of technology exists, it is not particularly strong among the employees surveyed. With reference to the belief in technological competence, it is clear that this is well below average. It becomes clear that the people surveyed are below average in terms of their confidence in their own technical competence or their ability to use and understand technology effectively. With regard to technology control beliefs, it turns out that this is also below average. This underperformance means that the individual has less confidence in their ability to effectively use or control technology compared to others.

Kolmogorov-Smirnov and Shapiro-Wilk tests were carried out to test the normal distribution assumption for the constructs technology acceptance, technology competence belief and technology control belief. The results showed a significant deviation from the normal distribution for technology acceptance ($D(69) = 0.137$, $p = .003$; $W(69) = 0.936$, $p = .002$). Likewise, belief in technological competence had a significant non-normal distribution ($D(69) = 0.141$, $p = .002$; $W(69) = 0.912$, $p < .001$). For technology control beliefs, the Kolmogorov-Smirnov test

revealed a significant difference (D(69) = 0.133, p = .004), while the Shapiro-Wilk test did not reach significance (W(69) = 0.968, p = .070). Based on these results, non-parametric testing procedures were used for technology acceptance and belief in technology competence. Due to the contradictory test results, a graphical check using histogram and Q-Q plot was carried out for technical control belief. While the histogram showed a slightly left-skewed distribution, the Q-Q plot indicated an approximately normal distribution with small deviations at the extreme values. Due to the slight but existing deviations from the normal distribution, it was decided to use non-parametric testing procedures to avoid biases in the results.

Table 2

Mean values of the technology readiness scale

factor	N	mean	SD	min.	max.
Acceptance of technology	70	2.87	.73	.75	4.00
Technology competence conviction	70	.73	.62	.00	2.25
Technology control conviction	69	2.05	.79	.33	2.05

Note. 1 = not true at all, 2 = slightly true, 3 = partially true, 4 = fairly true, 5 = completely true

4.3 Group Differences

Gender. The distributions of the three constructs technology acceptance, technology competence belief and technology control belief were tested for gender differences using the Mann-Whitney U test. The results showed no significant differences between the gender groups (p > .05), so it can be assumed that the distributions of the constructs are identical regardless of gender.

Age. The distributions of the constructs technology acceptance, technology competence beliefs and technology control beliefs were compared across different age groups using the Kruskal-Wallis test. The results show no significant differences for technology acceptance (p = .374) and technology control locus (p = .129), so the distributions of these constructs are independent of age. However, a significant difference between age groups was found for technological competence belief (p = .020), indicating that age may have an influence on the distribution of this construct. However, the pairwise comparisons of the age groups for the construct of technological competence belief did not reveal any significant differences between individual groups after Bonferroni correction (adjusted p-values > .05).

Position in the company. Here too, no significant differences (technology acceptance: p = .873; technology competence belief: p = .607, technology control belief: p = .607).

4.4 Correlations

In order to examine the connection between technology acceptance and another mean variable (professional support options, professional self-efficacy), the Spearman rank correlation coefficient was calculated based on the distribution deviations. With regard to technology acceptance and operational support options state that these are not significant (p = .666). This means that the research does not provide sufficient evidence that there is a connection between technology acceptance and career support opportunities. The correlation between technology acceptance and professional self-efficacy (BSW) was calculated using the Spearman rho coefficient. The analysis revealed a significant positive relationship (r = .282, p = .031, n = 59), indicating that higher values in technology acceptance tend to be associated with higher values in professional self-efficacy.

Both the technology control belief and the possibility of operational support (p = .391) as well as the technology control belief and professional self-efficacy are not significant (p = .770).

The analysis of the relationships between technological competence beliefs and professional self-efficacy using the Spearman rho correlation coefficient revealed a significant positive relationship ($r = 0.362$, $p = .005$, $n = 59$). This suggests that higher scores in occupational self-efficacy tend to be associated with higher scores in technological competence beliefs.

Spearman rho correlation analysis revealed a significant negative relationship between technological competence belief and operational support opportunity ($r = -0.373$, $p = .004$, $n = 59$), indicating that higher scores in technological competence belief are associated with lower scores in operational support opportunity. In summary, the statement suggests that this analysis found that individuals with higher technological competence beliefs tend to have fewer operational support options. This could mean that people who feel more confident in their technical skills may rely less on formal support or may receive less such support. Conversely, it may also mean that those who are not dependent on support do not need it as they have a higher level of technical expertise.

4.5 Limitation

Overall, **the small sample size limits** the significance of the results. At this point, a larger population is desirable. It can also be noted that the hierarchical structure of the data is not taken into account. Respondents can be assigned to companies, which would theoretically model two levels, which we cannot do here because the assignment is not possible.

In addition, the assumption of normal distribution is violated, so nonparametric methods were used and not regression. There is also an uneven distribution across sectors. In addition, there may be distortions in the answers, for example due to social desirability in surveys that are based on self-reporting. Furthermore, it should be noted that the concept of technology is not further differentiated in this study. Further investigation would be worthwhile.

5 Discussion

With regard to technology readiness, it can be stated that technology acceptance and the belief in technology control are below average and the belief in technology competence is well below average. It can be assumed that individual trust and willingness to accept and use new technologies in the organization are rather limited. It can be assumed that there is a certain level of skepticism or concerns about new technologies. People may show less interest or motivation to try new tech tools or solutions. This can cause them to lag behind in their technical development. In a professional context, it can lead to employees in companies feeling less comfortable or working less. This in turn implies that employees with below-average acceptance of technology may need additional training. It is also clear that professional self-efficacy plays a key role, particularly with regard to confidence in technical competence. This means that if someone has a higher expectation of their own ability to be successful in their profession (professional self-efficacy expectation), this also tends to go hand in hand with a stronger conviction that they themselves are technically competent (technical competence conviction). In other words: If someone sees themselves as very capable in their job, then they are also more likely to believe that they are good with technology.

Organizations with the appropriate management levels are asked to specifically address the individual needs of employees and to establish support options. In connection with this, vocational training and further education also face enormous challenges. This is reinforced by digital transformation and increasing diversity of trainees and employees in companies. With technological change, the risk of a digital divide is growing, revealing a separation between people who have access to and use digital media and those who do not.

In order for organizations and individuals to survive in digital transformation, a deep understanding of the opportunities and challenges of the digital transformation process is required.

In the spirit of digital participation, all employment groups should be included so that a diversity-sensitive use of technologies can be guaranteed. In order to develop technology readiness with its corresponding facets, it is about identifying and implementing specific training and further education needs that focus on the individual needs of the diverse workforce. Vocational training has an important role to play in this context, as it forms the core or basis for the change process within the framework of digital transformation.

References

Abele, A. E. (2000). Zur ökonomischen Erfassung beruflicher Selbstwirksamkeits-erwartungen - Neukonstruktion einer BSW-Skala. *Zeitschrift für Arbeits- und Organisationspsychologie A&O*, 44, 145–51. https://doi.org/10.1026//0932-4089.44.3.145

Ajzen, I. (2006). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of applied social psychology,* 32(4), 665-683. https://doi.org/10.1111/j.1559-1816.2002.tb00236.x

Anderson, S. L. & Betz, N. E (2001). Sources of Social Self-Efficacy Expectations:

Their Measurement and Relation to Career Development. *Journal of Vocational Behavior*, 58 (1), 98–117. https://doi.org/10.1006/jvbe.2000.1753

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84 (2), 191–215. https://doi.org/10.1037/0033295X.84.2.191

Bejaković, P. & Mrnjavac, Z. (2020). The Importance of Digital Literacy on the Labour Market. *Employee Relations: The International Journal*, 42 (4), 921–932. https://doi.org/10.1108/ER-07-2019-0274

Bergmann, N. et al. (2022). Login statt Logout: Ältere Beschäftigte und Digitalisierung im Fokus. L&R Sozialforschung GmbH. https www.esf.at/wp-content/uploads/2022/06/Endbericht_LoginLogout_Mai2022_LR.pdf

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quar- terly,* 13, 319–340. https://doi.org/10.2307/249008

Dijk, Jan A. G. M. van (2019). The Digital Divide. Polity Press. https://doi.org/10.1002/asi.24355

Frings, K. et al (2023). Technologieakzeptanz in der Digitalisierung der ambulanten

Pflege – eine Fallstudie. In S. Kauffeld & S. Rothenbusch (Eds.), *Kompetenzen von Mitarbeitenden in der digitalisierten Arbeitswelt - Kompetenzmanagement in Organisationen* (pp. 58-76). https://doi.org/10.1007/978-3-662-66992-1_11

Häring, et al. (2023). Entwicklung von Selbstorganisationskompetenzen in der Industrie 4.0. In   S. Kauffeld, S. Rothenbusch (Eds.), *Kompetenzen von Mitarbeitenden in der digitalisierten Arbeitswelt - Kompetenzmanagement in Organisationen* (pp. 18-36). https://doi.org/10.1007/978-3-662-66992-1_11

Hackett, G. & Betz, N. E. (1995). Self-efficacy and career choice and development. In J. E. Maddux (Ed.), S*elf-efficacy, adaptation, and adjustment: Theory, research, and application* (pp. 249-280). Plenum. https://doi.org/10.1007/978-1-4419-6868-5_9

Initiative D21 e. V. (2024). D21-Digital-Index 2023/24. Jährliches Lagebild zur Digitalen

Gesellschaft. https://initiatived21.de/uploads/03_Studien-Publikationen/D21-Digital-Index/2023-24/d21digitalindex_2023-2024.pdf (22.01.2025).

Knispel, J., Wittneben, L., Slavchova, V. & Arling, V. (2021). Skala zur Messung der beruflichen Selbstwirksamkeitserwartung (BSW-5-Rev). Zusammenstellung sozialwissenschaftlicher Items und Skalen (ZIS). https://doi.org/10.6102/zis303

Krampen, G. (1991). Fragebogen zu Kompetenz- und Kontrollüberzeugungen (FKK). Handanweisung. Hogrefe.

Lozić, J. (2019). Core concept of business transformation: From business digitalization to business digital transformation. 48th International Scientific Conference on Economic and Social Development – "Managerial Issues in Modern Business". Warsaw.

Nägele, C., & Ertl, H. (2023). Betriebliches Kompetenzmanagement älterer Mitarbeiter:innen in digitalen Lernsettings [Operational competence management of older employees in digital learning settings]. *Zeitschrift für Berufs- und Wirtschaftspädagogik,* 119(2), 319–343 DOI 10.25162/zbw-2023-0013

Neyer, F. J., & Gebhardt, C. (2012). Entwicklung und Validierung einer Kurzskala zur Erfassung von Technikbereitschaft [Development and validation of a short scale to measure technology commitment]. *Diagnostica*, 58, 87-99. https://doi.org/10.1026/0012-1924/a000067

Ramin, P. (Ed.). (2022). Digital Competence and Future Skills: How companies prepare themselves for the digital future. Carl Hanser Verlag GmbH Co KG.

Rothenbusch, S., Mehner, L. & Kauffeld, S. (2023): Digitale Unterstützung des Lerntransfers und der Wissensweitergabe in kleinen und mittleren Unternehmen: Beurteilung des LeWiT-Tools durch Nutzende, Führungskräfte, Personaler*innen und Trainer*innen. In S. Kauffeld, S. Rothenbusch (EDS), *Kompetenzen von Mitarbeitenden in der digitalisierten Arbeitswelt - Kompetenzmanagement in Organisationen* (pp. 195-214).

https://doi.org/10.1007/978-3-662-66992-1_11

Shoji, K. et al. (2015). Associations between job burnout and self efficacy: a meta-analysis. *Anxiety, Stress & Coping, 29* (4), 367- 389. https://doi.org/10.1080/10615806.2015.1058369

Ulich, E. (2013). Arbeitssysteme als soziotechnische Systeme – eine Erinnerung. J*ournal Psychologie des Alltagshandelns*, 6, 4–12.

Biographical Notes

Dr Dana Bergmann works as a junior professor for Vocational and Business Education at the University of Osnabrück. Her research focuses on the topic of digitalization in vocational education and training, (digital) teaching and learning settings, practical school study phases and the topic of biographical coherence in professional development. Dana Bergmann has led various projects on the subject of qualification requirements for further training and career orientation.

'Excellence' in Vocational Education and Training

Bohlinger, Sandra

sandra.bohlinger@tu-dresden.de, Dresden University of Technology

Abstract

Context: This contribution uses the concept of 'excellence' within Vocational Education and Training (VET) and aims to identify the meaning of 'excellence' at the crossroads of 'innovation' within VET.

Approach: The paper refers to the German Federal Ministry of Education and Research's funding initiative 'InnoVET' as a case study.

Findings: The findings highlight a gap in the meaning of what constitutes excellence and innovation in VET. Unlike higher education, which benefits from widely accepted frameworks and metrics (such as research output in terms of publications, talks, teaching quality, institutional reputation etc.), VET lacks such a cohesive understanding of 'excellence'.

Conclusions: Discussions about the two notions in VET remain nebulous, with various stakeholders applying differing interpretations and criteria.

Keywords

excellence, innovation, case study, Germany

1 Introduction

This contribution to the 2025 Crossing Boundaries' conference uses the concept of 'excellence' within Vocational Education and Training (VET) by referring to the German Federal Ministry of Education and Research's funding initiative 'InnoVET' (Shaping the Future – Innovations for Excellent Vocational Education) as a case study. This perspective is of interest for other European countries as it addresses the critical need for a unified understanding of excellence in VET, which can drive reforms in national education systems and contribute to an improved collaboration accross countries in this field.

Against this background this paper sheds light on a significant conceptual ambiguity. It shows that stakeholders associate 'excellence' in VET with terms like 'outstanding VET' and thus expect enhancing labour market opportunities, increasing workforce productivity, and broader economic benefits. This is the case with e.g., the European Skills Agenda (European Commission, 2020) or the Council Recommendations on VET (Council of the European Union, 2020) where vocational excellence is seen as a means for reforms in VET. Taking the abovementioned German funding scheme as a case study, this contribution also shows that there is no unified or clearly defined understanding of the term. Both, at European and at national levels, 'excellence' (and 'innovation') often refer to any kind of e.g. education-business cooperation, professional development, didactical approaches, digitalisation or 'green skills' (for an overview with respect to the European state of the art see Jansson & Lager, 2023). This contrasts sharply with other fields of research such as higher education, where research on excellence

has a longer tradition (de Jong et al., 2023) and 'excellence' often comes with specific benchmarks and clearly defined indicators (Loukkola et al., 2020). In line with that, innovation research mostly focuses on highly skilled workforce neglecting the contribution of VET (Toner, 2010). For example, the European Innovation Scoreboard (EIS) provides aims to measure the research and innovation performance of the European Members States. This measurement framework covers numerous indicators such as the population aged 25-34 with tertiary education, lifelong learning, venture capital expenditures or employed ICT specialists (European Commission, 2023, p. 6). While outcomes of VET are integrated into this framework indirectly (e.g. employed ICT specialists), indicators that are directly linked to VET are not mentioned. Thus, while there is common agreement on the importance of VET as a contribution to innovation and excellence, this is not well reflected in respective studies (Tether et al., 2005, p. 73).

The findings highlight a gap in the standardization of what constitutes excellence in VET and its linkages with innovation as both notions are used interchangebly. Unlike higher education, which benefits from widely accepted frameworks and metrics (such as research output, teaching quality, and institutional reputation), VET lacks such a cohesive understanding. As a result, discussions around excellence in VET remain nebulous, with various stakeholders applying differing interpretations and criteria.

This ambiguity raises questions about how VET institutions can be assessed and improved in a consistent manner to foster their 'excellence' and their contribution to e.g., social and economic innovation. It also underlines the need for further research to establish clear, practical indicators of excellence that reflect the unique goals and outcomes of VET.

The paper starts with a literature-based review of existing understandings of excellence in education. In a second step, it turns to the understanding of excellence in the context of innovation in a German funding line called InnoVET. 17 projects that were run between 2019 and 2024 provide a different understanding of excellence and therewith-linked innovation. They applied various accesses to strengthen a) innovation including equality, b) industries, c) digital change, e) cooperation between learning locations, f) training quality, and g) hybrid education models.

Comparing and contrasting these definitions and understandings, we can see that 'innovation' is understood in terms of developing educational products, be it a qualification pathway, training material or a qualification concept. At the same time, it is clear that such products are not an aim in itself but rather a means to increase the attractiveness and inclusiveness of VET.

2   What are 'Excellence' and 'Innovation'?

Innovation usually refers to a process of creating new ideas, approaches, products, or processes to improve something existing and thus achieve progress. Innovation is always characterized by a mix of (calculable) risk, creativity, and the replacement of previous solutions. Moreover, 'innovation […] is to be regarded as an instrument of necessary and positive change. Any human activity (e.g., industrial, business, or educational) needs constant innovation to remain sustainable' (Serdyukov, 2017, p. 5). Although many types of innovation have been discussed in recent years (e.g., social innovation, digital innovation, service innovation, etc.), the fundamental aspects of innovation development have remained the same. These include phases such as recognizing opportunities, generating and selecting ideas, developing and testing prototypes, iterating them, and ultimately implementing the innovation (sustainably), including its monitoring and evaluation. It is also important to note that most innovations simply fade away, for example, because they fail to achieve lasting practical transfer or lack a viable market. In other words: 'Only when 'doing something new or differently' is commercialised or applied in the community that is becomes an 'innovation' (Guthrie & Dawe, 2004, p. 10; see also Kearney, 2004, p. 60).

Innovation also requires routine. Only when a system (process, structure) has existed and been understood for a long time can it harbour innovation potential. In this context, innovation, and even more so its transfer, is always shaped by processes and is largely dependent on the willingness of the actors affected to change. In that sense, much remains to be done: 'Few areas have been as hopeful and as disappointing as innovation in education. Education is probably the single most important function in our society today, yet it remains one of the least understood, despite incredible levels of investment from venture capitalists and governments' (Crichton, 2015).

Excellence, on the other hand, refers to the outstanding position of an object (product, process, idea, service, etc.) compared to other objects. In the context of education, a well-known example is the Excellence Strategy in higher education in Germany, which has been used by the Federal Government and States since 2007 to honour top university research. Its aim was and still is to particularly promote those universities—also in competition with each other—that perform research in internationally outstanding and competitive fields, thereby strengthening the entire university system. If one were to look for a connection between innovation and excellence, it could be concluded: Excellence requires innovation, but not every innovation necessarily leads to excellence.

It is logical and consistent to implement approaches to promoting innovation and excellence analogously to the higher education sector and in VET. Unlike the German Excellence Strategy for universities, the focus of innovation promotion in VET is on the idea of promoting the entire training sector in conjunction with higher education to strengthen Germany's economic position. The idea is that innovative products, such as educational programs, can only emerge if vocational, continuing, and higher education are more closely linked and existing structures are taken into account. This seems all the more difficult as terms like innovation or excellence are not fixed terms in this context but are interpreted differently depending on the perspective of the various actors. This is even more true when, in addition to the coupling of vocational and higher education, goals like strengthening industries or fostering cooperation in learning environments are also considered. Additionally, the German VET system is generally regarded as resistant and tradition-oriented, even and especially towards innovations such as modularization or approaches to internationalization (e.g., through credit points).

Thus, connecting innovation and excellence is an ambitious and complex goal. This is precisely what the German Federal Ministry of Education and Research has set out to achieve with the competition 'Shaping the Future – Innovations for Excellent Vocational Education (InnoVET)'. The goal is to make the existing VET system future-proof and excellent through innovative focal points. Before going into more detail, the question arises: What defines excellence (and innovation) in VET?

3 Existing Studies and Reserach on 'Innovation' and 'Excellence'

Germany's vocational education system has been regarded as having strong innovation and exemplary power in international comparison for decades. The key pillars are: a) the close cooperation of actors, b) the relatively broad, rather than company-specific, curricula compared to international standards, which extend far beyond a single profession, c) opportunities for advancement into higher education, and d) a broad societal and economic acceptance of the entire vocational education system, especially VET. At the same time, international comparisons point out that economic innovation capacity is largely determined by the proportion of workforce with an academic degree in a country, while skilled workers at the intermediate level contribute much less to innovation in many countries (Backes-Gellner & Lehnert, 2023, p. 86; Lewis, 2023; Matthies et al., 2023). Therefore, addressing the innovative capacity of and

through VET is not only urgently necessary but should also contribute, from a scientific perspective, to solving the paradox (ibid., p. 86) between the internal and external perceptions of the VET system.

In fact, there are several studies showing in which ways and why VET in Germany is already perceived as highly innovative and excellent (Deissinger, 2015; Haasler & Gottschall, 2015; OECD, 2020, p. 58ff.). This includes, foremost, the low youth unemployment rate as a consequence of the theory-practice coupling, the binding nature of curricular regulations, and the legally guaranteed involvement of social partners in curriculum design, which are updated more or less regularly to incorporate and initiate labour market-related innovations in education and training. In addition to the well-known strengths of the VET apprenticeship system, such as the breadth of education and training, competence orientation, and opportunities for advancement, newer developments in continuing VET (CVET) are also driving the innovative power of the entire VET system. An example is the introduction of three levels of CVET (Certified Specialist, Bachelor Professional, Master Professional) in 2020 with the amendment of the Vocational Training Act. Creating such qualification pathways as alternatives to academic career paths offers high innovation potential for the education system and the qualification of skilled workers if these new pathways can be widely implemented and made accessible. It is no coincidence that current theses and outlooks for better VET (Working Group 9 + 1, 2022) focus on such alternatives and explicitly address modularization and thus the flexibility of VET, the strengthening of formal continuing VET, and the transitions between vocational and higher education.

Career path concepts, coherent and permeable qualification pathways, regional networking, and improved cooperation structures, as well as cross-sectoral offerings, also play leading roles in fostering innovation. Against this backdrop, I focus on the 17 projects funded by the German Federal Ministry of Education and Research (BMBF) within the funding scheme InnoVET ('Shaping the Future – Innovations for Excellent Vocational Education'). The contributions provide insights into the implementation of the focal points that shape the competition, including equivalence, industry strengthening, digital networking, expansion of learning location cooperation, improving training quality, and testing hybrid educational models. The importance of permeability is clearly demonstrated by the number of projects addressing these issues: 13 out of 17 projects focus on interfaces between vocational education and training on one hand and academic qualification on the other (Kuhlee et al., 2022, p. 672). Key ideas include: (a) the systematic creation of career paths within vocational education considering further qualifications, (b) the strengthening of reciprocal switching opportunities, (c) the offer of hybrid formats, or (d) the development of convergent educational formats (Kuhlee et al., 2022, p. 675). While these are not the only topics being addressed, their significance for creating innovation is reflected in them. This process is framed by accompanying research by three institutions (University of Magdeburg, University of Paderborn, Federal Institute for Vocational Education and Training), which aims to identify factors that make innovation and its transfer possible. Preliminary results from the accompanying research show that the InnoVET projects address not only the system level (connection between academic and vocational education) but also the meso level (cooperation between learning sites, excellence centers) and the micro level, such as the specific design of individual professions in, for example, the chemistry and pharmaceutical sectors (Daniel-Soeltenfuss et al., 2022, p. 685).

However, the accompanying research also shows that determining the understanding of innovation and its transfer is difficult, as the involved projects pursue very different innovation concepts and ideas, ranging from entirely new products and services to incremental, i.e., smaller changes with limited reach, and encompassing both social and technological innovations (Daniel-Soeltenfuss et al., p. 688).

Although it is still too early to expect comprehensive results from the projects and their accompanying research, the project activities at this point clearly demonstrate what drives innovation in VET: "While personal aspects are primarily mentioned as conditions for success and the effectiveness of one's own actions is emphasized, environmental factors are highlighted in particular when it comes to challenges" (Daniel-Soetenfuss et al., p. 694).

4 Approach

This overview of both, existing understandings of 'excellence' and 'innovation' as well as the InnoVET funding scheme, show that there is no unified understanding of the two notions. Against this background, the aim of this contribution is to identify the core meaning of 'innovation' in the 17 projects of the funding scheme. In general, innovation in VET can refer to several aspects including the educational products and services, the management of a VET institution, teaching and learning as well as strategy and management at institutional or regional/national levels (Unesco-Unevoc, 2020, p. 6).

Deriving from the call for proposals for this funding scheme (BMBF, 2019) it was clear that the projects would focus on at least two of the following aspects: equality in VET, strengthening branches, designing digital change, increasing VET attractiveness, expanding cooperation in VET and testing hybrid qualifications. However, the call for proposals was not limited to a particular understanding of excellence of innovation even though these notions were at the core of the call.

The overview is based on the publicly available core documents. These were project summaries, flyers, project documentations etc. of the funding scheme and the 17 projects that are available at the funding body's public website[1]. In detail, the study covered one final report of the overall project funding scheme, 17 project summaries and descriptions and 50 education products (descriptions, handbooks, qualification flyers, curricula etc.). A qualitative content analysis was run in order to identify the main understanding of innovation, its meaning and aim. In parallel, the funding body (BMBF) ran an accompanying study conducted by two universities and the Federal Institute for Vocational Education and Training which were also taken into consideration (Daniel-Soeltenfuss et al., 2022, Kuhlee et al., 2022).

5 Findings

While the final report on the funding line is entitled 'excellent innovation' (BMBF 2024), it is striking that only one of the projects explicitly applies the term 'excellence' even though this notion is at the core of the funding scheme. In comparison, the term 'innovation' is mentioned in most project documents and is – in all cases – applied in the sense of 'developing' something innovative such as innovative 'products' (curricula, training schemes etc.). However, definitions and aims of innovation vary between projects and are – little surprisingly – closely intertwined with the overall aims of the funding scheme. The following table provides an overview of the understandings of innovation in the respective projects.

Comparing and contrasting these definitions and understandings, we can see that 'innovation' is– in almost all cases–understood in terms of developing educational products, be it a qualification pathway, training material or a qualification concept. Among the key development objectives are the following educational products:

- qualifications at DQR levels 5 and 6. This covers continuing vocational qualifications above the skilled worker level (Facharbeiter);

---

[1]   www.inno-vet.de

Table 1

Understandings

Projects	Understanding of Innovation: Developing…	Meaning and aim of innovation
P1	…an innovation cluster for VET	joint use of existing VET infrastructure in Bavaria development of VET concepts and their transfer beyond Bavaria
P2	…innovative access pathways to VET and attractive VET pathways	systematic qualification of training staff to better address the needs of diverse VET target groups
P3	… an innovation cluster for VET	development of a modular qualification cluster in electronics development of attractive and permeable qualification pathways
P4	…measures to address innovation threats (need of skilled workforce)	development of entrepreneurship spirit, development of international thinking and international competence development of hybrid qualification formats
P5	… digitalisation measures	'innovative qualifications' (blended learning, flexible qualification, modular qualification pathways)
P6	…modules, qualification pathways and trainings	development of dynamic, technology-oriented modules improvement of the quality of existing qualification pathways trainings for teaching staff at VET schools
P7	…pathways and career guidance	development of attractive pathways for young persons with HE access development of career guidance (regional competence centers) for VET) to optimize VET marketing
P8	…qualifications and assessments tools	development of Branch-specific additional qualifications at DQR[2]5 up to DQR7 development of a digital competence assessment tool to improve permeability between VET and HE
P9	…qualifications	CVET for Crafts in electronics (DQR5 + DQR6)
P10	…qualifications	HVET for existing VET qualifications with respect to AI and machine learning (DQR5 + DQR6)
P11	…innovative modular qualification concepts	CVET[3] at DQR5-7
P12	…innovative CVET concepts	development of an e-learning campus and an e-learning platform, development of assessment software
P13	…an innovative hybrid qualification	dual degree within four years (HE + VET)
P14	…learning material for teaching and training staff	individualised (personalised) learning (development of a technology-based, responsive learning environment)
P15	…conceptional innovations	development of a 'trial' (trial) Quality management, trial learning cooperation model, trial coaching and guidance in administration and informatics-related occupations
P16	…innovative qualification pathways	development of a hybrid qualification (industry, higher education, public transportation; DQR5)
P17	…excellence qualifications	modular CVET qualifications (DQR6) including 'innovative thinking'

[2] DQR = Deutscher Qualifikationsrahmen / German Qualifications Framework
[3] Continuing Vocational Education and Training.

- hybrid qualifications which refer to qualifications combining higher education and VET;
- e-learning elements (platforms, modules, learning units etc.);
- individualised and permeable qualifications which aim to improve access routes to higher education and address individual learning needs.

At the same time, such products are not an aim in itself but rather a means to increase the attractiveness and inclusiveness of VET. Moreover, developing innovations (and thus, striving for excellence) by means of educational products is not linked to benchmarks and it is hardly linked to quantitative indicators (such as numbers of participants, numbers of involved stakeholders etc.) A core indicator for the overall funding line, however, seems to be the number of developed products (n=50) which results from the information available from the project website.

6   Conclusions

Innovation is largely dependent on its involved stakeholders as well as their opportunities and willingness to cooperate and collaborate. Moreover, there is no unified understanding of 'innovation' and/or 'excellence' in VET. A non-unified understanding of both, 'innovation' and 'excellence' in VET may, however, limit intra-national as well as international collaboration in this area. While in higher education and research, both terms often are built on rigorous indicators, benchmarks or rankings, this is not (yet) the case with VET where such instruments are not yet in place and may not be appropriate given the diversity of VET systems.

In public VET funding schemes, transfer of innovation is nowadays a key element right from the beginning of projects rather than it is part of a summative evaluation. In this case study, 'innovation' mostly refers to the development of new education products such as qualifications, learning materials or assessment formats. Moreover, it is supposed that these products result in an improvement of the VET system and thus contribute to its 'excellence'. At the same time, there are no specific benchmarks or indicators framing 'innovation' and 'excellence' which may be due to the pilot character of the initiative of the funding scheme.

Even though the funding scheme and the case study is restricted to Germany, it may provide an impetus for other countries planning similar initiatives. They show the necessity defining a clear meaning of innovation and excellence and identifying indicators (or even benchmarks) to assess the progress towards therewith-connected results and reforms.

References

Arbeitsgruppe 9 + 1 (2022). *Zukunftsfaehig bleiben! 9 + 1 Thesen für eine bessere Berufsbildung.* Bonn. https://www.bibb.de/dienst/veroeffentlichungen/de/publication/download/17769

BMBF (2024). *Exzellente Innovationen zur Staerkung der Berufsbildung. Ergebnisse des Innovationswettbewerbs InnoVET.* Bonn. https://www.inno-vet.de/innovet/de/ergebnisse/ergebnisse_node.html

BMBF (2019). Foederrrichtlinie zur Durchfuehrung des Bundeswettbewerbs 'Zukunft gestalten – Innovationen fuer eine exzellente berufliche Bildung (InnoVET)', Bundesanzeiger vom 17.01.2019, https://www.bundesanzeiger.de/pub/de/start?0 (accessed February 19, 2025)

Backes-Gellner, U., & Lehnert, P. (2023). Berufliche Bildung als Innovationstreiber. Ein lange vernachlaessigtes Themenfeld. *Perspektiven der Wirtschaftspolitik, 24*(1), 85–97.

Council of the European Union. (2020). Council recommendation of 24 November 2020 on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience. In: *Official Journal of The European Union*, 2020/C *417/*01. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020H1202%2801%29

Crichton, D. (2015). Searching for the next wave of education innovation, *TechCrunch*, https://techcrunch.com/2015/06/27/education-next-wave/

Daniel-Soeltenfuss, D., Kremer, H.H. & Kueckmann, M.-A. (2022). Innovations- und Transferprozesse in der beruflichen Bildung als Forschungs- und Entwicklungsgegenstand. *Zeitschrift für Berufs- und Wirtschaftspaedagogik, 118*(4), 684–697.

de Jong, N. A., Boon, M., van Gorp, B., Büttner, S. A., Kamans, E., & Wolfensberger, M. V. C. (2021). Framework for analyzing conceptions of excellence in higher education: a reflective tool. *Higher Education Research & Development*, *41*(5), 1468–1482. https://doi.org/10.1080/07294360.2021.1915964

Deissinger, T. (2015). The German dual vocational education and training system as 'good practice'? *Local Economy*, *30*(5), 557–567. https://doi.org/10.1177/0269094215589311

European Commission (2023). *European Innovation Scoreboard 2023. Methodology Report.* Directorate-General for Research and Innovation. https://research-and-innovation.ec.europa.eu/document/download/e59de361-e73c-42cf-8869-213b9d240383_en

European Commission. (2020). *European Skills Agenda.* https://ec.europa.eu/social/main.jsp?catId=1223&langId=en

Guthrie, H. & Dawe, S. (2004). Overview. In S. Dawe (ed.), *Vocational education and training and innovation* (pp. 10–19). NCVER.

Haasler, S. R., & Gottschall, K. (2015). Still a perfect model? The gender impact of vocational training in Germany. *Journal of Vocational Education & Training*, *67*(1), 78–92. https://doi.org/10.1080/13636820.2014.922118

Jansson, M. & Lager, A. (2023). Analyzing vocational excellence: a research-based model. *TVET@Asia*, *21*, 1-14. https://tvet-online.asia/issue/21/analyzing-vocational-excellence-a-research-based-model/

Kearney, G. (2004). How businesses innovate today and what that means to the workforce. In S. Dawe (ed.), *Vocational education and training and innovation* (pp. 68–83). NCVER.

Kuhlee, D., Buenning, F., Pohl, M. & Stobbe, L. (2022). Systematisch innovieren. InnoVET-Innovationsansätze als Ausgangspunkt für die Weiterentwicklung des Berufsbildungssystems. *Zeitschrift für Berufs- und Wirtschaftspaedagogik*, *118*(4), 670–683.

Lewis, P. (2023). Innovation, technician skills, and vocational education and training: connecting innovation systems and vocational education and training. *Journal of Vocational Education & Training*, 1–28. https://doi.org/10.1080/13636820.2023.2215749

Loukkola, T., Peterbauer, H. & Gover, S. (2020). *Exploring higher education indicators*. Geneva. https://www.eua.eu/downloads/publications/indicators%20report.pdf

Matthies, E., Thomä, J., & Bizer, K. (2023). A hidden source of innovation? Revisiting the impact of initial vocational training on technological innovation. *Journal of Vocational Education & Training,* 1–21. https://doi.org/10.1080/13636820.2023.2201602

OECD (2020). Education at a Glance 2020. OECD Indicators. Paris.

Serdyukov, P. (2017). Innovation in education: what works, what doesn't, and what to do about it? *Journal of Research in Innovative Teaching & Learning*, *10*(1), 4–33. DOI 10.1108/JRIT-10-2016-0007.

Tether, B., Mina, A., Consoli, D. & Gagliardi, D. (2005). A literature review on skills and innovation. How does successful innovation impact on the demand for skills and how do skills drive innovation? ESRC Centre on Innovation and Competition, University of Manchester.

Toner, P. (2010). Innovation and Vocational Education. *The Economic and Labour Relations Review*, *21*(2), 75–98. https://doi.org/10.1177/103530461002100206.

Unesco-Unevoc (2020). *Innovating technical and vocational education and training.* Bonn, Paris. https://unevoc.unesco.org/pub/innovating_tvet_framework.pdf

Biographical Notes

Dr Sandra Bohlinger is a professor of adult education at the Faculty of Education at Dresden University of Technology. Her main research interests are in VET at the crossroads of adult education.

Crossing Borders While Crossing Cultures: Challenges of European Dual TVET Transfers to West-African Construction Training Systems

Bohra, Alexandra
alexandra.bohra@stud.hs-ruhrwest.de, Ruhr West University of Applied Sciences

Meckmann, Felix
felix.meckmann@hs-ruhrwest.de, Ruhr West University of Applied Sciences

Abstract

Context: The increasing globalisation of Technical and Vocational Education and Training (TVET) has driven efforts to transfer European dual training models to Sub-Saharan Africa to enhance skills development and labour market integration. While these initiatives focus on structural and institutional reforms, the sociocultural dimensions of policy transfer remain underexplored. This study critically examines the challenges of implementing European dual TVET structures in West-African construction training systems, with a particular emphasis on cultural dissonance, pedagogical mismatches, and stakeholder engagement.

Approach: A qualitative research design integrates a comparative literature review of European and West African TVET frameworks alongside a desk-based analysis of EU-funded TVET projects, particularly GreenVETAfrica, to assess outcomes, challenges, and policy implications. Qualitative survey interviews with TVET experts further provide insight into implementation barriers and best practices. Through data triangulation, this study presents a comprehensive exploration of the sociocultural and structural factors shaping dual TVET policy transfers.

Findings: Integrating dual training models into informal apprenticeship systems proves challenging, as local traditions, economic structures, and operational realities often conflict with European frameworks. Many TVET projects struggle to introduce new skills meaningfully, constrained by implementation barriers and entrenched training traditions. Employer engagement remains inconsistent, with companies hesitant due to training costs, staff retention issues, and curriculum misalignment. At the policy level, a top-down approach frequently neglects local governance and socio-economic realities, limiting sustainability. These challenges underscore the risks of uncritical policy borrowing and highlight the need for contextually adapted TVET frameworks that integrate indigenous training traditions, foster stakeholder collaboration, and promote inclusivity, particularly gender equity in construction training.

Conclusions: By embedding the findings within broader debates on inclusivity in vocational education, this study argues that successful policy transfers require more than structural adaptation—they demand cultural translation, participatory engagement, and localised strategies. Without context-sensitive reforms, dual TVET risks reinforcing inequalities, increasing dropout rates, and failing to deliver sustainable skills development in West Africa.

Keywords

dual TVET transfers, vocational education and training, cultural adaptation, construction craft sector, West Africa

1 Introduction

This section introduces the research context, outlines the problem, and defines the study's aims and guiding questions within the broader discourse on dual TVET policy transfer to West Africa.

1.1 Background

Technical and Vocational Education and Training (TVET) systems have been globally recognised as a key driver of skills development, workforce readiness, and economic growth (UNESCO, 2015). Among the various TVET models, the dual system of vocational training, which integrates theoretical education in vocational schools with structured practical training in enterprises, has been widely implemented in countries such as Germany and Switzerland with remarkable success (Euler, 2023; Langthaler, 2015; Pilz, 2017). It has often been promoted as a global benchmark for vocational education due to its success in producing skilled workers who are immediately employable (Pilz, 2017).

In recent years, there has been growing interest in transferring the European dual TVET system to Sub-Saharan Africa, including West Africa, as a strategy for improving training outcomes and employability. However, its transferability remains contested due to differences in regulatory frameworks, economic structures, and informal training systems (Gewer, 2021; Langthaler, 2015).

1.2 Problem Statement

Despite extensive TVET policy reforms, donor-funded initiatives, and private sector interventions, systemic constraints, inadequate infrastructure, and entrenched societal biases continue to hinder the widespread adoption of dual TVET in West Africa (McGrath et al., 2020a, 2020b; UNESCO, 2015). Employer participation remains inconsistent, with variations in training quality across different programmes (McGrath, 2023). These challenges raise critical questions about the mechanisms, actors, and motivations involved in the transfer of vocational education models — questions that this study explores using Dolowitz and Marsh's (2000) policy transfer framework. Several studies highlight four core barriers to successful implementation, which are summarised in Table 1.

Given these challenges, it is essential to critically assess the feasibility and adaptability of dual TVET in West Africa. The leading European dual TVET model, which originates from Germany, operates within a structured regulatory and industrial ecosystem supported by employer associations, financial incentives, and standardised qualifications (GOVET, 2016; Li & Pilz, 2023). In contrast, West-African TVET systems are often informal, lack national recognition for apprenticeships, and face inconsistent employer involvement (Gewer, 2021). Understanding these structural differences is crucial for evaluating whether, and how, dual TVET can be successfully adapted to the West African context.

Table 1

Core Barriers to Successful Implementation of Dual TVET in West Africa

Barriers	Relevant scholarship
Limited employer engagement due to cost concerns, weak regulatory frameworks, and fragmented institutional coordination.	Euler (2023); McGrath (2023); Maurer and Gonon (2014)
Mismatch between training curricula and industry demands, with out-dated pedagogical approaches that fail to align with evolving labour market needs.	Haseloff et al. (2017); McGrath (2023)
Institutional and policy inefficiencies, including fragmented governance structures, weak enforcement of TVET regulations, and insufficient financing mechanisms.	ACET (2023); King (2019); Valiente and Scandurra (2017)
Persistent societal biases against vocational training, with TVET often perceived as a secondary pathway to academic education, limiting its attractiveness among young people and their families.	Oketch (2007); Adams (2012); Odjo et al. (2024);

Note. This table demonstrates that the barriers involved in implementing dual TVET in West Africa are not only persistent, but structurally reproduced through donor agendas. For each barrier, relevant scholarship is identified.

1.3 Aims and Objectives

This study aims to examine the key barriers to implementing dual TVET in West Africa and explore strategic pathways for enhancing its effectiveness. Specifically, it seeks to answer the following questions:

- RQ1: What structural and institutional constraints hinder the adoption of dual TVET models in West Africa, and how do these affect efforts to create inclusive and egalitarian vocational education systems?
- RQ2: How can employer engagement be strengthened to enhance workplace training opportunities in the West-African construction trades, particularly for marginalised groups?
- RQ3: What policy and curriculum reforms are necessary to align dual TVET with labour market demands in the construction trades, ensuring accessibility and success for diverse student populations?

By addressing these questions, the study will contribute to a deeper understanding of the challenges associated with dual TVET adoption and offer evidence-based recommendations for improving its feasibility in West Africa.

2 Literature Review

The following review synthesises key theoretical perspectives and empirical findings on vocational education transfers, highlighting both challenges and success factors relevant to the West-African construction sector.

2.1 Theoretical Framework

This study is grounded in Dolowitz and Marsh's (2000) policy transfer framework, which provides a structured approach to examining how policies are borrowed, adapted, or rejected across contexts. The framework identifies eight key components that guide policy transfer: (1) the reason and motivation of the transfer (2) the actors involved, (3) the content of what is transferred, (4) the donor's location (within a nation or cross-national) (5) the degrees of transfer (copying, emulation, mixtures, inspiration), (6) the constraints of transfer, (7) the demonstration of policy transfer (e.g. media, reports, meetings) and (8) the success or failure of transfer efforts.

These dimensions are used in the present study to analyse the transfer of European dual TVET systems into West African construction training, particularly to assess how donor-driven models are adapted—or resisted—within institutional, regulatory, and informal training contexts. The framework enables a nuanced reading of whether TVET policy borrowing is voluntary, negotiated, or externally imposed, and how this influences stakeholder buy-in, curriculum alignment, and accreditation pathways.

2.2 Challenges of Policy Transfer in TVET Systems

The construction craft sector in West Africa presents a unique case, where traditional construction practices, deeply rooted in cultural and environmental contexts, rely heavily on apprenticeships within informal networks, often led by master craftspeople who transmit skills through hands-on learning and oral instruction (Brewer, 2013; King & Palmer, 2010; Lave & Wenger, 2012). These informal systems provide an accessible and cost-effective pathway to skills acquisition, but often lack the standardisation and certification associated with formal TVET programs (Adams, 2012).

The effectiveness of dual TVET systems varies in this context, depending on institutional structures, industry engagement, and sociocultural perceptions. TVET plays a crucial role in addressing skill shortages and youth unemployment in the region, yet systemic barriers, such as weak institutional coordination between stakeholders or a lack of sustainable funding mechanisms, often hinder its full potential (Gewer, 2021; Oketch, 2007).

Studies indicate that policy transfer to West Africa is hindered by multiple systemic challenges. A major issue is the cultural misalignment due to different values between global competency-based models and African traditions (Odoch et al., 2022; Stone et al., 2020). While European TVET encourages self-directed learning and industry engagement, West-African educational traditions often emphasise teacher-led instruction and hierarchical structures, creating resistance among educators and trainees (McGrath, 2023). Research on Ghana's TVET reforms found that although technical competencies improved, stakeholder resistance to pedagogical changes hindered full adoption of the system (Haseloff et al., 2017).

Another critical challenge is limited employer engagement. Dual TVET systems rely heavily on private sector participation, yet many businesses in West Africa are reluctant to invest in vocational training due to financial constraints and weak regulatory frameworks (Euler, 2023; Gewer, 2021). Without structured incentives or government support, employer participation remains inconsistent, reducing the effectiveness of practical training components.

Furthermore, institutional fragmentation presents a major obstacle. TVET governance in many West-African countries is marked by overlapping mandates among different ministries, weak coordination, and inadequate enforcement of training regulations (King, 2019). Additionally, donor involvement often prioritises visibility and output metrics over sustainability and systemic fit, thereby reinforcing shallow adoption. This leads to inconsistencies in certification, curriculum alignment, and training quality, making it difficult to standardise vocational education across different regions. Therefore, Gewer (2021) argues that the standardisation of vocational education in sub-Saharan Africa is unlikely to succeed in its current form and emphasises the need to enhance informal TVET models in ways that align with, rather than replicate, formal training structures to ensure greater accessibility and relevance.

The intersection of these factors highlights the need for an adaptive approach to TVET system transfer that balances the strengths of traditional, indigenous practices with the benefits of structured formal education. Without addressing these tensions, the implementation of European dual TVET systems risks being viewed as externally imposed and misaligned with local needs, limiting its potential for success and long-term sustainability (King, 2019).

2.3 Success Factors in TVET Transfers

Despite these challenges, some studies highlight effective strategies that enhance the success of dual TVET models in West Africa. One key factor is curriculum adaptation, which involves integrating local labour market needs with structured vocational training. A study in Nigeria found that blending traditional apprenticeship practices with formal TVET curricula improved both employer engagement and student outcomes (McGrath, 2023).

Another success factor is capacity building for educators and trainers. Unlike in European contexts, where vocational instructors receive structured professional development, many West African TVET trainers lack pedagogical and industry-specific training (Haseloff et al., 2017). Training initiatives that provide competency-based instruction methods and exposure to modern industrial practices have proven effective in bridging this gap.

Financial sustainability is also crucial for successful TVET implementation. Many vocational training programmes in West Africa are donor-dependent, raising concerns about their long-term viability. Studies suggest that introducing co-financing models, employer levies, and public-private partnerships can create more sustainable funding structures (Euler, 2023).

2.4 Gaps in the Literature

While significant progress has been made in understanding TVET transfers, key research gaps remain. Most existing studies focus on policy-level analyses, often overlooking the lived experiences of TVET trainees and trainers. More qualitative studies capturing student perspectives, employment outcomes, and instructor challenges are needed (McGrath et al., 2020a). Additionally, gender disparities in TVET participation remain underexplored, particularly in male-dominated fields such as construction. Addressing these gaps through context-specific, empirical research would provide a more comprehensive understanding of TVET effectiveness in West Africa.

3 Methods

This section details the qualitative methodology used to investigate the adaptation of European dual TVET models, including document analysis, expert interviews, and triangulation strategies aligned with the study's theoretical framework.

3.1 Research Design

This study employs a qualitative research design, drawing on academic literature, policy reports and case studies of TVET projects in West Africa as shown in Figure 1.

Additionally, expert insights were obtained through qualitative survey interviews to examine the transfer of European dual TVET systems to the West African construction sector and provide perspectives on the practical realities of TVET adaptation.

Document analysis is employed as a core qualitative research method to examine TVET policy frameworks, implementation reports, and research studies related to vocational education in West Africa (Bowen, 2009). By assessing policy documents, evaluation reports, and donor-funded project reviews, this study provides a comprehensive understanding of how vocational education policies are framed and operationalised.

A purposive sampling strategy was employed to select relevant policy and evaluation documents for the document analysis. Table 2 summarises the databases consulted, inclusion and exclusion criteria, and the analytical focus areas.

The expert survey gathered insights from seven key stakeholders involved in TVET policy implementation, industry engagement, and TVET project development in West-Africa. Participants were also invited to provide additional free-text comments. It included the several questions, summarised in Table 3.

Figure 1

Qualitative Research Design according to Yin (2018)
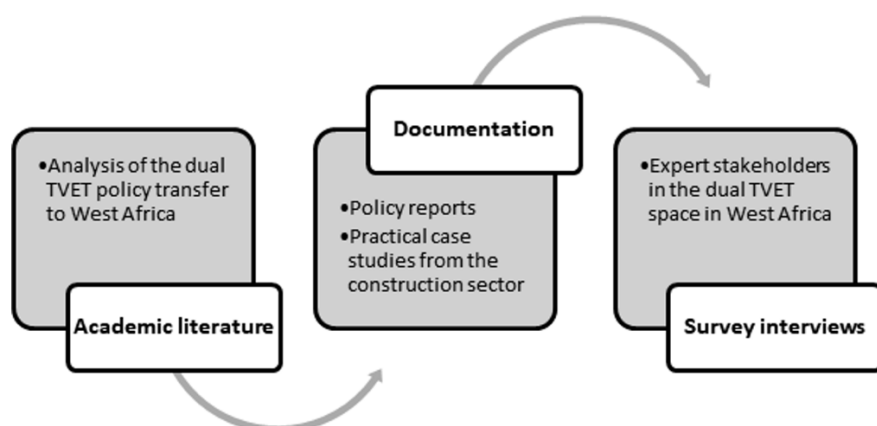
Note. This figure shows the research design followed to conduct this study.

Table 2

Document Analysis Strategy and Selection Criteria

Category	Details
Databases and Sources Used	ERIC, JSTOR, EU CORDIS, UNESCO-UNEVOC, DC dVET repository, ILO, national TVET websites
Timeframe	2012–2024
Geographic Focus	Sub-Saharan Africa (with emphasis on Ghana, Nigeria, Senegal, and regional ECOWAS strategies)
Inclusion Criteria	Policy or project documents focused on TVET in sub-Saharan Africa Sector-specific relevance (especially construction) Produced by recognised institutions (e.g. UNESCO, EU, GIZ) Empirical data or policy evaluation content included
Exclusion Criteria	Theoretical or conceptual papers without empirical relevance to sub-Saharan Africa Documents focused on non-comparable TVET regions (e.g. Asia) Lacking transparency in methodology or authorship
Number of Documents	32
Analytical Focus	Governance structures, curriculum alignment, employer engagement, accreditation, funding models, and cultural adaptation
Triangulation Strategy	Findings were compared across expert interviews and case studies (e.g. GreenVETAfrica) to ensure analytical depth and reduce single-source bias

Table 3

Survey Interview Questions

Type of Question	Details
Core questions	When you think about European-supported dual TVET in West Africa, what are the first words or ideas/ concepts that come to mind?
	What key strengths and weaknesses have you observed in dual TVET transfers in West Africa?
	Can you provide an example(s) of a dual TVET transfer that was successful in some aspects but failed in others? What were the key factors?
Role-specific questions depending on stakeholder's activity	What are the biggest regulatory or policy conflicts when implementing European dual TVET in the West-African region?
	What specific concepts or aspects from European dual TVET are difficult to apply in West African classrooms? Why?
	What are the main obstacles preventing EU companies from fully engaging with dual TVET apprenticeships locally?
	What was your expectation when you joined a dual TVET programme, and how has the reality been different?
Open-ended questions to encourage broader reflections	If you had full control over the future of dual TVET in West Africa, what would you prioritise first—policy reform, employer engagement, curriculum redesign, or something else? Why?
	What is the biggest misconception people have about dual TVET in West Africa? How does this affect policy and implementation?

Note. This table describes the questions that were asked to participants during the survey interview process.

3.2 Data Collection and Analysis

Triangulation was employed by cross-referencing findings from document analysis, academic literature, survey interviews, and comparative case studies to enhance the validity and reliability of the results. Desk-based research includes a review of policy documents and evaluation reports. Expert interviews allow for flexibility in probing policy adaptation and implementation challenges. Thematic analysis (Braun & Clarke, 2006) is applied to identify patterns across the data.

3.3 Ethical Considerations

Ethical approval was obtained, and informed consent secured from all interview participants. Confidentiality was maintained through anonymised transcripts and secure data storage. Cultural sensitivity was prioritised, ensuring interviews were conducted with respect to local norms and values (Wiles, 2013).

4 Results

The findings are presented in three parts: comparative system features, country-specific implementation realities with a focused analysis of the GreenVETAfrica case study, and qualitative survey interviews.

4.1 Comparison of European and West-African TVET Frameworks

The literature and document analysis indicates that while dual TVET systems hold promise for improving employability and skills development in West Africa, their successful implementation requires significant contextual adaptation (Pilz & Li, 2020). It is important to recognise that the European dual TVET model is not monolithic. While practical initiatives largely draw on the German and Austrian systems—with their emphasis on formal institutional partnerships, chamber governance, and standardised certification—this excludes other European variants that may offer more flexibility (see Table 4). For instance, Switzerland's model incorporates

stronger regional adaptation and higher levels of digital integration, particularly through blended learning and modular curricula (Gonon, 2014).

This variation within European models mirrors significant differences in West-African TVET landscapes. Ghana has made notable progress in consolidating its governance structures under the Commission for Technical and Vocational Education and Training (CTVET), the national coordinating body responsible for regulating, overseeing, and harmonising all formal and informal TVET programmes, which shows potential compatibility with competency-based elements of the Swiss model. Nigeria, by contrast, demonstrates persistent fragmentation across federal and state levels, coupled with less institutional cohesion and lower employer participation—conditions that complicate any systemic transfer. Senegal occupies an intermediate position: its policy discourse aligns with donor-led dual approaches, but operationalisation remains uneven, particularly beyond urban centres. These distinctions underscore that both the choice of European reference model and the national absorption capacity in West Africa decisively shape transfer outcomes.

4.2 Implementation Realities in West Africa

This section draws on country-level projects to assess how dual TVET models are received and reinterpreted in the region. The GreenVETAfrica project, funded under the ERASMUS-EDU-2022-CB-VET call concluded in December 2024, offers valuable insight into these dynamics (GreenVETAfrica, 2024a). Implemented in Ghana and Nigeria, it aimed to integrate green waste management and micro-entrepreneurship into vocational education, led by AREA, an Italian SME experienced in technical training across Africa (European Commission, 2024).

The project developed tailored curricula and remote expert tools, trained 50 instructors, and piloted a dual-learning model with 115 students. Gender inclusion improved, with female participation reaching 67% in Ghana and rising from 27% to 44% in Nigeria. However, structural barriers persisted: formal accreditation was absent, funding depended in most parts on the EU, and employer engagement remained inconsistent (GreenVETAfrica, 2024b). While contextual teaching materials increased learner engagement, systemic reform was limited by cultural perceptions and weak institutional ownership. Table 5 applies Dolowitz and Marsh's policy transfer framework to evaluate the project's performance.

These findings provide empirical grounding for theorising how policy transfer is implemented in practice and offer a lens through which to evaluate future dual TVET strategies in resource-constrained and culturally diverse contexts based on key components of Dolowitz and Marsh's (Click or tap here to enter text.framework.

4.3 Lessons Learned from Experts

This survey aimed to capture stakeholder perspectives on the transfer of European dual TVET systems to the West African construction sector, focusing on challenges, opportunities, and practical realities of implementation. By gathering insights from diverse actors, the study sought to identify barriers to adoption, regulatory conflicts, employer engagement issues, and recommendations for improvement.

Participants were specifically targeted based on their direct involvement in dual TVET. The respondent pool included:

- Policymakers involved in vocational education reforms (1).
- Vocational educators responsible for delivering dual TVET curricula (1).
- Industry representatives engaged in construction-sector training programmes (5).

A qualitative survey interview approach was used, allowing for open-ended responses to capture nuanced insights. The survey included core questions applicable to all respondents, role-specific questions tailored to participants' expertise, and open-ended reflection prompts to encourage broader discussions on the future of dual TVET in West Africa. Responses were analysed using thematic analysis, identifying recurring themes related to policy adaptation, employer engagement, and sociocultural influences on vocational training. The survey's duration was variable, lasting between 15 and 60 minutes.

The expert survey provided valuable insights into the realities of transferring European dual TVET models to the West African construction sector. Responses highlighted structural, regulatory, and cultural barriers, as well as opportunities for adaptation and sustainable implementation. The findings are categorised into key themes, as shown in **Fehler! Verweisquelle konnte nicht gefunden werden.**.

Table 4

Key Features of Donor European TVET Systems

Dolowitz & Marsh Framework Components	Donor: Germany	Donor: Austria	Donor: Switzerland
Motivation for Transfer	Sustain industrial competitiveness, low youth unemployment	Maintain apprenticeship traditions, align skills with economy	Innovation, lifelong learning, decentralised skills training
Tension: mismatch between donor priorities and national ownership			
Actors involved	Federal ministries, chambers, employer associations	Federal Institute for VET, employers, social partners	Cantonal authorities, professional organisations, employers
Tension: donor-led agendas crowd out domestic stakeholders			
Transferred Object	Standardised curricula, dual training, national exams	Tripartite curriculum, central exams, sectoral input	Modular, competency-based, blended learning
Tension: limited fit of formalised content with informal sector norms			
Origin of Transfer	Evolved domestically with strong institutional backing	National-level coordination with flexibility by sector	Canton-led development with industry participation
Tension: weak institutionalisation locally impairing sustainability			
Degree of Transfer	Full systemic embedding; minimal adaptation needed	Emulation with structured flexibility	Flexible, locally adapted, iterative refinement
Tension: top-down transfer ill-suited to informal apprenticeship norms			
Constraints of Transfer	Strong institutional support, clear standards	Sectoral variability, growing demand for reform	Digital inclusion, strong VET identity
Tensions: cultural distance and power asymmetries in partnerships			
Demonstration Mechanisms	Chamber-led visibility and benchmarking tools	Standardised outreach, moderate reform visibility	High-profile campaigns, digital platforms
Tension: overemphasis on optics over outcomes			
Success/ Failure Evaluation	High uptake, widespread trust, robust governance	Moderate uptake; performance varies by sector	High employer engagement, strong learner outcomes
Tension: short-term results over long-term system change			

Note. This table summarises key components of Dolowitz and Marsh's (2000) framework.

Table 5

Comparative Table Summarising the Successes and Gaps of the GreenVETAfrica Project

Dolowitz & Marsh's (2000) Framework Components	Illustrated by GreenVET-Africa	Successes	Gaps
Motivation for Transfer	Aligning TVET with green jobs and EU/donor-driven sustainability agendas and priorities	Addressed future-oriented labour needs such as green skills, especially towards women participation	Lacked national ownership and long-term vision alignment of local TVET system needs
Actors involved	AREA, EU donors, national VET bodies, local SMEs	Effective cross-national cooperation	Primarily EU institutions and consultants; limited early engagement of local accreditation bodies and SMEs
Transferred Object	Dual TVET features, remote learning tools, structured curricula, and Train-the-Trainer models	Localised content focus; integration of practical learning components	Fragmented transfer importing isolated tools; contextual misfit due to modular structure of curricula
Origin of Transfer	Italy-led drawing from German/ EU dual TVET models	Incorporation of EU know-how; contextualisation attempt	Lack of alignment with national TVET reform strategies
Degree of Transfer	Partial and experimental; donor-led	Piloting in two countries; visible outputs	Lacks full governance, financing, or local adaptation mechanisms
Constraints of Transfer	Regulatory fragmentation; funding reliance	Temporary institutional partnerships	Infrastructure deficits; language barriers; pedagogical mismatch; informal economy realities
Demonstration Mechanisms	Donor-driven visibility and success narratives rather than independent or localised evaluations	Positive visibility; gender targets promoted; feedback from programme participants	Emphasis on deliverables over embedded system change
Success/ Failure Evaluation	External metrics driven by donor expectations	High mixed gender participation in Ghana; curriculum delivery	Unclear sustainability

Note. This table applies the eight components of Dolowitz and Marsh's (2000) policy transfer framework to evaluate the implementation of GreenVETAfrica.

The results of the survey interviews regarding the challenges of European Dual TVET Transfers to West Africa are summarised in Table 6. A critical challenge raised was the imposition of EU regulatory frameworks in West African contexts, where administrative capacity and institutional alignment may be weaker. One respondent succinctly captured this issue:

> The attempt to apply EU bureaucracy together with dual TVET training transfers is doomed to failure from the outset.

Despite these constraints, some positive adaptations were also highlighted. Experts noted that German vocational curricula had been successfully "slimmed down" to fit local needs, and that German craft organisations such as GIZ and Sequa GmbH played a vital role in implementation. The rapidly expanding construction sector was also recognised as an asset, generating demand for skilled professionals trained under dual TVET frameworks. However, respondents agreed that employer engagement in dual TVET remains weak, with several companies reluctant to participate due to the several reasons shown in

One expert noted:

> The African partners would be able to do and implement much more if the framework conditions from Europe for project design enabled implementation with less bureaucracy.

Experts also emphasised the need for closer collaboration between employers, TVET institutions, and policymakers to create coherent skill-building pathways that are directly aligned with industry needs. They highlighted that certain core elements of European dual TVET are difficult to apply in West African classrooms (see).

. This table summarises future priorities in TVET.

> Small, modular solutions are easier to achieve than 'the big picture'.

Another expert added that cultural differences do not play a major role in dual TVET transfers, which highlights the potential of this system:

> In my opinion, the cultural differences are marginal in their impact on the transfer.

While this sample size is relatively small, it is consistent with best practices in qualitative research, where depth of expertise is prioritised over breadth of responses (Creswell & Poth, 2018). It is acknowledged that a larger number of expert responses could have strengthened the representativeness of the findings and theory, according to Dolowitz and Marsh (2000).

Figure 2
Thematic Analysis of Survey Responses

| Challenges of European Dual TVET Transfers to West-Africa | Strengths and Weaknesses of Dual TVET Transfers | Regulatory and Policy Conflicts | Key Recommendations from Stakeholders |
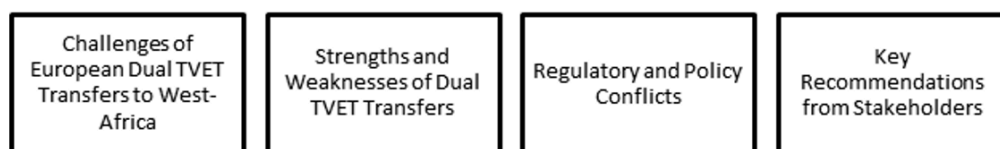
Note. This figure summarises all four emerging themes from the qualitative survey interviews.

Table 1
Structural and Regulatory Challenges from Qualitative Expert Surveys

Structural and Regulatory Challenges
High financial dependency on donor countries, with European partners covering the costs of training during transfer.
Excessive bureaucracy in European-led TVET projects, making project execution cumbersome and inefficient.
Mismatch between formal European TVET standards and the largely informal West African apprenticeship model, complicating accreditation and certification.
Weak private sector engagement, as companies show low commitment to long-term training partnerships.
Lack of accreditation frameworks, which results in uncertified skills training that lacks formal labour market recognition.

Note. Experts identified a range of barriers associated with the regulatory and policy landscape in dual TVET adaptation in this table.

Table 2

Employer Engagement according to Experts

Weak Employer Engagement and Workforce Mismatch
Concerns over training costs and the lack of direct financial incentives.
Fear of free-riding, where trained apprentices leave for competitors after receiving company-sponsored training.
Mismatch between skills taught in dual TVET and industry requirements, leading to poor absorption of TVET graduates into formal employment.

Note. This table summarises why weak employer engagement in TVET is critical.

Table 8

Contextual Adaptation of Dual TVET Transfers

Contextual Adaptation and Social Partnership Challenges
The employer-TVET-trainee-trainer link, which remains weak and needs strengthening.
The concept of social partnership, which, while valued by African stakeholders, lacks institutional support for effective implementation.
Professional ethics training, which is often underdeveloped in local TVET curricula.

Note. This table summarises the lack of stakeholders' engagement in TVET.

Table 3

The Future of Dual TVET Transfers to West-Africa

Policy and Institutional Reform Priorities
Reducing bureaucratic constraints to facilitate simpler and more effective policy transfers.
Encouraging greater employer involvement through financial incentives and formal agreements.
Broadening stakeholder engagement, including trade unions and local community actors, to build wider support for TVET models.
Strengthening quality assurance mechanisms, ensuring that work-linked training effectively reduces the training-employment gap.

Note. This table summarises future priorities in TVET.

5   Discussion

This section critically analyses the findings in relation to existing TVET literature, real-world case study insights from GreenVETAfrica, and stakeholder perspectives on vocational education policy transfer.

5.1 The Role of Inclusivity and Equity in TVET Adaptation in Literature

TVET systems play a crucial role in workforce development and economic empowerment, however inequities in access, gender representation, and accreditation persist in policy transfers. Literature on European TVET models highlights that structured governance, employer engagement, and accreditation are fundamental to their success.

Gender inclusivity remains a persistent challenge in TVET adaptation, with technical fields continuing to be male-dominated. Although European models integrate gender-equity policies, these strategies often fail to translate effectively in West Africa due to deep-rooted sociocultural norms that discourage female participation in technical professions (Gewer, 2021). This aligns with GreenVETAfrica's experience.

Disability inclusion is another overlooked dimension in TVET policy transfers. The GreenVETAfrica case study confirms this gap, as no disability-inclusive strategies were reported. Without investment in adaptive learning materials, specialised teacher training, and infrastructure improvements, vocational education will remain inaccessible to many potential learners.

Economic sustainability is a critical concern in TVET adaptation. European TVET models rely on public-private partnerships and employer co-financing, while West African vocational training remains largely donor-funded. Funding dependency threatens long-term viability. Without co-financing strategies that engage local governments and industry partners, vocational training risks remaining an externally driven initiative rather than a self-sustaining national reform. These findings confirm that TVET adaptation necessitates socially embedded policies that address equity concerns and financial sustainability.

5.2 Towards a Holistic and Multi-Contextual TVET Framework in the Construction Industry: The Perceptions of TVET Stakeholders

Stakeholder perspectives reveal that the transfer of European dual TVET models to West Africa is shaped by complex structural, financial, and sociocultural constraints. Experts highlight the disconnect between rigid European systems and the informal apprenticeship practices common in the region.

Administrative oversight often prioritises compliance over contextual fit, while employers remain hesitant due to training costs, retention concerns, and curricular misalignment. Recommendations include modular curriculum designs, employer incentives, and stronger social partnerships. Though efforts such as GreenVETAfrica show potential in adapting training to green sectors, concerns over sustainability, accreditation, and ownership persist.

Critically, gender inclusion and disability access were notably absent from most stakeholder reflections, raising equity concerns. These insights reaffirm the need to embed local co-design, contextual relevance, and inclusive practices in future TVET transfer strategies.

6 Conclusions

The successful transfer of European dual TVET to West Africa hinges on recognising informal learning systems, addressing accreditation gaps, and ensuring local ownership. This study shows that donor-led models must adapt to local socio-economic and cultural realities, particularly in construction. Informal apprenticeships remain dominant, yet lack recognition without frameworks. Financial sustainability is a major concern, with donor dependency threatening long-term viability. These findings directly reflect the 'constraints', 'degree of transfer', and 'actors involved' dimensions of Dolowitz and Marsh's framework. As employers remain hesitant, stakeholders called for targeted incentives. Effective dual TVET adaptation must, therefore, be contextually tailored, locally driven, and inclusively designed to promote equitable and sustainable workforce development.

Acknowledgements

References

ACET. (2023). *How Technical and Vocational Education Can Help Close Skills Gaps in Africa.* African Center of Economic Transformation. https://acetforafrica.org/pdfviewer/how-technical-and-vocational-education-can-help-close-skills-gaps-in-africa/

Adams, A. V. (2012). *The Role of skills development in overcoming social disadvantage*. Paper commissioned for the EFA Global Monitoring Report 2012, Youth and skills: Putting education to work. https://unesdoc.unesco.org/ark:/48223/pf0000217860

Bowen, G. A. (2009). Document Analysis as a Qualitative Research Method. *Qualitative Research Journal*, *9*(2), 27–40. https://doi.org/10.3316/QRJ0902027

Brewer, L. (2013). Enhancing youth employability : What? Why? and How? Guide to core work skills / Laura Brewer ; International Labour Office, Skills and Employability Department. ILO.

Creswell, J. W., & Poth, C. N. (2018). *Qualitative Inquiry & Research Design* (Fourth edition). SAGE.

Dolowitz, D. P., & Marsh, D. (2000). Learning from Abroad: The Role of Policy Transfer in Contemporary Policy-Making. *Governance*, *13*(1), 5–23. https://doi.org/10.1111/0952-1895.00121

Euler, D. (2023). *Roadmap to High-Quality Dual Vocational Education and Training*. https://www.bertelsmann-stiftung.de/fileadmin/files/BSt/Publikationen/GrauePublikationen/Euler_Roadmap_VET_engl.pdf https://doi.org/10.11586/2023061

European Commission. (2024). *GreenVETAfrica learners programme kicks off* [Press release]. https://greenvet-africa.eu/news/greenvetafrica-learners-programme-kicks-off/

Gewer, A. (2021). *Formal and Informal VET in Sub-Saharan Africa: Overview, Perspectives and the Role of Dual VET*. National Business Initiative. https://www.dcdualvet.org/wp-content/uploads/DC-dVET_Dual-VET-in-Sub-Sahara-Africa_Anthony-Gewer.pdf

Gonon, P. (2014). Ist nutzenorientierte Bildung gerechtfertigt? Berufliche und gymnasiale Bildung in der Schweiz zwischen Industrie, Gesellschaft und Individuum. In Wyss, E. L., *Von der Krippe zum Gymnasium: Bildung und Erziehung im 21. Jahrhundert*. Beltz Juventa.

GOVET (2016). Duale Berufsausbildung: Berufsbildung in Deutschland.

GreenVETAfrica (2024a). *D2.1 Green Waste Job Market: Industry needs and available skills*. https://ec.europa.eu/info/funding-tenders/opportunities/grants/docs/080166e5fc7cd33c/Attachment_0.pdf

GreenVETAfrica (2024b). *D5.2 Impact Assessment Report*. https://greenvetafrica.eu/wp-content/uploads/2024/12/D5.2.-Impact-Assesment-Report.pdf

Haseloff, G., Eicker, F., & Lennartz, B. (2017). *Vocational Education and Training in Sub-Saharan Africa*. wbv Publikation. https://doi.org/10.3278/6004570w

King, K. (2019). *Education, Skills and International Cooperation: Comparative and Historical Perspectives* (1st ed. 2019). *Springer eBooks Education: Vol. 36*. Springer. https://doi.org/10.1007/978-3-030-29790-9

King, K., & Palmer, R. (2010). Planning for technical and vocational skills development. Fundamentals of educational planning: Vol. 97. UNESCO International Institute for Educational Planning.

Langthaler, M. (2015). The transfer of the Austrian dual system of vocational education to transition and developing countries. An analysis from a developmental perspective. Austrian Foundation for Development Research – ÖFSE. https://www.oefse.at/fileadmin/content/Downloads/Publikationen/Workingpaper/WP53_dual_system.pdf

Li, J., & Pilz, M. (2023). International transfer of vocational education and training: a literature review. *Journal of Vocational Education & Training*, *75*(2), 185–218. https://doi.org/10.1080/13636820.2020.1847566

Maurer, M., & Gonon, P. (2014). The challlenges of policy transfer in vocational skills development: National qualifications frameworks and the dual model of vocational training in international cooperation. Studies in vocational and continuing education: Volume 12. Peter Lang AG. https://doi.org/10.3726/978-3-0351-0758-6

McGrath, S. (2023). Transitioning Vocational Education and Training in Africa: A Social Skills Ecosystem Perspective (1st ed.). Bristol Studies in Comparative and International Education Series. Bristol University Press. https://ebookcentral.proquest.com/lib/kxp/detail.action?docID=30298141

McGrath, S., Mulder, M., Papier, J., & Suart, R. (2020a). *Handbook of Vocational Education and Training*. Springer International Publishing. https://doi.org/10.1007/978-3-319-49789-1

McGrath, S., Ramsarup, P., Zeelen, J., Wedekind, V., Allais, S., Lotz-Sisitka, H., Monk, D., Openjuru, G., & Russon, J.-A. (2020b). Vocational education and training for African development: a literature review. *Journal of Vocational Education & Training*, *72*(4), 465–487. https://doi.org/10.1080/13636820.2019.1679969

Odjo, C. Z., Kaoti, C., & Oyewusi, A. O. (2024). Quality Assurance in West African TVET Institutions: A Brief Literature Review. *Journal of Technical and Vocational Education and Training*, *18*(1), 38–55. https://doi.org/10.3126/tvet.v18i1.62741

Odoch, W. D., Senkubuge, F., Masese, A. B., & Hongoro, C. (2022). How are global health policies transferred to sub-Saharan Africa countries? A systematic critical review of literature. *Globalization and Health*, *18*(1), 25. https://doi.org/10.1186/s12992-022-00821-9

Oketch, M. O. (2007). To vocationalise or not to vocationalise? Perspectives on current trends and issues in technical and vocational education and training (TVET) in Africa. *International Journal of Educational Development*, *27*(2), 220–234. https://doi.org/10.1016/j.ijedudev.2006.07.004

Pilz, M. (Ed.). (2017). Technical and Vocational Education and Training: v.24. Vocational education and training in times of economic crisis: Lessons from around the world. Springer. https://doi.org/10.1007/978-3-319-47856-2

Pilz, M., & Li, J. (Eds.). (2020). *Research*. *Comparative vocational education research: Enduring challenges and new ways forward*. Springer VS. https://doi.org/10.1007/978-3-658-29924-8

Stone, D., Porto de Oliveira, O., & Pal, L. A. (2020). Transnational policy transfer: the circulation of ideas, power and development models. *Policy and Society*, *39*(1), 1–18. https://doi.org/10.1080/14494035.2019.1619325

UNESCO. (2015). *Recommendation concerning Technical and Vocational Education and Training (TVET)*. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000245178

Valiente, O., López-Fogués, A., Fuentes, H., & Rosado, R. (2020). Evaluating dual apprenticeship effects on youth employment: A focus on the mechanisms. In M. Pilz & J. Li (Eds.), *Research. Comparative vocational education research: Enduring challenges and new ways forward* (pp. 163–180). Springer VS. https://doi.org/10.1007/978-3-658-29924-8_10

Wiles, R. (2013). What are qualitative research ethics? 'What is?' research methods series. Bloomsbury Academic.

Yin, R. K. (2018). Case study research and applications: Design and methods (Sixth edition). SAGE.

Biographical Notes

Alexandra Bohra is a PhD candidate at the Ruhr West University of Applied Sciences, department of civil engineering. Her research aims to develop a framework for European SMEs on the equal qualification and acquisition of West-African craftworkers in construction trades.

Dr techn. Felix Meckmann is a Professor at the Ruhr West University of Applied Sciences, department of civil engineering. His research interests focus on innovation and transformation processes in the national and international construction and real estate industry.

Inclusion for All: A Look at Upper Secondary Education in Norway and Switzerland

Bonoli, Lorenzo

lorenzo.bonoli@hefp.swiss, Swiss Federal University for Vocational Education and Training (SFUVET), Switzerland

Kammermann, Marlise

marlise.kammermann@sfuvet.swiss, Swiss Federal University for Vocational Education and Training (SFUVET), Switzerland

Schmid, Evi

evi.schmid@oslomet.no, Oslo Metropolitan University, Norway

Abstract

Context: Inclusion encompasses participation of everyone in society, education and work. This paper analyses the challenges related to inclusion in the Norwegian and Swiss upper secondary education systems, with a particular focus on vocational education and training (VET). Both Norway and Switzerland are internationally recognised for their high-performing education systems; however, both countries face significant challenges in ensuring upper secondary completion for all groups of young people.

Approach: By comparing the transition from lower to upper secondary education and the completion of upper secondary education in both countries, we examine how and where issues related to inclusion arise. Our comparative analysis is mainly based on statistical data, providing contextualisation for both Norway and Switzerland.

Findings: Our results show that the challenges emerge at different levels in the two countries, shaped by different education policies. While Norway managed to significantly improve equality of access to post-compulsory education, this country still faces relatively high rates of non-completion of upper secondary education, especially in VET. In Switzerland the transition from lower to upper secondary education is difficult and often prolonged for certain groups of young people, while the majority of those who overcome this threshold successfully complete their education and/or training at upper secondary level.

Conclusions: The paper indicates that inclusion in upper secondary education for all young people remains a challenge in both Norway and Switzerland and addresses the difficulties that post-compulsory education must face in its positioning between the inclusive rationale of compulsory schooling and the selective logic of the labour market.

Keywords

Inclusion, Norway, Switzerland, vocational education and training, comparative approach

1 Introduction

This paper aims to explore the challenge in ensuring inclusion in upper secondary education, with a focus on vocational education and training (VET), in two European countries; Norway and Switzerland. These two countries are internationally recognised as having particularly successful VET systems (Hoffmann, 2011). However, both countries face difficulties in guaranteeing upper secondary level completion for all young people (SCCRE 2023; Statistics Norway, 2024). By means of a comparison between these two countries, we first look at the transition from lower to upper secondary education, before focusing on the completion rate at upper secondary level in the two countries. Consequently, the paper investigates how transitions to VET and the completion of VET are shaped by the two national educational policies and structures and how these affect the educational pathways of young people from different backgrounds. In other words, the aim of our paper is to examine how two countries, with some of the best performing education systems at international level but with different education policies, are concerned by and react to the challenges posed by ensuring inclusion of all young people in their systems, regardless of their background.

By comparing the transition to and completion of upper secondary education in Norway and Switzerland, our article adopts a comparative approach, with all the challenges that comparisons entail in the field of VET (cf. Georg, 2005; Pilz & Li, 2020; Grollmann et al., 2022). At the international level, VET is characterised by great diversity which makes it difficult to find universal concepts and establish appropriate criteria for comparison. To get around this problem, it is essential to "reduce the complexity" and try to develop "transnational concepts so that comparisons have a valid basis" (Renold, 2020, p. 33). These transnational concepts can be found by identifying what Dubar et al. (2003, p. 61) call "common problems", i.e. problems, issues or challenges "with which all members and institutions would be confronted and which, historically, would have given rise to different answers according to the diverse and contingent configuration of the actors involved". In the following, we therefore focus on the challenge of inclusion as an issue shared by both countries, albeit at different levels and against the backdrop of different educational structures and policies.

In the following sections, we first define our understanding of inclusion in education, before giving an overview of the investigated characteristics of the transition from lower to upper secondary education and its completion in both countries. Last, the specific challenges in both countries are compared and discussed and policy implications outlined.

2 Inclusion in Education

Inclusion as a concept of social justice stands for the participation of everyone in society, education and work, regardless of their learning needs, disability, gender or cultural and social background. The concept is at the heart of goal 4 of the United Nations 2030 Agenda for Sustainable Development (General Assembly of the United Nations, 2015), which aims to ensure equal access to quality education and lifelong learning opportunities for all by 2030.

The concept of inclusion in education was adopted in 1994 by education representatives from 92 countries in the 'Salamanca Statement and Framework for Action on Special Needs Education' whose guiding principle was formulated as follows: "[…] schools should accommodate all children regardless of their physical, intellectual, social, emotional, linguistic or other conditions. This should include disabled and gifted children, street and working children, children from remote or nomadic populations, children from linguistic, ethnic or cultural minorities and children from other disadvantaged or marginalized areas or groups" (UNESCO, 1994, 6). The same principle can be found in the UNESCO guidelines for inclusion where the concept implies the removal of all barriers from social participation for all groups that are con-

sidered marginalised and vulnerable (UNESCO, 2005). The commitment to inclusion in education has since been reaffirmed in several more agreements and proposed frameworks, such as the United Nation's convention on the Rights of Persons with Disabilities (United Nation, 2006) and UNESCO et al.'s Education 2030 (UNESCO et al., 2016). In summary, it can be said that inclusion characterises an educational (or other) system that values diversity, difference and equality of its members. This is the understanding of the UN's 2030 Agenda for Sustainable Development (General Assembly of the United Nations, 2015). For the purposes of this paper, we consider inclusion as the capacity of an educational system to ensure access to and graduation at upper secondary level for all young people, regardless of gender, educational attainment or social or ethnic background.

While inclusive education principles nowadays guide compulsory education in most countries, questions of inclusion are still to be addressed for post-compulsory education, i.e. in upper secondary education (Duc & Kammermann, 2024; Scharnhorst & Kammermann, 2020; Schmid & Garrels, 2022). In most countries, upper secondary education programmes were developed around 1900 and targeted only an elite group of young people who could afford continuing education or training after primary school. It was not until after World War II that universalist positions became more widespread in debates on upper secondary education with the aim of encouraging all young people to participate in education and training at this level (OECD, 1961; Criblez, 2001).

3 Upper Secondary Education in Norway and Switzerland

3.1 Norway

In Norway, upper secondary education is a statutory right for all students who have completed compulsory school (grade 1–10), regardless of grades from lower secondary school, and all students are guaranteed admission to one of three preferred programmes. The right to three years of upper secondary education was introduced with the school reform of 1994 (Reform 94) and led to an increase in enrolment in upper secondary education (Nyen & Tønder, 2014). About 98% of the young people who complete compulsory schooling enrol in upper secondary education immediately (Norwegian Directorate for Education and Training, 2014), about half of them in vocational programmes. Upper secondary education in Norway comprises five general education and ten vocational programmes. The general education programmes last for three years and qualify for higher education. The vocational programmes last for four years, comprising two years of mainly school-based education followed by two years of apprenticeship at a company (known as the 2 + 2 model). VET leads to more than 180 different trade or worker's certificates but does not provide access to higher education. However, vocational students who wish to qualify for higher education have the option to replace apprenticeship training with a supplementary year of academic subjects after their second year of VET.

While the right to education at upper secondary level has significantly improved equality of access to post-compulsory education, it has largely failed to reduce dropout rates (see also Halvorsrud, 2017). Although there has been a steady increase over the last three decades in upper secondary completion for young people in both general education and vocational programmes, around 18% of young people do not obtain a trade certificate or a university admission certification within six years. Non-completion rates are particularly high among young people in VET, with one in three vocational students failing to complete upper secondary education within six years (Statistics Norway, 2024). Most vocational students drop out during the first two years of school-based vocational education or during the transition to apprenticeship training. Although the number of apprenticeship places has risen steadily in recent years, around two out of ten apprenticeship applicants have not obtained an apprenticeship contract. This means that every year between 5,000 and 7,000 young people are left without an apprenticeship

after the first two years of VET in school; the majority of whom are legally entitled to upper secondary education (Norwegian Directorate for Education and Training, 2024a). Research shows that non-completion rates are particularly high among young people with a low grade point average (GPA) from lower secondary education, young people with an immigrant background and young people from lower socioeconomic backgrounds, among others (Halvorsrud, 2017; Markussen et al., 2011).

Non-completion of upper secondary education, especially in VET, has been an educational policy issue for a long time. Over the last 20 years, various measures have been implemented to increase upper secondary completion. Among several measures, the government established school-based alternatives for young people who are unable to obtain apprenticeships (Aspøy & Nyen, 2017; Høst et al., 2024) and introduced a two-year apprenticeship scheme for young people who prefer a practice-oriented training from the start of VET (Schmid & Breilid, 2022; Schmid et al., 2021). Furthermore, as from 2024, the Completion reform aims to increase completion rates in upper secondary education by offering tailored guidance, greater flexibility and enhanced support to ensure that more students achieve formalised competences (Norwegian Directorate for Education and Training, 2024b). Moreover, with the Completion reform, the right to upper secondary education is extended to apply until a university admission certification or a vocational qualification is achieved (in contrast to the previous law, which gave the right to three years of upper secondary education).

In conclusion, although equal opportunities in access improved after the implementation of Reform 94 in 1994, dropout rates show that inequality in educational outcomes persists (i.e. measured in terms of completion at upper secondary level, see also Halvorsrud, 2017).

Currently, about 82% of people aged 20–24 have successfully completed at least upper secondary education (Eurostat, 2023). It remains to be seen how the Completion reform will benefit the inclusion of different groups of young people and help to achieve the goal of education for all young people.

3.2 Switzerland

In most cantons (administrative regions), compulsory schooling in Switzerland lasts until the age of 15, ending with the completion of lower secondary education. After this stage, young people can pursue various forms of upper secondary education. Among those in upper secondary education, approximately 30% enrol in general education (primarily the *gymnasium*, which grants direct access to universities), while around 60% enter VET. The remaining 10% follow other programmes at the upper secondary level. Within VET, 91% participate in dual apprenticeship, whereas 9% are enrolled in full-time VET schools (SFSO, 2025). VET programmes vary from two to four years. In the dual model, they include time spent in companies (3-4 days a week depending on the profession) and time spent in VET schools (1-2 days a week depending on the profession). VET provides training for around 250 professions. Additional courses also enable learners to obtain a Vocational Baccalaureate, opening the way to tertiary education at universities of applied sciences or via a transitional year to academic universities.

At upper secondary level, there is no legal right to education in Switzerland. Access to different educational tracks is particularly selective. In the case of general education, only students with the highest academic performance are admitted. Most cantons implement restrictive admission policies that limit the proportion of students entering such programmes to approximately 20% of a cohort (Hafner et al., 2022). Regarding dual VET, access to apprenticeships largely depends on training companies, which have the discretion to decide whether to provide training and to select candidates for specific apprenticeship positions or not. This situation regularly gives rise to problems relating to the supply of apprenticeships (in terms of quality and quantity) (gfs.bern, 2024), and to the selection procedures used by companies looking for the best profiles (Imdorf, 2017).

These obstacles at the transition level are reflected in statistical data: 21.7% of young people are unable to make a direct transition from lower secondary to upper secondary (SFSO, 2025), and 9% find themselves in special programmes called transitional solutions, and 13% chose an intermediary year (e.g. travel, language study) (gfs.bern, 2024). Many of these students are waiting to find an apprenticeship place, a process that can take one to two years. This situation particularly affects young people from migrant backgrounds or those with low academic performance, who encounter greater difficulties in making a direct transition (BFS, 2016; Scharnhorst & Kammermann, 2020).

Despite these challenges at the transition level, the Swiss education system ensures that a high proportion of young people obtain an upper secondary qualification. According to Eurostat data, 88% of people aged 20–24 hold an upper secondary qualification, which is five percentage points above the EU-27 average (Eurostat, 2023). Current Swiss statistics (SFSO, 2025) indicate that 91% of young people earn an upper secondary qualification before the age of 25. The achievement of a degree before the age of 25 is the result of strong commitment from all stakeholders in the Swiss education system. Since 2006, the Swiss Confederation and the cantons have expressed their aim to achieve a 95% graduation rate (EDK, 2006). Notably, this goal is a policy commitment rather than a legally binding obligation, allowing for flexibility in its interpretation and implementation.

Although the overall completion rate in Switzerland is relatively high in an international comparison (Eurostat, 2023), a closer examination reveals challenges related to inclusion. Specifically, while the completion rate for Swiss-born youth reaches 94%, it drops to 72% for young people born abroad (SFSO, 2025). These figures highlight the difficulties the Swiss education system faces in ensuring that all young people obtain an upper secondary qualification before the age of 25. In particular, young people with a migrant background experience significantly greater challenges in achieving this qualification.

These transition problems are relatively well known, and many measures have been taken to solve them (e.g. career guidance, transitional solutions, the introduction of two-year apprenticeships with Federal VET Certificate), in particular to facilitate access to VET programmes (Bonoli & Wilson 2019; Scharnhorst & Kammermann 2020). However, most of the measures do not affect the selective nature of the dual system. Instead, they focus on better preparing vulnerable young people to succeed in the selection process, thereby helping to reduce the negative effects of the selectivity of the dual model. These external measures (Bonoli & Wilson 2019; Scharnhorst & Kammermann 2020) aim at improving the inclusivity of the system, without touching its main characteristics (selective nature, autonomy of enterprises).

4 Discussion

This paper aimed to examine educational policies employed in Norway and Switzerland to ensure inclusion in education of all groups of young people. The comparison between the transition to and the completion of upper secondary education in both countries enables us to see how systems with different education policies may affect inclusion of all young people, regardless of their background.

In the case of Switzerland, challenges are related to the transition between lower and upper secondary education, a transition that does not happen directly for a significant share of young people. In Norway, challenges emerge at another level; young people who have completed compulsory school have a statutory right to upper secondary education and almost all of them start immediately after compulsory school. However, a large number does not complete upper secondary education, with particularly high non-completion rates in VET.

In most upper secondary education systems in Western countries, there is a friction between two different rationales: between the inclusive and universalist rationale of compulsory schooling on the one hand and the selective and individualist rationale of the labour market on

the other. Education systems manage this challenge in different ways. For example, in Switzerland, this friction is reflected in the fact that the direct transition to upper secondary education is a challenge for several groups of young people due to its selective mechanisms. As for VET, transition to apprenticeships is mainly shaped by training companies who may not always have inclusive selection criteria (e.g. Imdorf, 2017). Norway significantly improved equality of access to post-compulsory education by introducing statutory right to three years of education at upper secondary level in 1994. However, challenges emerge at another level. The right to upper secondary education does not prevent vocational students from remaining without an apprenticeship after the first two years of school-based vocational training. As other apprenticeship-based VET systems, the upper secondary education system in Norway depends on a balance between the supply of and demand for apprenticeships (Aspøy & Nyen, 2017).

Furthermore, the comparison between Norway and Switzerland suggests that guaranteeing access to upper secondary education might not be sufficient to ensure a high completion rate. At the same time, a selective access to upper secondary education does not necessarily lead to a low share of upper secondary completion. This illustrates that inclusion of young people from different backgrounds at upper secondary level is impacted by a range of factors, such as institutional settings, economic fluctuations, educational practices and individual support, which may vary from country to country.

References

Aspøy, T. M., & Nyen, T. (2017). Short-term benefits, long-term Harm? Alternative training to apprenticeships in Norway. *International Journal for Research in Vocational Education and Training*, *4*(4), 306–324. https://doi.org/10.13152/IJRVET.4.4.1

Bonoli, G., & Wilson, A. (2019). Bringing firms on board. Inclusiveness of the dual apprenticeship systems in Germany, Switzerland and Denmark. *International Journal of Social Welfare* (28), 1–11. https://doi.org/10.1111/ijsw.12371

BFS (2016). Der Übergang am Ende der obligatorischen Schule. Längsschnittanalysen im Bildungsbereich. Bundesamt für Statistik.

Criblez, L. (2001). Bildungsexpansion durch Systemdifferenzierung – am Beispiel der Sekundarstufe II in den 1960er- und 1970er-Jahren. *SZBW/RSSE*(23), 95–117.

Dubar, C. (2003). Comparer les systèmes éducatifs. In M. Lallement & J. Spurk (Eds.), *Stratégie de la comparaison internationale* (pp. 199–214). Centre national de la recherche scientifique.

Duc, B., & Kammermann, M. (2024). L'égalité des chances comme exigence socio-politique. Inclusion – un idéal non atteint? s*killed* 8(2), 4–7. https://www.hefp.swiss/sites/default/files/2024-08/skilled_2-24_fr.pdf

EDK (2006). Leitlinien zur Optimierung der Nahtstelle obligatorische Schule – Sekundarstufe II. Schweizerische Konferenz der Erziehungsdirektoren.

Eurostat (2023). At least upper secondary educational attainment, age group 20-24. https://ec.europa.eu/eurostat/databrowser/view/tps00186/default/table?lang=en&category=t_educ.t_educ_outc

General Assembly of the United Nations (2015). *Transforming our World: The 2030 Agenda for Sustainable Development*. United Nations. https://sdgs.un.org/2030agenda

Georg, W. (2005). Vergleichende Berufsbildungsforschung. In F. Rauner (Ed.), *Handbuch Berufsbildungsforschung*. WBV.

Gfs.bern (2024). *Nahstellenbarometer 2024*. Gfs.bern. https://cockpit.gfsbern.ch/de/cockpit/nahtstellenbarometer-2024-august/

Grollmann, P., Frommberger, D., Deißinger, T., Lauterbach, U., Pilz, M., Schröder, T., & Spöttl, G. (2022). Vergleichende Berufsbildungsforschung – Ergebnisse und Perspektiven aus Theorie und Empirie. Jubiläumsausgabe des Internationalen Handbuchs der Berufsbildung (pp. 186-193). Bundesinstitut für Berufsbildung.

Hafner, S., Esposito, R., & Leemann, J. (2022). Transition to long-term baccalaureate school in Switzerland: governance, tensions, and justifications. *Education Sciences*, 12(93), 1–20.

Halvorsrud, K. (2017). Student dropout in upper secondary education in Norway: A challenge to the principles of the welfare state? *London Review of Education*, *15*(2), 302–316. https://doi.org/10.18546/LRE.15.2.12

Høst, H., Lillebø, O. S., Smedsrud, J., & Skålholt, A. (2024). Vg3 fagopplæring i skole som alternativ til læretid. Resultater etter tiltakene i Utdanningsløftet 2020. NIFU.

Hoffman, N. (2011). Schooling in the Workplace. How Six of the World's Best Vocational Education Systems

Prepare Young People for Jobs and Life. Harvard Education Press.

Imdorf, C. (2017). Understanding discrimination in hiring apprentices: how training companies use ethnicity to avoid organizational trouble. *Journal of Vocational Education & Training*, *69(3)*, 405–423. https://doi.org/10.1080/13636820.2016.1278397

Markussen, E., Frøseth, M. W., Sandberg, N., Lødding, B., & Borgen, J. S. (2011). Early Leaving, Non-Completion and Completion in Upper Secondary Education in Norway. In S. Lamb, E. Markussen, R. Teese, N. Sandberg, & J. Polesel (Eds.), *School Dropout and Completion: International Comparative Studies in Theory and Policy* (pp. 253–271). Springer.

Norwegian Directorate for Education and Training (2014). *Utdanningsspeilet 2014*. Utdanningsdirektoratet.

Norwegian Directorate for Education and Training (2024a). Liten nedgang i talet på lærlingar. https://www.udir.no/tall-og-forskning/statistikk/statistikk-fag-og-yrkesopplaring/analyser/2024/fakta-om-fag--og-yrkesopplaringa-2023/

Norwegian Directorate for Education and Training (2024b). Fullføringsreformen. https://www.udir.no/utdanningslopet/videregaende-opplaring/fullforingsreformen/

Nyen, T., & Tønder, A. H. (2014). *Yrkesfagene under press*. Universitetsforlaget.

OECD (1961). Ability and Educational Opportunity. OECD.

Pilz, M., & Li, J. (2020). Comparative Vocational Education Research. Enduring Challenges and New Ways Forward. Springer VS.

Renold, U. (2020). Socially Constructed Concepts – Methodological Problems in Comparing VET Programs. In U. Backes-Gellner, U. Renold, & S. Wolter (Eds.), *Economics and Governance of Vocational and Professional Education and Training (including Apprenticeship),* (pp. 21–52). hep.

Scharnhorst, U., & Kammermann, M. (2020). Who is included in VET, who not? *Education + Training*, 62(6), 645–658. https://doi.org/10.1108/ET-11-2019-0248

Schmid, E., Scharnhorst, U., & Kammermann, M. (2021). Developing two-year apprenticeships in Norway and Switzerland. *Vocations and Learning*, *14*(1), 55–74. https://doi.org/10.1007/s12186-020-09254-0

Schmid, E., & Breilid, N. (2022). For dem som ønsker å gå en annen vei: Implementering og praktisering av praksisbrevordningen i fylkeskommunene. *Søkelys på arbeidslivet*, *39*(2), 1–15. https://doi.org/10.18261/spa.39.2.2

Schmid, E., & Garrels, V. (2022). Editorial: Inclusion in vocational education and training (VET). *Nordic Journal of Comparative and International Education, 6*(3), 1–7. https://doi.org/10.7577/njcie.5073

Statistics Norway. (2024). *Completion rates of pupils in upper secondary education*. https://www.ssb.no/en/utdanning/videregaende-utdanning/statistikk/gjennomforing-i-videregaende-opplaering

SCCRE (2023). *Education Report Switzerland 2023.* Swiss Coordination Centre for Research in Education.

SFSO (2025) *Education and science*: https://www.bfs.admin.ch/bfs/en/home/statistics/education-science.html

UNESCO (1994). The Salamanca Statement and Framework for Action on Special Needs Education. UNESCO.

UNESCO (2005). *Guidelines for inclusion. Ensuring access to education for all.* UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000140224

UNESCO, UNICEF, World Bank, UNFPA, UNDP, UN Women, & UNHCR (2016). Education 2030. Incheon Declaration and Framework for Action for the implementation of Sustainable Development Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000245656

United Nations (2006). United Nations Convention on the Rights of Persons with Disabilities. General Assembly of the United Nations.

Biographical Notes

Dr Lorenzo Bonoli, PhD, is a professor at the Swiss Federal University for Vocational Education and Training (SFUVET), where he teaches and conducts research activities on the evolution of the Swiss VET system, international comparisons, and international cooperation in VET.

Dr Marlise Kammermann, PhD, is a Senior Researcher and Senior Lecturer at the Swiss Federal University for Vocational Education and Training (SFUVET). Her main research interests enclose teaching and learning in VET and inclusion in VET, the labour market, and society.

Dr Evi Schmid, PhD, is a professor in educational sciences at the Department of Vocational Teacher Education at OsloMet—Oslo Metropolitan University, Norway. Her research interests include dropout and completion in VET and school-to-work transitions.

Beyond Single Dimensions: Exploring Differences in Sexism Among Italian iVET Students Through an Intersectional Perspective

Brescianini, Flavio[1]
flavio.brescianini@unibo.it, University of Bologna

Luppi, Elena
elena.luppi@unibo.it, University of Bologna

Abstract

Purpose: Since iVET plays an important role in fostering inclusivity and equal opportunities, and sexism poses significant obstacles to gender equality and equality overall, the paper explores sexism among Italian iVET students through an intersectional perspective to better understand how multiple students' characteristics (gender and migratory background) impact sexism.

Methods: Three sexism-related items were selected from a questionnaire administered to $n = 377$ iVET students in Italy. A quantitative data analysis was conducted, primarily focusing on frequency distribution analysis and chi-square tests using contingency tables.

Findings: Sexism-related attitudes are more prevalent among male students than female students. Migratory background does not show significant relationships with sexism-related attitudes. However, combining gender with a migratory background reveals that female students with migratory background tend to respond more similarly to male students.

Conclusions: The multiple subordinated identities of iVET students interact in complex ways, leading to the development of unpredictable attitudes. Exploring how subordinated identities shape attitudes on social issues such as sexism is essential for informing educational practices.

Keywords

vocational education and training, sexism, intersectionality, migratory background, gender equality

1 Introduction

In recent years, the role of VET has expanded beyond labor market preparation to include broader social and educational objectives, such as promoting inclusivity, equal opportunities, and democratic values.

Gender equality is one of the core principles of a just, inclusive, and democratic society. Sexism represents a significant obstacle to gender equality, influencing students' attitudes and behaviors in ways that perpetuate inequalities. The presence of sexist attitudes in educational

---

[1] The chapter is the result of joint reflection and research by the authors. In formal terms, paragraphs 1, 3, 4, and 5 were written by Flavio Brescianini and paragraph 2 by Elena Luppi.

settings is particularly relevant in VET, where gender segregation is evident (with male and female students enrolling in different vocational specializations based on traditional gender roles), alongside a high concentration of students at higher risk of dropping out, students from lower socio-economic backgrounds, and a significant presence of students with a migratory background.

For this reason, this study aims to explore how key socio-demographic variables prevalent in VET—such as gender and migratory background—interact and influence sexism-related attitudes. While existing research has examined the relationship between gender equality and individual socio-demographic variables, less is known about how multiple dimensions intersect to shape students' attitudes toward sexism in initial VET (iVET) contexts.

Understanding how these identities interact is essential for addressing the specific educational needs of iVET students and designing effective educational strategies that foster gender equality and democratic citizenship in vocational education. By adopting an intersectional approach, this study seeks to contribute to the broader discourse on how multiple subordinated identities shape attitudes toward sexism within iVET settings.

2   Theoretical Background: Sexism and Intersectional Approach in Vocational Education and Training

The theoretical framework of this contribution refers to two main thematic areas: the first is sexism, its relationship with gender equality, and, more broadly, with the idea of equality as one of the foundations of democratic citizenship; the second is the intersectional approach.

Traditionally, sexism has been defined as prejudice towards women, following the classic Allport's definition of prejudice as antipathy based upon and inflexible and stereotyped generalization directed toward a group (Allport, 1954). However, over the years, sexism has come to be defined as an ambivalent construct (Glick & Fiske, 1996). On one hand, there is *hostile sexism*, which is linked to the traditional idea of sexism and can be defined as a set of negative attitudes toward women. On the other hand, there is *benevolent sexism*, which is defined as a set of attitudes that are sexist in the stereotypical way they perceive women and their limited roles but may seem positive to those who hold them and can elicit behaviors considered prosocial (e.g., helping) (Glick & Fiske, 1996). It is important to underline that this is not necessarily a matter of men's prejudice against women; it can also concern women's prejudice against their own group. In fact, we speak of *internalized sexism* when women enact learned sexist behaviors upon themselves and other women (Bearman et al., 2009).

Sexism, in its multidimensionality, undoubtedly represents a threat to gender equality and, thus, the broader concept of democratic equality. In fact, empirical research has shown that greater sexism predicts decreases in gender equality over time (Brandt, 2011). According to UNESCO, gender inequality is one of the issues affecting the interaction and connectedness of communities, and it is a thematic area that should be addressed as early as ages 9 to 12. Clearly, sexism is a key concept within the thematic area of gender inequality (UNESCO, 2015), making it a major global concern whose underlying causes should be understood early to help prevent and counteract it.

Given these premises, sexism is a relevant variable in the context of VET for two reasons.

The first is that VET has seen its objectives evolve over the past years. If, traditionally, VET has been understood merely as education and training which aims to equip people with knowledge, know-how, skills and/or competences required on the labor market (Cedefop, 2014), in recent European policy guidelines, its objectives have expanded. VET has been tasked with promoting inclusivity, equal opportunities, resilience, and social fairness (Council of the European Union, 2020a), and in strengthening democratic citizenship and European values

(Council of the European Union, 2020b). Also, European VET experts and stakeholders advocate for a VET system that prepares students to fully participate in society and become active citizens (Cedefop, 2020).

The second reason why sexism is a relevant variable in VET is that attitudes towards gender equality (of which sexism can be considered a proxy measure) are linked to multiple socio-demographic variables that are particularly significant in VET contexts.

Gender is the most obvious: studies on citizenship education (particularly ICCS, that focuses on students at grade 8th) showed that female students show greater support for gender equality than male students (Schulz et al., 2023). Moreover, gender is also a non-neutral variable in VET, as evidenced by the phenomenon of gender segregation, which refers to the reproduction of the gendered division of work in the labor market through the enrollment of male and female students in different vocational specializations based on traditional gender roles (Imdorf et al., 2015).

Another variable connected with sexism is socio-economic status. ICCS showed that a higher socio-economic status is associated with a higher attitude towards gender equality (Schulz et al., 2023). As is well known, in many European countries, students from lower socio-economic backgrounds and those at a higher risk of dropping out are often more prevalent in VET compared to other educational pathways (Cedefop, 2016).

Finally, there is a variable whose connection with gender equality has not been explored in ICCS studies but is highly represented in VET and contributes to shaping its identity in various European countries: the migratory background of students (Cedefop, 2016). It has been observed that the variable of ethnicity influences teachers' attention to sexism among students (Öhrn, 2009) and that migratory background can contribute to shaping the educational practices of trainers in iVET (Brescianini, 2024).

In summary, sexism is an obstacle to the goal that VET is increasingly striving to achieve, but it is also strongly connected to certain socio-demographic variables that are particularly present in VET. For some of these variables, taken individually, we already know how they relate to sexism. However, less is known about how multiple demographic variables interact and impact sexism and attitudes toward gender equality, particularly among initial VET (iVET) students. Exploring how these variables interact, and influence sexism can be done through an intersectional approach.

Originating within feminist movements, the concept of intersectionality focuses on examining how membership in multiple marginalized social groups exposes individuals to overlapping forms of discrimination (Crenshaw, 1989). Starting from the observation that Black women's struggles were not adequately represented either in Black movements led by men or in feminist movements led by white women, race and gender were the first two identities to intersect and give rise to the concept of intersectionality (Crenshaw, 1989). The definition later expanded to include all dimensions of social identity (e.g. social class, age, sexual orientation, physical ability), which, by intersecting, collectively form a hierarchical matrix of privilege and marginalization in society (Crenshaw, 1991).

According to the intersectional perspective, every person in society is positioned at a particular intersection and is subject to corresponding social advantages and disadvantages (Collins, 1990/2000). This has implications both in terms of feminist engagement and social research. From a feminist standpoint, it is not possible to defend those who are simultaneously victims of sexism and racism using only anti-sexist or anti-racist approaches; rather, a new framework is needed (Collins, 1990/2000). From a research perspective, conventional notions of diversity may inadvertently overlook the intersections of multiple historically oppressed identities (Purdie-Vaughns & Eibach, 2008). Therefore, research must move from what are defined as "unidimensional" studies to new approaches that consider multiple dimensions and are accordingly referred to as "intersectional" studies (Cho, Crenshaw, & McCall, 2013).

Given the nature of sexism (prejudice against women) and the multiple subordinated identities widely represented in VET contexts, we argue that intersectionality provides a valuable framework for understanding how these identities influence students' sexism-related attitudes.

3 Research Context and Research Questions

In addition to a theoretical framework, it is important to specify some contextual elements that help frame the research and its relevance.

This study takes place in two iVET institutes in Italy. iVET pathways in Italy are designed for students in grades 9 to 12 following the completion of lower secondary school. The iVET system seeks to balance the development of professional skills with transversal skills, the former referred to as technical-professional skills and the latter as basic skills. Of course, basic or transversal skills also play a role in labor market integration (Cimatti, 2016), but there is a clear emphasis on providing a democratic education, particularly considering the recent introduction of citizenship competence in the 2020/2021 academic year.

Similar to other European contexts (Cedefop, 2016, 2017), students attending Italian iVET programs often come from socio-economically disadvantaged backgrounds, have experienced academic failure, and have complex educational needs (Brescianini & Luppi, 2023). Among the total student population, iVET has the highest percentage of students with disabilities (MI, 2022), students from low socio-economic backgrounds (MIUR, 2019), and students with a migrant background. This last variable is particularly significant, with foreign students accounting for 28.4% of iVET students, compared to an average of 9.3% in other educational pathways, according to ministerial data (MIM, 2023).

Adopting an intersectional perspective, we can identify multiple subordinated-group identities within Italian iVET students (Purdie-Vaughns & Eibach, 2008). Among these, the study focuses specifically on gender and migratory background, seeking to answer the following research questions:

1. Is there a difference in sexism-related attitudes between male and female iVET students?
2. Is there a difference in sexism-related attitudes between iVET students according to their migratory background?
3. How do the previous demographic variables interact and affect sexism-related attitudes among iVET students?

4 Methods and Results

Due to space constraints, the methods and results are presented in the same chapter, to provide a more synthetic and linear reading experience by displaying the results immediately after the analysis is shown.

The research presented here is part of a broader project aimed at developing assessment tools for citizenship competences (Brescianini, 2023).

This contribution focuses on a self-assessment questionnaire on attitudes toward the Italian Constitution, administered to a sample of $n = 377$ students (Table 1). The institutes involved were selected through a convenience sample (Cohen et al., 2018). The questionnaires were administered by teachers from the training institutions to all students available on the day of administration; therefore, absent students or those engaged in off-site training activities were not included.

The questionnaire items examined in this contribution focus on three statements, specifically those related to sexism. The first item (I1) is "Women no longer need to fight for equality with men because it has already been achieved". This is an original item that measures hostile sexism. The second item (I2) is "Every woman needs a man to protect her". This item is taken

from the *Ambivalent Sexism Inventory (ASI)* by Glick and Fiske (1996) and measures benevolent sexism. The third item (I3) is "In some cases, violence against people is justified". This is an original item that does not measure sexism directly but rather the predisposition to use violence, a variable strongly connected to sexism (Agadullina et al., 2022).

Students were asked to express their level of agreement using the following response options: "Not at all," "A little," "Somewhat," "A lot," and "I don't know."

Below are the frequency distributions of the responses from the entire sample for each item (Table 2).

Table 1
Sample Characteristics

Variable	Value / Category	N	%
Gender	M	230	61
	F	138	36.6
	Valid cases	368	97.6
	Missing	9	2.4
	Total	377	100
Age Mean = 15,6 Median = 15	13	1	0.3
	14	90	23.9
	15	110	29.2
	16	50	13.3
	17	68	18.0
	18	22	5.8
	19	6	1.6
	20	2	0.5
	Valid cases	349	92.6
	Missing	28	7.4
	Total	377	100
Number of Italian parents.[2]	0	152	40.3
	1	35	9.3
	2	165	43.8
	Valid cases	352	93.4
	Missing	25	6.6
	Total	377	100
Course year	1	185	49.1
	2	117	31
	3	27	7.2
	4	48	12.7
	Total	377	100
Vocational specialization	Wellness - Hairdressing	89	23.6
	Catering - Dining and bar service	29	7.7
	Electronics	21	5.6
	Wellness - Beauty therapy	39	10.3
	Graphic design	21	5.6
	Information Technology	76	20.2
	Mechanics	17	4.5
	Catering - Food preparation	21	5.6
	Motor vehicle repair	64	17
	Total	377	100

---

[2] Students were asked to indicate the number of Italian parents. This approach was chosen to avoid requiring families to sign a data processing authorization, as – according to the institutes' teachers – this would have significantly reduced the participation rate. The number of Italian parents provides an approximate proxy

Table 2
Frequency Distribution of Responses to the Items (Percentage Values)

Item	Not at all	A little	Somewhat	A lot	Don't know	Missing	Total
I1 - Women no longer need to fight for equality with men because it has already been achieved	19.9	25.2	26.0	13.0	10.9	5	100
I2 - Every woman needs a man to protect her	31.8	17.8	16.4	22.0	7.4	4.6	
I3 - In some cases, violence against people is justified	27.1	22.3	22.0	17.2	6.9	4.5	

Below is another frequency distribution table (Table 3), which aggregates the "Not at all" response with "A little" and the "Somewhat" response with "A lot." This allows for easier data interpretation and comparison with the subsequent tables.

Table 3
Frequency Distribution of Responses to the Items with Dichotomized Response Categories and Only Valid Cases (Percentage Values).

Item	Disagree	Agree	Don't know	Total
I1 - Women no longer need to fight for equality with men because it has already been achieved	47.5	41.1	11.5	100
I2 - Every woman needs a man to protect her	51.9	40.3	7.8	
I3 - In some cases, violence against people is justified	51.7	41.1	7.2	

To explore the research questions, a contingency table analysis was conducted between the categorical variables (gender and migratory background) and the three selected items. The significance of any identified relationships was assessed using the chi-square test (Cohen et al., 2018).

Before examining the first relationship, between sexism-related items and gender, it is important to verify whether the analytical sample exhibits a characteristic related to the gender variable that was mentioned in the theoretical framework. Specifically, whether a pattern attributable to gender segregation can be identified (Table 4).

As can be seen, apart from a few study tracks where the distribution can be considered gender-balanced (Graphic Design and Catering – Food Preparation) or nearly so, many pathways show a clear predominance of one gender over the other. In particular, male-dominated tracks, with peaks reaching 100%, include: Catering – Dining and bar service; Electronics; Information Technology; Mechanics; Motor Vehicle Repair. Female-dominated tracks are the

---

measure of citizenship (students with zero Italian parents do not hold Italian citizenship - according to national laws) or, at the very least, allows for identifying those with a migratory background (according to the definition of the European Migration Network). This data should, of course, be interpreted with caution, considering that students might have misreported due to the sensitivity of the topic or may not have been aware of their parents' actual legal citizenship status. https://home-affairs.ec.europa.eu/networks/european-migration-network-emn/emn-asylum-and-migration-glossary/glossary/person-migratory-background_en (website visited on February 19, 2023).

two dedicated to Wellness, namely Hairdressing and Beauty therapy. This confirms a dimension of gender segregation, making iVET a context where gender is a particularly significant variable.

Table 4

Frequency Distribution (Percentage Values) and Chi-Squared Test

Vocational specialization	M	F	Total	χ^2	p
Wellness - Hairdressing	13.8	86.2	100	248	< 0.001
Catering - Dining and bar service	81.5	18.5			
Electronics	100	0			
Wellness - Beauty therapy	2.6	97.4			
Graphic design	57.9	42.1			
Information Technology	95.9	4.1			
Mechanics	100	0			
Catering - Food preparation	57.1	42.9			
Motor vehicle repair	100	0			

Moving on to the analysis of the contingency tables, it is important to note that the response categories have been dichotomized by aggregating agreement and disagreement. This reduces the number of cells containing potentially anomalous data (e.g., very low values) and helps prevent a false significant result in the chi-square test (Corbetta, 1999/2014).

Below are the contingency tables between the gender variable and the sexism-related items (Table 5).

Table 5

Contingency Tables Between the "Gender" Variable and Sexism-Related Items (Percentage Values)

I1 - Women no longer need to fight for equality with men because it has already been achieved					
	Disagree	Agree	Don't know	χ^2	p
M	35.3	50	14-7	34.058	< 0.001
F	67.2	26.9	6		

I2 - Every woman needs a man to protect her					
	Disagree	Agree	Don't know	χ^2	p
M	42	47.5	10.5	26.268	< 0.001
F	69.4	27.6	3.0		

I3 - In some cases, violence against people is justified					
	Disagree	Agree	Don't know	χ^2	p
M	42.1	50.7	7,2	28.089	< 0.001
F	69.7	22.7	7,6		

As can be observed, female students tend to express significantly lower agreement with these items compared to male students. The significance of this relationship is confirmed by the chi-square test, with p consistently below 0.001.

The second variable to be further examined is migratory background. The same analysis is therefore repeated, creating a contingency table that cross-tabulates the migratory background variable with the responses to the sexism-related items (Table 6).

Table 6

Contingency Tables Between the "Migratory Background" Variable and Sexism-Related Items (Percentage Values)

I1 - Women no longer need to fight for equality with men because it has already been achieved				
	Disagree	Agree	Don't know	χ^2	p
Migratory background	48.3	40.8	10.9		
Non-migratory background	50.9	39.8	9.3	0.354	0.838
I2 - Every woman needs a man to protect her				
	Disagree	Agree	Don't know	χ^2	p
Migratory background	51.1	43.1	5.7		
Non-migratory background	55.6	35.8	8.6	2.42	0.298
I3 - In some cases, violence against people is justified				
	Disagree	Agree	Don't know	χ^2	p
Migratory background	50.3	42.2	7.5		
Non-migratory background	54	40.5	5.5	0.780	0.674

As shown by the contingency table and the chi-square test, there appear to be no significant relationships between migratory background and the frequency distributions of the sexism-related items.

At this point, the intersectional perspective is introduced through the stratification of the sample by both migratory background and gender. This allows for a better understanding of differences in responses to the sexism-related items across four groups: males without a migratory background, males with a migratory background, females without a migratory background, and females with a migratory background (Table 7).

Table 7

Contingency Tables Between Sexism-Related Items and the Variables "Migratory Background" and "Gender", Stratified into Four Groups (Percentage Values)

I1 - Women no longer need to fight for equality with men because it has already been achieved						
		Disagree	Agree	Don't know	χ^2	p
Migratory background	M	37.8	50.0	12.2	9.74	< 0.05
	F	62.0	29.6	8.5		
Non-migratory background	M	36.0	51.0	13.0	24.99	< 0.001
	F	76.7	20.0	3.3		
I2 - Every woman needs a man to protect her						
		Disagree	Agree	Don't know	χ^2	p
Migratory background	M	42.9	50	7.1	6.96	< 0.05
	F	63.4	32.4	4.2		
Non-migratory background	M	42.6	44.6	12.9	20.45	< 0.001
	F	78.3	20.0	1.7		
I3 - In some cases, violence against people is justified						
		Disagree	Agree	Don't know	χ^2	p
Migratory background	M	42.4	50.5	7.1	10.2	< 0.05
	F	65.2	26.1	8.7		
Non-migratory background	M	41.2	52.9	5.9	20.1	< 0.001
	F	76.7	18.3	5.0		

From Table 7, it is possible to observe that the difference in responses to the sexism-related items between males and females is smaller in the group of students with a migratory background compared to those without it. In fact, differences between males and females without a

migratory background are statistically more significant than those between males and females with a migratory background. These variations can be better observed in graphical form (Figure 1; Figure 2; Figure 3), where it becomes evident that male students, regardless of their migratory background, exhibit similar responses, while female students show greater variation based on background. In other words, female students with a migratory background tend to respond more similarly to male students than to their non-migratory background peers.

Figure 1

Agreement Levels with Item I1 Stratified by Gender and Migratory Background
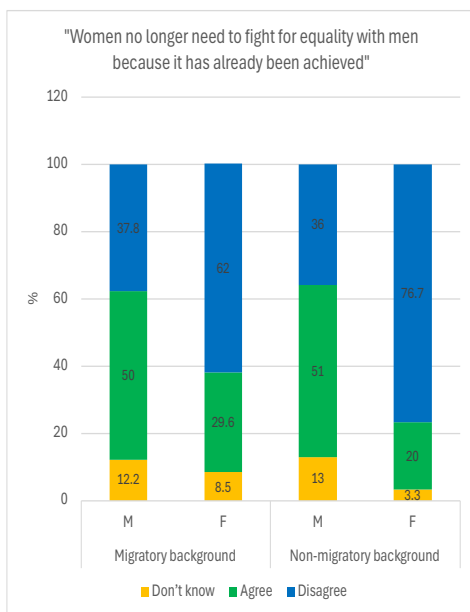
Figure 2

Agreement Levels with Item I2 Stratified by Gender and Migratory Background
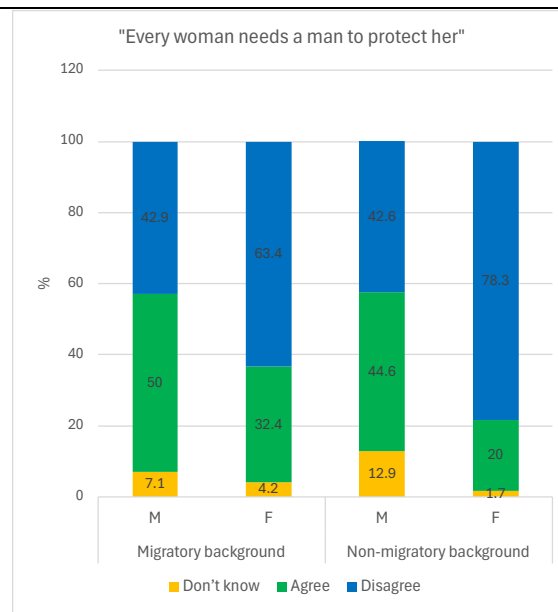
Figure 3

Agreement Levels with Item I3 Stratified by Gender and Migratory Background
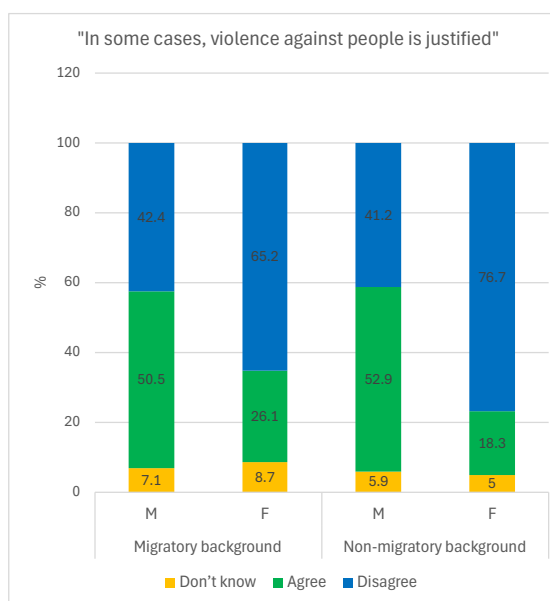
5   Discussion and Implications for iVET Educational Practice

Data analysis shows consistency with the literature. First, the sample exhibits strong gender segregation across vocational specializations. Secondly, female students express lower levels of sexism compared to male students, in line with a greater propensity for gender equality observed in ICCS studies (Schulz et al., 2023). Migratory background, in itself, does not appear to show significant relationships with sexism. However, adopting an intersectional approach – one that goes beyond individual dimensions – reveals some interesting insights.

When considering both gender and migratory background, the data indicate that female students with a migratory background show higher levels of agreement with sexism-related items compared to their non-migratory background female peers. On the other hand, migratory background does not appear to impact sexist attitudes among male students.

A superficial reading might suggest that female students with a migratory background are more likely to hold sexist views than those without a migratory background. From an intersectional perspective, one might have expected that female students with a migratory background would hold stronger anti-sexist attitudes than their Italian peers, given their experience of multiple forms of discrimination. However, the way in which multiple experiences of discrimination manifest and the effects they have on attitudes are complex and unpredictable. Sometimes, the relationship between attitudes and belonging to a particular social category is counterintuitive. For example, it is important to recall the concept of internalized sexism, as introduced in the theoretical chapter. A higher level of agreement with sexism-related items could therefore suggest that female students with a migratory background experience multiple forms of discrimination based on both ethnicity and gender. Alternatively, or in addition, it may indicate greater exposure to sexist discursive practices, which can contribute to the internalization of gender stereotypes (Bearman et al., 2009).

There are many possible interpretations of these results, and in doing so, it is also important to consider some limitations of the study.

From a more technical perspective, it is worth noting that some descriptive statistics are missing and that certain relationships between variables have not been explored, such as potential differences between mixed-gender classes and gender-segregated classes. Additionally, the sample was not randomly selected, meaning it is not representative of the broader iVET student population.

The intersectional paradigm was used to examine the impact of multiple subordinated identities on *enacted* (or rather, *thought*) sexism rather than *experienced* sexism, although, as discussed, sexist attitudes can also result from internalized sexism. This approach might represent a non-conventional use of the intersectional paradigm and might risk be seen as undermining the empowerment of female students with a migratory background. In a broader sense, this contribution could leave room for easy stereotypical or stigmatizing interpretations, portraying female students with a migratory background or male students in general as pupils more inclined toward sexism. On the contrary, this should not be taken as a categorization of students but rather as a way to highlight the complexity of educational needs in iVET.

Even though the intersectional perspective is not adopted in the most conventional sense when interpreting the data, it is important to stress that it was precisely through an intersectional lens that the research questions were originally formulated. Moreover, we argue that this perspective has nonetheless enabled a type of analysis that might otherwise have been overlooked, allowing us to highlight how intersecting subordinated identities can shape complex frameworks for students' value systems and attitudes.

Adolescence is a key stage in socialization into gender-related practices, including, for instance, internalized sexism (Bearman et al., 2009). Teachers play an important role in addressing sexism, especially when working in multi-ethnic classrooms (Öhrn, 2009).

The insights provided by this contribution underscore the urgency, particularly in iVET, of gender equality education informed by the complexity of students' multiple identities, in order to promote a more inclusive and democratic iVET.

References

Agadullina, E., Lovakov, A., Balezina, M., & Gulevich, O. A. (2022). Ambivalent sexism and violence toward women: A meta-analysis. *European Journal of Social Psychology*, *52*(5–6), 819–859. https://doi.org/10.1002/ejsp.2855

Allport, G. W. (1954). *The nature of prejudice*. Addison-Wesley.

Bearman, S., Korobov, N., & Thorne, A. (2009). The Fabric of Internalized Sexism. *Journal of Integrated Social Sciences*, *1*(1), 10–47.

Brandt, M. J. (2011). Sexism and Gender Inequality Across 57 Societies. *Psychological Science*, *22*(11), 1413–1418. https://doi.org/10.1177/0956797611420445

Brescianini, F. (2023). Promoting citizenship competence in Italian vocational education and training through assessment. In V. Tūtlys, L. Vaitkutė & C. Nägele (Eds.), *Vocational Education and Training Transformations for Digital, Sustainable and Socially Fair Future* (pp. 78–86). https://doi.org/10.5281/zenodo.7808336

Brescianini, F. (2024). Assessing Citizenship Competences in Vocational Education and Training. The Development of Tools to Promote Formative Assessment. In A. La Marca, G. Moretti, & I. Vannini (Eds.), *La ricerca educativa e didattica nelle scuole di dottorato in Italia. 7/2023* (pp. 603–625). Pensa Multimedia.

Brescianini, F., & Luppi, E. (2023). What kind of assessment for transversal competences in Vocational Education and Training? *Q-Times Webmagazine*, *XV*(4), 228–242. https://doi.org/10.14668/QTimes_15418

Cedefop. (2014). *Terminology of European education and training policy. A selection of 130 key terms* (2nd ed.). Publications Office of the European Union. https://doi.org/10.2801/15877

Cedefop. (2016). *Leaving education early: Putting vocational education and training centre stage : Volume I, Investigating causes and extent.* Publications Office of the European Union. https://data.europa.eu/doi/10.2801/893397

Cedefop. (2017). The changing nature and role of vocational education and training in Europe. Volume 1: Conceptions of vocational education and training: An analytical framework. Publications Office of the European Union.

Cedefop. (2020). Vocational education and training in Europe, 1995-2035: Scenarios for European vocational education and training in the 21st century. Publications Office of the European Union. https://doi.org/10.2801/794471

Cho, S., Crenshaw, K. W., & McCall, L. (2013). Toward a Field of Intersectionality Studies: Theory, Applications, and Praxis. *Signs: Journal of Women in Culture and Society*, *38*(4), 785–810. https://doi.org/10.1086/669608

Cimatti, B. (2016). Definition, Development, Assessment of Soft Skills and their Role for the Quality of Organizations and Enterprises. *International Journal for Quality Research*, *10*(1), 97–130.

Cohen, L., Manion, L., & Morrison, K. (2018). *Research Methods in Education* (8th ed.). Taylor & Francis. (Original work published 1980)

Collins, P. H. (2000). Black Feminist Thought: Knowledge, Consciousness, and the Politics of Empowerment (2nd ed.). Routledge. (Original work published 1990)

Corbetta, P. (2014). *Metodologia e tecniche della ricerca sociale* (2nd ed.). Il Mulino. (Original work published 1999)

Council of the European Union. (2020). Council recommendation of 24 November 2020 on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience.

Council of the European Union. (2020). Osnabrück Declaration on vocational education and training as an enabler to recovery and just transitions to digital and green economies.

Crenshaw, K. (1989). Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics. *University of Chicago Legal Forum*, *1989*(I), 139–167.

Crenshaw, K. (1991). Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color. *Stanford Law Review*, *43*(6), 1241–1299. https://doi.org/10.2307/1229039

Glick, P., & Fiske, S. T. (1996). The Ambivalent Sexism Inventory: Differentiating hostile and benevolent sexism. *Journal of Personality and Social Psychology*, *70*(3), 491–512. https://doi.org/10.1037/0022-3514.70.3.491

Imdorf, C., Hegna, K., & Reisel, L. (Eds.). (2015). *Gender segregation in vocational education*. Emerald Group.

Ministero dell'Istruzione e del Merito. (2023). Gli alunni con cittadinanza non italiana. A.s. 2021/2022.

Ministero dell'Istruzione. (2022). I principali dati relativi agli alunni con disabilità. Aa.ss. 2019/2020—2020/2021.

MIUR. (2019). La dispersione scolastica nell'anno scolastico 2016/2017 e nel passaggio all'anno scolastico 2017/2018.

Öhrn, E. (2009). Challenging Sexism? Gender and Ethnicity in the Secondary School. *Scandinavian Journal of Educational Research*, *53*(6), 579–590. https://doi.org/10.1080/00313830903302091

Purdie-Vaughns, V., & Eibach, R. P. (2008). Intersectional Invisibility: The Distinctive Advantages and Disadvantages of Multiple Subordinate-Group Identities. *Sex Roles*, *59*(5–6), 377–391. https://doi.org/10.1007/s11199-008-9424-4

Purdie-Vaughns, V., & Eibach, R. P. (2008). Intersectional Invisibility: The Distinctive Advantages and Disadvantages of Multiple Subordinate-Group Identities. *Sex Roles*, *59*(5–6), 377–391. https://doi.org/10.1007/s11199-008-9424-4

Schulz, W., Ainley, J., Fraillon, J., Losito, B., Agrusti, G., Damiani, V., & Friedman, T. (2023). Education for Citizenship in Times of Global Challenge: IEA International Civic and Citizenship Education Study 2022 International Report. IEA.

UNESCO. (2015). Global citizenship education: Topics and learning objectives. UNESCO.

Biographical Notes

Flavio Brescianini is a Research Fellow and Adjunct Professor of Educational Research at the University of Bologna. His research areas include VET, citizenship education, and the promotion and assessment of transversal competences. He works as a consultant on training policies for public administration and collaborates with CEDEFOP on the European Vocational Teacher Survey (EVTS).

Elena Luppi is Full Professor in Educational Research at the University of Bologna. She lectures in "Project design in education", "Educational Research" and "International project design". She carries out Evidence Based Research and Action Research on Design, Assessment and Evaluation in Education. She is an expert in Lifelong Learning - especially VET, Older adults and in Gender issues, tackling these topics with an interdisciplinary perspective.

Vouchers as Vehicle of Change in Croatian Vocational Adult Education: Two Theoretical Perspectives

Buković, Nikola
nbukovic@pravo.hr; Faculty of Law, University of Zagreb

Matković, Teo
teo.matkovic@pravo.hr; Institute for Social Research in Zagreb

Abstract

Context: This paper takes stock of evidence collected within the ongoing Thematic country review on the implementation of the 2016 European Council recommendation "Upskilling Pathways: New Opportunities for Adults" in Croatia.

Approach: It focuses on two specific research questions. The first one looks at the likely impact of the recent introduction of the voucher scheme in the Croatian adult education sector on the overall features of the skill formation regime. The second research question examines how broader features of the Croatian welfare regime will likely mediate the effects of the voucher scheme rollout. The analysis is based on data from 39 physical and online interviews with 54 informants with direct knowledge of the upskilling challenges.

Findings: The analysis broadly established that vouchers in the Croatian context largely work towards aligning the adult education system, thus far primarily governed by segmentalist principles, with the general features of the Croatian skill-formation regime characterised by an outsized role of the central state. Findings also indicate that the voucher scheme's structure and rollout are substantially influenced by features of the Croatian active labour market policy, which systematically fails to effectively target beneficiary groups furthest removed from the labour market. There is also evidence of the Croatian welfare state failing to secure preconditions for the participation of low-skilled and low-qualified adults in voucher-funded courses despite them being nominally "free of charge" for beneficiaries. Critical social risks recognised as particular barriers to access are health impediments, physical isolation, care for dependents and access to decent income for welfare recipients.

Conclusions: This paper paves the way for more ambitious (comparative) research efforts aimed at better understanding how vouchers influence established skill-production regimes and how their features interact with respective welfare state regimes. Analysis seems to demonstrate that vouchers can function as instruments of (central) state empowerment in educational policymaking despite originally being conceived as a market-based way of giving beneficiaries of educational services more support over their choices.

Keywords

upskilling, skill-formation regime, welfare regime, vouchers

1 Introduction

At the European level, the 2016 European Council recommendation "Upskilling Pathways: New Opportunities for Adults" (2016/C 484/01), as well as the 2022 Council recommendation on individual learning accounts (2022/C 243/03), have provided a strong impetus for European countries to broaden and update their adult learning systems. However, in each country such interventions are landing upon established skill production regimes (Busemeyer & Trampusch, 2012; Tūtlys et al., 2022) and welfare state institutional setups structured towards supporting adult learning (Rubenson & Desjardins, 2009; Saar & Räis, 2017), necessarily leading to institutional change processes (Mahoney & Thelen, 2009), as new instruments and stakeholders rub shoulders with incumbent ones. The introduction of training vouchers in April 2022 may represent such a critical juncture in the transformation of the vocational segment of Croatian adult education. By allowing each adult citizen to attend one vetted course of his/her choosing, the voucher scheme is conceived as a first step towards an individual learning accounts system. For the most part, the offer entails short-term vocational courses, with an initial focus on green and digital jobs; gradually expanding towards other sectors. The legal, strategic and financial frameworks were, respectively, set by the Adult Education Act of 2021, the National Plan for Work, Occupational Safety and Employment (2021-2027), and the EU Resilience and Recovery Facility and the European Social Fund +. This policy change was introduced in a system characterized by persistently low adult education participation and large gaps in participation with respect to education and labour market consistently reported both by the Labour Force Survey and the Adult Education Survey. In the 2022 round of AES, collected just before the rollout of the voucher scheme, just 20% of Croatian residents (25-64) reported participating in non-formal education and training, compared to the 37% EU-27 average, with employers funding training in 84,5% of cases (Eurostat, 2024a). As per Croatian Employment Service Statistical bulletins, from the beginning of April 2022 to the end of December 2024[1], voucher-based training was successfully completed by 25947 persons, or about 1% of the adult population, albeit mostly employed and well-educated. Here we set out to explore the policy change put in motion by vouchers through two research questions.

> RQ 1) What is the likely impact of the recent introduction of the voucher scheme in the Croatian adult education sector on overall features of the national skill formation regime?

According to Busemeyer & Trampusch (2012) there are four neuralgic points of conflict determining the profile of the skill production regime: the division of labour between the state, employers, their associations, and individuals on the i) provision and ii) financing of training; iii) the relationship between firm autonomy and public oversight in the provision of training; iv) the linkages between VET and the general education system. When it comes to adult education, two of those were upset by the process of introduction of the voucher scheme - namely funding and oversight dimensions - thus having potential for change in the skill production profile. Before the introduction of vouchers, adult education in Croatia could have been best described as a form of segmentalism. The state continuously funds part of the adult education provision, commonly as one of the measures of active labour market policy (hereafter: ALMP). However, these measures traditionally included up to a few thousand persons per year and accounted for the smallest share of the budget allocated towards the ALMP, compared to other

---

[1] Authors decided against referencing each of the bulletins separately to avoid compromising overall fluency of the text and breaching recommended length. All the statistical bulletins are available at: https://www.hzz.hr/usluge/publikacije-hzz-a/statisticke-publikacije/#mjesecni-statisticki-bilten (Accessed on 8 April 2025).

more prominent categories such as employment subsidies, traineeships or public works (Matković, 2019). Consequently, employers traditionally fund most of the adult education provision (Eurostat, 2024a; Matković & Jaklin, 2021). However, despite their outsized role in funding, the Adult Education Survey (Eurostat, 2024b) indicates that Croatian employers are less likely to provide training directly (only 24% in 2022 vs the 34% EU-27 average). Adult education is for the most part provided by various training institutions and schools. In many cases such institutions are publicly owned but largely operate on a market basis with no public funding, with participation fees representing the main source of their income. With introduction of regulation and funding, we presume that vouchers are likely to serve as an instrument of aligning vocational adult education with the general outlook of the Croatian skill-formation regime, which is predominately statist, with some elements of collectivism (Buković, 2019; Matković & Buković, 2022).

> RQ 2) How are broader features of the Croatian welfare regime likely to mediate the effects of the voucher scheme take-up?

Review of key policy documents indicates that the primary purpose of voucher introduction was the general broadening of participation in adult education, rather than inclusion of marginalized groups *per se*. However, the practical availability of services which are nominally "open to everyone" is always an important issue that merits additional analytical attention. Rubenson and Desjardins (2009) emphasize that a policy focus on equity and extending the supply of opportunities into the domain of civil society are instrumental in securing broad participation. Welfare regime provisions going beyond the ALMP might have a significant impact on how training opportunities are distributed (Saar & Räis, 2017). In this setup, care policies may be of particular importance (Melesk, 2021). Having in mind large pre-existing differences in dispositions, information and barriers to participation in adult education (Matković, 2023), as well as the absence of flexicurity mechanisms (Matković, 2013) and coherence between social policies in Croatia (Dobrotić, 2016, 2019; Stubbs & Zrinščak, 2009), it would be prudent to explore whether they hinder access to the voucher-enabled upskilling.

2 Methodology

This paper is based on evidence collected within the ongoing Thematic country review[2] on upskilling pathways for (low skilled) adults commissioned by Cedefop and delivered by a consortium consisting of the Institute for Social Research Zagreb and Istituto per la Ricerca Sociale.

Specifically, it relies on a qualitative research segment of the first phase of the project that included semi-structured interviews based on a comprehensive analytical framework developed by Cedefop (2020). This framework is used to guide research on implementation of different aspects of the Upskilling Pathways Recommendation. The effort focused on the three (out of 11) key areas, with corresponding research topics, that were selected for the research under this service contract: Multi-level and multi-stakeholder governance (Effectiveness of coordination; Role of local providers; Involvement of employers and civil society), Financial and non-financial support (Securing funding; Non-financial support; Targeting support), and Outreach to vulnerable groups (Barriers to participation; Opportunities and synergies and outreach Resources).

The fieldwork was carried out between May and June 2024 as a combination of 39 physical and online interviews with 54 participants originating from three groups with direct knowledge of the upskilling challenges: i) adult education providers (open universities founded by local

---

[2] The service contract commenced in December 2022, with scheduled completion in October 2025.

governments, VET schools, regional competence centres and one each of the following: a school aligned with the chamber of crafts, a correspondence school, a privatized peoples' university and a language school), ii) stakeholders directly involved with low-skilled adults (a centre for professional rehabilitation, a civil society organization working with immigrants, social enterprises, organizations supporting work integration and civil society organizations directly working on social integration, as well as group interviews with Croatian Employment Service (CES) counsellors) and iii) the low-skilled beneficiary group itself, mostly recruited via CES (low-skilled long-term unemployed, women distant from the labour market and persons with disabilities)[3].

The analytical process could best be described as a simple thematic analysis of the deductive (Elo & Kyngäs, 2008; Mayring, 2014) or directed type (Hsieh & Shannon, 2005). Specific codes were developed at the level of individual topics, initially following the interview protocols, then iteratively optimized during the research process. A total of 26 codes were used to analyse interviews with adult education providers, 30 for interviews with stakeholders and 10 for interviews with low-skilled adults. These codes largely overlapped, allowing for comparison across sub-samples[4]. The initial coding output was a thick description of findings per each of the three groups of participants, representing a highly coherent and comprehensive product of the entire analytical effort.

As all categories of stakeholders kept mentioning vouchers, being a major innovation in the adult learning world, for the purpose of this paper we engaged in a critical re-reading of these intermediary research products, guided by the two research questions set out in the introductory section. Relevant segments were extracted and organized thematically. This simple analytical procedure yielded a total of four coherent thematic categories, two per research question; outlined in the following section.

Our approach has palpable limitations, primarily deriving from the fact that the research questions set out in this paper did not guide the original inquiry. As a consequence, relevant elements are relatively scarce considering the entire scope of the dataset. They should be understood primarily as analytical clues regarding challenges caused by changes in the national adult education policy, rather than irrefutable evidence for strong generalizable conclusions. Additionally, findings could also benefit from the perspective of actors who enjoy a more specific insight into the policymaking process, such as high-level civil servants, politicians and experts engaged with employers' associations, industry-level trade unions or associations of adult education providers. These groups will be covered by the following phases of the Thematic country review, so future analysis could complement findings outlined in this paper. However, considering the novelty of this approach and strength of the purposive sample, we assess they are "worth the candle" in the sense that they can pave the way to more ambitious research on the implementation of EU policy recommendations in the context of existing skill-production and welfare regimes.

---

[3]   Despite men making up for the majority of the low-skilled population, 10 interviewees were women and 3 were men. Total of 7 interviewees had participated in training programmes, 2 have participated in CES activation programmes, and 4 did not participate in any training. During the interviews with beneficiaries and potential beneficiaries it emerged that many participants actually accumulated several disadvantages/ vulnerabilities such as low education, poor health and gender barriers to the labour market.

[4]   Entire codebook is available in an online methodological annex on the following link: https://drive.google.com/file/d/16ANTeeCWJu3Kaq2xFK8C73WHD8UHSTwg/view?usp=sharing

3 Findings

RQ 1: Vouchers and the skill-formation regime

Money Means Control

Content of this category indicates that vouchers in practice function as a sort of intervening variable between funding and control in the field of Croatian adult education. The central state's emergent (and novel) status of "key investor" also allows its ministries and agencies to expand its regulatory competence over the field of adult education, within which adult education providers traditionally enjoyed a considerable degree of autonomy.

The evidence, predominantly laid out by participants affiliated with adult education providers, vividly describes how vouchers empower central state actors vis-à-vis other actors, primarily providers and employers. Providers can apply for voucher funding only with courses that can prove a clear connection to the occupational and/or qualification standards that are already induced into the Croatian Qualification Framework (hereafter: CROQF) Registry. Another option is basing courses on CROQF-approved learning outcomes.

Earlier analysis (Matković & Buković, 2022) indicated that the process of certifying courses in line with the CROQF methodology proved challenging for many VET providers, including those that operate at upper-secondary level. However, introduction of vouchers brought about an important novelty that allowed for significant simplification and streamlining of the certification process, at least for micro-credentials that make up a significant majority of all voucher-funded programmes. Namely, the Agency for Vocational Education and Training and Adult Education (hereafter: AVETAE) itself developed and published dozens of curricula leading to micro-credentials and partial qualifications at pre-tertiary level in sectors such as construction, transportation and logistics, healthcare and foreign languages (AVETAE, n.d.). This allowed providers to all but completely circumvent the red tape pertaining to the standard certification process by simply applying for voucher funding with the exact same curricula previously developed by the AVETAE. Similarly, providers are allowed to "construct" micro-credentials based on a number of previously certified learning outcome groups, which also allows them to avoid the most demanding element of developing new micro-credentials and subsequent curricula: producing an analytical underpinning for their economic and social justification (AVETAE, 2022). If based on an acceptable combination of existing learning outcome groups, micro-credentials are automatically viewed as socially and economically relevant by the AVETAE which provides an initial assessment, which is commonly rubber-stamped by the Ministry of Science, Education and Youth.

A process structured in such a way logically positions the AVETAE as both a central information node and key gatekeeper. Adult education providers for the most part positively assess the work of the AVETAE in this aspect, praising the professionalism and efficiency of the Agency's staff. However, several providers expressed the need for support in meeting CROQF requirements for designing and registering completely new courses; as opposed to implementing ready-made courses already prepared and shared by the AVETAE or those that are constructed on the existing combination of learning outcome groups. Such a process still requires a substantial analytical underpinning. Many providers seem to lack resources for following through such a demanding path. A similar experience was reported by participants from a work integration social enterprise (hereafter: WISE) that attempted to register its own set of micro-credentials for experts working on work integration. Having to develop all the micro-credentials "from scratch", these participants described the existing support for such endeavours as completely inadequate. Overall, these findings align well with existing literature (Markowitsch & Dębowski, 2022; Powell & Trampusch, 2012) which predominantly views qualification frameworks as tools of state empowerment in skill production regimes.

Linking vouchers with CROQF is the most commonly recognised mechanism of the central state's empowerment, but not necessarily the only one. Two providers decry the lack of any discernible logic of voucher-funding allocation; i.e. labour market information upon which the number of slots for a certain type of course is allocated. This is decided by the Ministry of Labour, Pension System, Family and Social Policy (hereafter: MoL), based on data provided by the Croatian Employment Service (hereafter: CES).

> ...it would be great if those programmes (funded through vouchers; authors' remark) could be distributed more equitably. CES has the data on how many unemployed there are and what is their structure. So vouchers could be better targeted. For instance, in our town there are 250 unemployed, of that ten persons with disabilities, fifty five long-term unemployed women. Okay, then allocate towards our town, to providers number 1, 2 and 3 (appropriate courses; authors' remark) and we'll train those folks. - Adult education expert

Scepticism towards the existing way of doing voucher allocation is also expressed by CES experts, with one of them reporting that 30% of total vouchers approved in the last two years by his major CES office funded training for fork-truck operators. A similar example is noted by another participant, only this case applied to courses on accounting. CES experts doubt that demand justifies such an allocation of vouchers to these specific occupations. These findings strongly resonate with research on the role of the central state in upper-secondary VET, where excessive control over resource allocation is rarely justified by successful policy outcomes (Buković, 2021; 2022).

Transforming the Adult Education Playfield

Increased central state control, fuelled by (EU-backed) voucher funding, may have another important effect: transforming the adult education playfield in a way that heavily favours certain types of providers over others. This is indicated by statements made by participants affiliated with a number of smaller providers that previously operated almost exclusively on a commercial basis, i.e. charging fees. These operators that previously ran small but largely sustainable operations are now having to face a significant administrative burden pertaining to execution of voucher-funded courses, risk of late drop-out by participants (with payments being linked to successful course completion) and overall inability to sell their services commercially in a landscape where free of charge upskilling opportunities are becoming more available. Vouchers seem to be favouring larger providers that have at their disposal the resources needed to meet corresponding administrative and financial demands.

In a very particular statement one participant reported the inability of his adult education provider to apply for voucher-funding for English and Croatian language courses aimed at foreign workers, despite a long tradition of offering similar educational content. This is due to the fact that the provider is not registered as a "language school", i.e. it does not have over 50% of its operational capacity committed to language courses. He sees this outcome as illegitimate and favouring what he refers to as "language schools' lobby". Furthermore, he mentions instances of AE providers originally registered as language schools expanding their scope of operations well beyond its original purpose (for instance, machinery training) for the sole purpose of obtaining voucher funding. Such a statement requires additional validation. However, findings within this category definitely indicate that voucher funding has a significant potential to transform the existing offer in Croatian adult education – for better or for worse.

RQ2: Vouchers and the welfare state

REPRODUCING THE ACTIVE LABOUR MARKET POLICY MODEL

A number of participants affiliated with adult education providers warn of a profoundly partial nature of micro-credentials, in the sense that the "one" which is funded through the voucher scheme is rarely sufficient to significantly improve the prospects of low-skilled and low-qualified adults. This makes them far more suitable for beneficiaries with higher levels of previous competence, and often higher level qualifications.

> One micro-credential is not enough; there is always a need for extra if a person is to receive something resembling holistic training in a certain field. For instance, specific, sophisticated types of welding…For this reason I think vouchers are more suited for persons with higher levels of education than the low-qualified. -Adult education expert

According to experts affiliated with AE providers, low-qualified adults are commonly in need of obtaining a full qualification which ideally should be in low-supply. However, this feat is largely unaffordable for the majority of beneficiaries belonging to vulnerable groups, and full qualifications are not provided under the voucher scheme. This lack of clear incentives seems to plausibly account for the relative absence of the low-qualified and unemployed within the structure of voucher beneficiaries. In a similar vein, CES experts warn against the practice of pushing too many participants towards voucher-funded courses that build on previous experience. One of them points to low completion rates of a programming course that was seen by many CES advisors as a particularly effective tool of improving labour market prospects for long-term unemployed beneficiaries.

CES experts on multiple occasions also emphasized a different type of obstacle low-skilled and low-qualified adults face when wanting to use their voucher: online application, mandating active use of the E-Citizen interface which requires a reasonable degree of digital literacy. This issue was also particularly strongly voiced by an expert affiliated with a civil society organization working with vulnerable groups.

Furthermore, CES experts warn that the "voucher tsunami" is also sweeping away some particularly useful alternatives, such as adult education courses executed within the ALMP framework. They see the latter as an option which is actually easier for employers, as CES sets up the whole operation. They believe that ALMP-sponsored adult education courses are also more feasible for adult education providers who do not have to wait for a "minimal quota" of participants to make the course financially viable.

Many of the previously described features of the voucher implementation are very much in line with well-documented problems of the Croatian ALMP. Multiple sources (Franičević, 2008; Ipsos & HZZ, 2016; Matković, 2019) point to systematic failures of this policy in effectively targeting beneficiary groups furthest removed from the labour market. What is critically important here is that both ALMP and the voucher structure are designed and executed by exactly the same set of institutional actors: MoL and CES. An existing institutional playbook may have been applied in the design and execution of the voucher scheme; perhaps even without the clear intentions of key actors who simply under political and operational pressures relied on familiar institutional blueprints, leading to similar policy outcomes.

Welfare Fragmentation and Scarcity

Unlike previous categories, this one mostly relies on the perspective of low-skilled and low-qualified adults in relation to obstacles that prevented them, or made it particularly hard for them, to take part in upskilling programmes. Considering the relatively recent rollout of the voucher scheme and the prolonged unemployment status of most interview participants, many of the omitted opportunities mentioned by participants do not necessarily refer to these courses. However, considering the low participation of this population in voucher funded courses, many of them appear highly relevant.

Seven out of thirteen participants reported different types of health issues as impediments to participation in upskilling initiatives. Only a minority of those participants have a formal disability status, so this confirms that serious health conditions are widespread within low-skilled and low-qualified groups, irrespective of whether they are formally recognized by the welfare system. These impediments sometimes limit their mobility and ability to partake, but also, as in the quoted excerpt below, pose questions regarding the pertinence of the upskilling effort all together.

> Yes, I was supposed to go, but last year I injured my fist. I don't have a use of the fist and it's really hard finding a job. Because this fist is sort of half-functional and I'm having a real hard time finding any job. - Low skilled unemployed adult

Another common issue, picked up in no less than six interviews, is spatial isolation combined with absence of public transport. Even in situations when CES is providing refunds for travel expenses (a practice which is at times described by some as less than ideal), participants living in isolated areas often lack viable public transportation options which would allow them to travel on a daily basis to and from nearby urban centres where courses are regularly executed. This issue was validated by CES experts.

Absence of care for family and dependents also appeared as an important issue in at least 5 interviews with low-skilled and low-qualified adults. In the simple words of one of the participants: "By the time the kids are all grown up, it's too damn late." Croatian welfare state institutions, both at the national and local level, lack services that can address this type of challenge.

Finally, stakeholders in direct contact with vulnerable groups in at least three interviews emphasize that their beneficiaries commonly rely on participation in the informal, "grey" economy, combined with scarce social benefits. This allows them to live in a status that could be best described as "manageable poverty". For this reason, such individuals over time become very good at suppressing their needs, creating a sort of low-level equilibrium that they are familiar and comfortable with. Naturally, it serves as a barrier to various efforts for activation, including upskilling. Such a view was validated by one low-skilled adult, who also reported on the punitive practices of CES, which upon any evidence of such activities removes beneficiaries from its registry.

These findings paint an overall picture of social services struggling with scarcity and fragmentation, resulting in their overall inability to support beneficiaries facing more complex social problems. These findings are well aligned with earlier depictions of the Croatian welfare regime (Dobrotić, 2016, 2019; Stubbs & Zrinščak, 2009) and empirical research of inequalities in access to life-long learning in Croatia (Matković, 2023).

4 Concluding Remarks

In response to RQ1, analysis presented in this paper indicates that vouchers are expanding the role of central state actors in areas such as curricular development, provision monitoring and quality assurance. There are four developments fuelling this transformation: i) the emerging role of the central state as an important investor in adult education through voucher provision; ii) linking the voucher provision with features of the national qualification framework; iii) control over information representing the basis for voucher allocation and iv) impact of voucher provision on the functioning of the adult education market, i.e. the set of rules under which adult education providers compete for beneficiaries. The starting assumption - that voucher provision will incentivize alignment of the adult education system with features of the Croatian skill production regime, characterized by an outsized (but in policy terms not overly effective) role of the central state - is largely being validated by these findings. However, segmentalist

features are likely to remain present or even dominant in the Croatian adult education system for the foreseeable future, considering that employers still fund the bulk of vocational adult education provision.

In response to RQ2, findings largely point towards the Croatian welfare state's inability to effectively address basic social risks, such as health impediments, physical isolation, care for dependents and access to a decent income for welfare recipients. Removing these barriers serves as a precondition for participation of low-skilled and low-qualified adults in all up-skilling initiatives, including those that are nominally "free of charge". As a consequence, members of vulnerable social groups are far less likely to take part.

Findings pertaining to RQ2 also indicate that, likely inadvertently, existing design and operating procedures used to implement ALMP in Croatia largely influenced the voucher-scheme's structure and rollout. Considering that both policies are for the most part formulated and implemented under the same institutional auspices (MoL formulating, CES implementing), this explanation appears largely plausible. The practical consequence of such a development is a lack of effective outreach of the voucher scheme towards low-skilled and low-qualified groups in greatest need of effective upskilling, primarily due to the scheme's built-in institutional features favouring adults with a higher education diploma. This paper paves a way to more ambitious (comparative) research efforts aimed at better understanding how vouchers influence established skill-production regimes; and how their features interact with respective welfare state regimes. Our analysis seems to demonstrate that vouchers can function as instruments of (central) state empowerment in educational policymaking, despite originally being conceived as a market-based way of giving beneficiaries of educational services more support over their choices.

Apart from building on these findings from other relevant perspectives (politicians, top civil servants, representatives of intermediary associations), further research could focus on understanding institutional conditions under which vouchers generate different types of policy outcomes. Future research could also contribute to a deeper understanding of the relationship between welfare systems and adult VET education, singling out good practice examples of coordination and support leading to positive outcomes for beneficiaries at risk of poverty and social exclusion.

References

AVETAE. (2022). Metodologija za izradu programa obrazovanja odraslih za stjecanje mikrokvalifikacija, djelomičnih kvalifikacija i cjelovitih kvalifikacija financiranih putem vaučera i drugih izvora financiranja. Agency for Vocational Education and Training and Adult Education. https://www.asoo.hr/wp-content/uploads/2022/06/Metodologija_pdf.pdf

AVETAE. (n.d.). *Metodologija izrade programa obrazovanja odraslih*. ASOO - Agencija za strukovno obrazovanje i obrazovanje odraslih. https://www.asoo.hr/obrazovanje/obrazovanje-odraslih/metodologija-izrade-programa-obrazovanja-odraslih/

Buković, N. (2019). Razvoj institucionalnog ustroja hrvatske politike strukovnog obrazovanja. *Političke perspektive: časopis za istraživanje politike*, *9*(2), 99–122. https://doi.org/10.20901/pp.9.2.04

Buković, N. (2021). Institucionalni ustroj i formulacija politike srednjeg strukovnog obrazovanja u Hrvatskoj: Akteri, strategije i "promjena koja ništa ne mijenja". *Politička misao : časopis za politologiju*, *58*(3), 208–242. https://doi.org/10.20901/pm.58.3.08

Buković, N. (2022). *Akteri, kontinuitet i promjena: Analiza institucionalnoga ustroja hrvatske politike strukovnoga obrazovanja* [Sveučilište u Zagrebu, Fakultet političkih znanosti]. https://urn.nsk.hr/urn:nbn:hr:114:553789

Busemeyer, M., & Trampusch, C. (2012). The comparative political economy of collective skill formation. In M. Busemeyer & C. Trampusch (Eds.), *The political economy of collective skill formation* (pp. 3–40). Oxford University Press.

Cedefop. (2020). Empowering adults through upskilling and reskilling pathways: Vol. 2: Cedefop analytical framework for developing coordinated and coherent approaches to upskilling pathways for low-skilled adults. Publications Office. https://www.cedefop.europa.eu/en/publications/3082

Dobrotić, I. (2016). Crisis and Croatian welfare state: A new opportunity for welfare state retrenchment?. In Klaus Schubert, Paloma de Villota, & Johanna Kuhlmann (Eds.), *Challenges to European welfare systems* (pp. 301–324). Springer, Cham.

Dobrotić, I. (2019). A lack of coherent policy paradigm followed by inconsistent policy reforms? In S. Blum, J. Kuhlmann, & K. Schubert (Eds.), *Routledge handbook of European welfare systems*. Routledge.

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, *62*(1), 107–115. https://doi.org/10.1111/j.1365-2648.2007.04569.x

Eurostat. (2024b). *Distribution of non-formal education and training activities by provider*. https://ec.europa.eu/eurostat/databrowser/view/trng_aes_170/default/table?lang=en&category=educ.educ_part.trng.trng_aes_12m.trng_aes_12m0.trng_aes_12m_

Eurostat. (2024a). *Participation rate in job-related non-formal education and training by type and educational attainment level*. https://ec.europa.eu/eurostat/databrowser/view/trng_aes_122/default/table?lang=en&category=educ.educ_part.trng.trng_aes_12m.trng_aes_12m0.trng_aes_12m0_

Franičević, V. (2008). *Decent work country report—Croatia*. International Labour Office Regional Office for Europe and Central Asia. https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40europe/%40ro-geneva/documents/meetingdocument/wcms_359805.pdf

Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, *15*(9), 1277–1288. https://doi.org/10.1177/1049732305276687

Ipsos, & HZZ. (2016). *Vanjska evaluacija mjera aktivne politike tržišta rada 2010. - 2013. Sumarno evaluacijsko izvješće*. IPSOS and Hrvatski zavod za zapošljavanje. http://www.esf.hr/wordpress/wp-content/uploads/2016/04/sumarno-evaluacijsko-izvjesce-maptz.pdf

Mahoney, J., & Thelen, K. (Eds.). (2009). *Explaining institutional change: Ambiguity, agency, and power*. Cambridge University Press. https://doi.org/10.1017/CBO9780511806414

Markowitsch, J., & Dębowski, H. (2022). Education systems and qualifications frameworks. In V. Tūtlys, J. Winterton, S. Pavlin, & J. Winteron (Eds.), *Skill formation in Central and Eastern Europe. A search for patterns and directions of development* (pp. 395–424). Peter Lang.

Matković, T. (2013). Flexicurity through normalization? Changes in scope, composition, and conditions in temporary employment in Croatia. In M. Koch & M. Fritz (Eds.), *Non-standard employment in Europe: Paradigms, prevalence and policy responses* (pp. 84–102). Palgrave Macmillan.

Matković, T. (2019). Politika zapošljavanja i nezaposlenost. In G. Bežovan (Ed.), *Socijalna politika Hrvatske* (pp. 195–285). Pravni fakultet Sveučilišta u Zagrebu.

Matković, T. (2023). Informiranost, prepreke i iskustvo sudjelovanja u obrazovanju odraslih u Hrvatskoj: Sociodemografske nejednakosti. *Sociologija i prostor : časopis za istraživanje prostornoga i sociokulturnog razvoja*, *61*(3 (228)), 489–516. https://doi.org/10.5673/sip.61.3.3

Matković, T., & Buković, N. (2022). Croatia: Impact of Europeanization on skill formation. In V. Tūtlys, J. Markowitsch, S. Pavlin, & J. Winterton (Eds.), *Skill formation in Central and Eastern Europe: A search for patterns and directions of development* (pp. 265–290). Peter Lang.

Matković, T., & Jaklin, K. (2021). Pokazatelji sudjelovanja u obrazovanju odraslih u RH: Nalazi recentnih europskih istraživanja. *Andragoški glasnik : Glasilo Hrvatskog andragoškog društva*, *25*(1-2(41)), 39–66.

Mayring, P. (2014). *Qualitative content analysis: Theoretical foundation, basic procedures and software solution*. https://www.ssoar.info/ssoar/bitstream/handle/document/39517/ssoar-2014-mayring-Qualitative_content_analysis_theoretical_foundation.pdf

Melesk, K. (2021). Learning in late career stages in Europe – gendered effects of retirement policies. *Ageing & Society*, *41*(10), 2191–2213. https://doi.org/10.1017/S0144686X20000033

Powell, J. J. W., & Trampusch, C. (2012). Europeanization and the varying responses in collective skill regimes. In M. Busemeyer & C. Trampusch (Eds.), *The political economy of collective skill formation* (pp. 284–313). Oxford University Press.

Rubenson, K., & Desjardins, R. (2009). The impact of welfare state regimes on barriers to participation in adult education: A bounded agency model. *Adult Education Quarterly*, *59*(3), 187–207. https://doi.org/10.1177/0741713609331548

Saar, E., & Räis, M. L. (2017). Participation in job-related training in European countries: The impact of skill supply and demand characteristics. *Journal of Education and Work*, *30*(5), 531–551. https://doi.org/10.1080/13639080.2016.1243229

Stubbs, P., & Zrinščak, S. (2009). Rescaling emergent social policies in South East Europe. In K. Rummery, I. Greener, & C. Holden (Eds.), *Social policy review 21. Analysis and debate in social policy, 2009.* (pp. 283–305). University of Bristol: The Policy Press.

Tūtlys, V., Winterton, J., Markowitsch, J., & Pavlin, S. (2022). Skill formation in the post-communist CEE countries. In V. Tūtlys, J. Markowitsch, S. Pavlin, & J. Winterton (Eds.), *Skill formation in Central and Eastern Europe: A search for patterns and directions of development* (pp. 27–64). Peter Lang.

Biographical Notes

Nikola Buković is Assistant Professor of Social Policy at the Faculty of Law, University of Zagreb. His primary research interests include vocational education and training policy, social policy planning, employment policy and social inclusion.

Teo Matković is a Scientific Advisor in Sociology, affiliated with the Institute for Social Research in Zagreb. His research efforts and publications focus on exploring inequalities, transitions, and policies in the labour market and education systems.

Bridging Education and Business: The Transformative Impact of Dual Learning in Italy's VET System

Capriotti, Virginia

virginia.capriotti@unibg.it, University of Bergamo

Abstract

Context: ITS Academies (Istituti Tecnologici Superiori – Higher Technical Institute) are Italy's main model of tertiary vocational education, aiming to bridge the gap between formal learning and the labour market. Despite their expansion, limited attention has been given to the pedagogical and boundary-crossing processes that underpin learning and innovation in these dual systems.

Approach: This qualitative case study draws on 23 semi-structured interviews with students, tutors, and teachers across three Italian regions. It explores how dual learning experiences foster boundary crossing, focusing on learners as "transition figures" who mediate knowledge, navigate institutional divides, and contribute to workplace change.

Findings: Under specific pedagogical and organizational conditions, ITS students apply theoretical knowledge, support innovation, and adapt workplace practices. Yet boundary crossing is uneven: some students face marginalisation due to weak mentorship, rigid hierarchies, or misaligned expectations.

Conclusions: ITS Academies can enable meaningful cross-boundary learning, but this is not guaranteed. The effectiveness of transition figures depends on strong mentoring, institutional alignment, and relational support. Real transformation requires not only integration, but intentional design of boundary-crossing conditions.

Keywords

VET Italy, dual learning, ITS Academies, transition figures

1   Introduction

Italy has historically grappled with high youth unemployment rates. In 2023, 16.1% of Italians aged 15 to 29 were not in education, employment, or training (NEET), highlighting a significant portion of disengaged youth. Additionally, the employment rate for recent VET graduates stood at 62.2% in 2023, the lowest in the European Union, where the average was 81% (Statista, 2023; European Commission, 2023; McGrath & Yamada, 2023). To combat these issues, Italy has implemented initiatives such as the "dual apprenticeship" system within its Vocational Education and Training (VET) framework. In Italy, the ITS Academies (Istituti Tecnologici Superiori - Higher Technological Institutes) embody such innovation, providing a transformative approach to tertiary vocational education by integrating theoretical learning with practical application through dual systems (INAPP, 2022).

Established under the framework of the Piano Nazionale di Ripresa e Resilienza (PNRR)[1] ITS Academies are designed to meet the demands of rapidly evolving industries, particularly those aligned with the digital transition, green economy, and Industry 4.0. Unlike traditional academic pathways, ITS programs emphasize hands-on learning, mandatory internships, and close collaboration with businesses, ensuring that students are equipped with industry-relevant skills and competencies (OECD, 2023). Despite their growing recognition, ITS Academies face several tensions and criticisms. One key concern relates to their ambiguous status within the Italian education system. Often perceived as a "second tier" alternative to university, ITS pathways continue to suffer from limited visibility and social prestige, which can deter student enrollment and reinforce educational inequalities (Ballarino & Perotti, 2021). Additionally, critics highlight the risk of over-alignment with industry needs, where educational goals may become subordinated to short-term labor market demands, potentially narrowing the scope of learning and limiting students' broader personal and civic development (Cedefop, 2023b).

Existing research on Italy's ITS Academies has primarily focused on their role in reducing youth unemployment, enhancing skills alignment, and stimulating local economic growth (INDIRE, 2024; Pizzigolotto, 2017; Brunetti & Corsini, 2019). However, important aspects remain underexplored, particularly the pedagogical dimensions of dual-system approaches and the processes of boundary crossing between educational institutions and workplaces (Tuomi-Gröhn & Engeström, 2003). This study seeks to tentatively address these gaps by investigating how educational practices and organizational dynamics might mediate processes of boundary crossing. Attention is given to both institutional and workplace settings, with the purpose of advancing a pedagogical reflection on the integration of vocational education.

This study investigates how dual learning experiences within ITS Academies influence workplace practices and contribute to organizational innovation in partner firms. A central question concerns the role of ITS graduates as "transition figures" capable of moving between educational and professional contexts, and how their presence may activate processes of transformation within organizational routines and knowledge-sharing practices. The research also seeks to understand which pedagogical and structural conditions within ITS Academies facilitate effective forms of boundary crossing and support the development of innovative dual learning ecosystems. Through this lens, the study aims to contribute both empirically and theoretically to the understanding of how vocational education can serve as a driver of educational and organizational change. This research is part of the PRIN[2] project *Vocational Education and Training (VET) in the Post-Covid World: Impacts of the Dual System and Tertiary Vocational Education on Individuals and Firms*, coordinated by the University of Milano-Bicocca as Prin-

---

[1] The Piano Nazionale di Ripresa e Resilienza (PNRR), or National Recovery and Resilience Plan, is Italy's strategic initiative funded through the European Union's Next Generation EU program. Established in response to the COVID-19 pandemic, the PNRR aims to stimulate Italy's economic recovery and foster long-term sustainable development. Within this framework, ITS Academies play a pivotal role by aligning vocational education with emerging industry demands, particularly focusing on digital transformation, sustainability, and technological advancements related to Industry 4.0 (Cedefop, 2023). Specifically, the PNRR has allocated €500 million to enhance ITS laboratories with cutting-edge Industry 4.0 technologies, supporting the creation of new learning pathways and contributing to the modernization of existing training environments.

[2] The PRIN (Progetti di Rilevante Interesse Nazionale – Projects of Relevant National Interest) is a competitive funding program promoted by the Italian Ministry of University and Research (MUR). It supports scientific research projects of national importance, carried out by universities and public research institutions across Italy. PRIN projects are peer-reviewed and selected based on their scientific relevance, methodological rigor, and potential societal impact. Funded projects typically involve inter-university collaborations and aim to contribute to national and international academic debates.

cipal Investigator, with the University of Bergamo leading the Bergamo research unit. The project adopts an interdisciplinary approach to examine the effects of recent reforms in Italy's vocational education system, focusing on the dual system and ITS Academies. It aims to assess their impact on students, firms, and broader socio-territorial development.

This contribution presents preliminary findings from the research conducted by the Department of Human and Social Sciences at the University of Bergamo.

1.1 The Role of ITS Academies and Dual Learning in Transforming Italy's VET System

Italy has implemented significant reforms in its Vocational Education and Training (VET) system to better align education with industry needs[3]. A notable development is the establishment of the Istituti Tecnologici Superiori (ITS) in 2010, which offer two-year post-secondary programs emphasizing technical skills and work-based learning. These programs have demonstrated positive outcomes, with high graduate employment rates indicating their effectiveness in enhancing employability (Cedefop, 2023a; Baumann & Vossiek, 2022).

ITS Academies in Italy are governed by Foundations of Participation with a legally defined multi-stakeholder structure. The minimum governance standard requires the involvement of specific actors: at least one upper secondary school located in the province where the foundation is based, a regional accredited training provider, one or more enterprises from the relevant technological sector, and at least one university or equivalent research institution operating in the same field. All founding members are required to contribute to the foundation's assets, which may include financial, infrastructural, or instrumental resources.

While this framework guarantees a structured collaboration in the design and delivery of curricula, the level of influence is not necessarily equal among actors. In practice, enterprises often have a stronger voice, especially in shaping the work-based components of the programs, whereas schools and universities tend to ensure the integration of foundational and theoretical knowledge. The needs of learners are indirectly addressed through alignment with employability goals and feedback mechanisms, though student representation in governance bodies is not formally required by law.

More than 50% of teachers come from industry, and programs last two to three years, requiring mandatory internships covering at least 30% of the total training hours (INDIRE, 2024). Each program spans 4 to 6 semesters, for a total of 1,800 to 2,000 hours. During the internship period, students are supported by two key figures: an ITS-based tutor, who guides them in selecting an appropriate internship and provides pedagogical support throughout the experience; and a company tutor, who supervises their integration into the workplace, introduces them to operational practices, and facilitates on-the-job learning.

On the one hand, ITS Academies offer an educational model that aligns with labor market demands, enhancing, among other things, youth employability. On the other hand, the risk of it being perceived as subordinate to academic education persists. To mitigate this risk, it is essential to achieve social and institutional recognition of the value of ITS Academies pathways,

---

[3] To cite two of the most recent examples, Law No. 121 of August 8, 2024, established a technological-professional education pathway, integrating experimental four-year programs in upper secondary education, Higher Technical Institutes (ITS Academy), vocational education and training, and higher technical education and training (IFTS). This initiative aims to address the educational and professional needs of young people and the national productive sector in alignment with the national "Industry 4.0" plan. Previously, Law No. 99 of July 15, 2022, had established the tertiary system of higher technological education, renaming ITS as ITS Academy, with the goal of promoting youth employment and strengthening economic development through the training of technicians with advanced technological and professional skills.

supporting policies that elevate higher technological education as an equally valid choice along-side university education. Ensuring universal access to tertiary education is crucial, recognizing it as a fundamental right. After all, «there is no human being who does not excel in something; the challenge lies in providing institutional, regulatory, educational, and methodological frame-works that allow individuals to discover and gradually develop their unique talents» (Bertagna, 2012).

1.2 The Role of Transition Figures in ITS Academies

At the heart of dual learning's transformative potential is the role of "transition figures". The term "transition figures" refers to individuals who operate at the intersection of educational and professional domains, facilitating the transfer, adaptation, and integration of knowledge across these contexts. Conceptually, it is both a theoretical construct – used to frame the processes of boundary crossing and knowledge mediation – and an empirical category, observable in roles such as company tutors, training consultants, and student interns engaged in dual learning systems. What distinguishes transition figures is their hybrid positioning: they embody dual logics (educational and industrial), enabling them to act as mediators who align pedagogical objectives with organizational needs. Their transformative potential lies in their ability to re-shape practices, foster collaboration, and co-construct learning environments across institutional boundaries (Akkerman & Bakker, 2011; Engeström et al., 1995; Maslak, 2022).

For instance, company tutors not only guide students through internships but also adapt their methodologies by incorporating insights gained from the scholarly domain, ensuring that the learning process aligns with industry demands. Similarly, student interns act as agents of change by introducing up-to-date knowledge, and innovative approaches acquired through their ITS programs. This dynamic exchange fosters a culture of mutual learning and innovation, bridging the theoretical knowledge of educational institutions with the practical exigencies of the workplace (Flynn et al., 2014), boundary crossers face "the challenge of negotiating and combining ingredients from different contexts to achieve hybrid situations" (Engeström et al., 1995, p. 319).

On one hand, the experience of student interns in ITS Academies can be understood through the lens of Wenger's (1999) theory of communities of practice, where learning occurs through participation in social practices shared by a group of people with a common purpose. Within the workplace, students engage in situated learning by interacting with experienced workers, progressively moving from peripheral to fuller participation. This environment facilitates not only the acquisition of technical competencies but also the development of soft skills, such as communication, adaptability, and professional judgement—crucial for integration into the labor market (Wenger et al., 2002).

In this process, the role of the company tutor emerges as central. The tutor embodies the characteristics of what Schön (1987) calls a reflective practitioner, guiding the intern not merely through technical tasks but through critical reflection on their experience. This reflective dia-logue transforms the workplace into a site of formative experience, where knowing-in-action and reflection-in-action become tools for deeper learning.

On the other hand, the role of student interns within ITS Academies goes beyond mere observation or routine task execution. As active participants in a structured dual learning model, they function as living interfaces between theoretical instruction and workplace practice. Their ability to translate classroom-based knowledge into context-specific solutions enables them to contribute to ongoing processes of improvement and adaptation within firms.

Initial findings from this study underscore the crucial role of transition figures in imple-menting and sustaining changes in workplace practices. By facilitating boundary crossing, these individuals exemplify how collaborative interactions between education and industry not only

drive innovation and adaptability but also reimagine the relationship between learning and work.

1.3 Observed Transformations in Workplace: Research Approaches and Methodologies

In the specific case of Italy's ITS Academies, boundary crossing is not only a conceptual tool but also an empirical reality. It helps illuminate the emergence of transition figures – students, tutors, and professionals – who operate across educational and workplace environments, acting as mediators of learning and innovation. As outlined by Akkerman and Bakker (2011), boundary crossing involves key mechanisms such as identification (redefining professional identities), coordination (synchronizing practices across domains), reflection (developing critical awareness of both systems), and transformation (creating new working practices). These processes are particularly evident in dual learning systems, where formal instruction and workplace experience are deliberately integrated.

Methodologically, the study adopts a qualitative case study approach (Yin, 2005), which allows for in-depth, context-sensitive exploration of how ITS–industry collaborations are structured and experienced. Data collection unfolds across three phases: (1) document analysis (curricula, institutional reports, course descriptions); (2) a standardized questionnaire to gather institutional and contextual data; and (3) semi-structured interviews (Dearnley, 2005) with teachers, workplace tutors, and students to capture situated narratives and professional practices.

Importantly, this methodological framework serves not only a descriptive function – documenting how dual learning systems operate – but also a transformative one. By foregrounding the voices of actors directly involved in these ecosystems, the research aims to generate pedagogical and organizational insights that can inform the design and refinement of vocational education pathways. It aspires to support reflexivity among practitioners and institutions, encouraging them to critically engage with their own roles, reconfigure their collaborative practices, and co-construct more inclusive and responsive learning environments. The study focuses on ITS Academies in Lombardy, Veneto, and Emilia-Romagna, covering sustainable mobility, mechatronics, tourism technologies, and ICT (*Information and Communications Technology*).

A key focus is on "transition figures" – tutors, professional teachers[OBJ], and student interns – who facilitate knowledge transfer, bridge education and industry, and drive innovation (Gröhn & Engeström, 2003). To date, 23 semi-structured interviews were carried out with former ITS graduates (6 mechatronic Veneto; 3 sustainable logistics Emilia-Romagna; 3 tourism Lombardy from the Veneto ITS Academy), professional teachers (1 mechatronic Veneto; 1 sustainable logistics Emilia-Romagna; 1 tourism Lombardy) and company tutors (4 mechatronic Veneto; 2 sustainable logistics Emilia-Romagna; 2 tourism Lombardy). The interviews took place remotely, via the Google Meet platform, entirely transcribed and then subjected to a content analysis with an illustrative approach (Bryman et al., 2021).

The study's findings are not statistically generalizable, given the qualitative and case-study-based nature of the research. However, transferability to other contexts is a key consideration. While ITS Academies in Italy serve as the focal point of this study, the identified mechanisms of *boundary crossing* – such as the role of transition figures, the alignment of educational and workplace practices, and the integration of theory and practice – may be relevant to similar vocational and dual-learning systems in other countries.

The next sections present two case studies: an ITS Academy in Lombardy (tourism and hospitality) and another in Emilia-Romagna (sustainable mobility and logistics). These cases are not intended to be statistically representative but rather serve to illustrate specific configurations of dual learning practices and boundary-crossing dynamics within diverse territorial and sectoral contexts.

2   The Case of ITS Academy IATH[4]

Founded in 2014 in Cernobbio (Lombardy), the ITS Academy IATH (International Academy of Tourism and Hospitality) offers two-year post-secondary programs designed to prepare high school graduates for careers in the hospitality and tourism sector. The curriculum includes 2,000 total hours, with 400 hours of internships per year, scheduled during the summer months to coincide with the peak tourism season. Programs focus on hotel and international restaurant management, international tourism and hospitality management, and digital tourism and hospitality management. Students acquire skills in business management, marketing, customer experience, and innovation. Thanks to strong partnerships with luxury hotels, resorts, and travel agencies, 95% of graduates find employment within one year (https://iath.it/), reflecting the effectiveness of its industry-integrated approach.

2.1 Insights from Alumni Interviews

Interviews with two alumni, Davide and Adelina provided compelling examples of how ITS training translates into tangible workplace contributions. Davide, a graduate of the 2023/2024 cohort, completed a three-month Erasmus-funded internship at a five-star luxury complex in Greece. During his time there, he identified a recurring issue: guests frequently became disoriented within the large resort. To address this, Davide proposed a personalized check-in process that included a guided tour of the resort and a guide to their rooms. This innovation not only improved guest satisfaction but also demonstrated his ability to proactively address operational challenges. Davide credited this approach to the simulated role-playing exercises he participated in during his Hospitality Client Management courses, which emphasized personalized service and attention to detail.

> During my first year at IATH, I had the opportunity to intern at a five-star resort in Greece. It was my first time applying classroom knowledge in a professional environment, and I quickly realized the importance of understanding customer expectations at an international level. The experience not only reinforced my technical skills but also taught me how to navigate intercultural communication, a crucial aspect of working in the hospitality sector. (Davide)

Davide's case illustrates a rich example of learning transfer and the cultivation of professional agency within the context of dual learning. His proactive proposal to redesign the check-in process demonstrates not only the application of technical skills acquired through formal instruction (e.g., role-playing in Hospitality Client Management) but also an ability to adapt pedagogical content to situated challenges – a key indicator of boundary-crossing competence.

Moreover, Davide's account underscores the impact of the curriculum design in shaping both practical competencies and professional identity formation. His reference to "understanding customer expectations at an international level" and "intercultural communication" reflects a growing awareness of the soft skills and contextual intelligence needed in global hospitality settings. These reflections can be read as early signs of identity negotiation—a process in which the intern begins to see himself not merely as a student but as a legitimate actor within the professional field. The workplace thus becomes a site of transformative learning, where Davide learns not just how to perform tasks, but how to become a hospitality professional, navigating both technical demands and interpersonal dynamics across cultural boundaries.

In his second year, Davide undertook a three-month internship at the five stars Hotel in Milan, working in the revenue management department. Leveraging the theoretical knowledge

---

[4]   https://iath.it/

gained during his ITS course on revenue management, he developed an analytical tool to monitor the performance of promotional offers and compare them against competitors. This tool, still used by the hotel, helped optimize pricing strategies and strengthen competitive positioning. Davide's initiative earned praise from his manager, who noted his unexpected level of preparation and granted him significant autonomy in his work.

> As a result of the theoretical training, I received at ITS, I was able to analyse data on hotel rates, bookings and the hotel's competitive positioning. This allowed me to actively contribute useful suggestions to optimise business strategies. One of the main initiatives I worked on was the creation of an analysis file to monitor the performance of offers. I developed a tool to compare our results with those of competing establishments and evaluate upgrades. From what I know, they are still using it. I had some spare time and asked my manager if I could try to compare two data sets to see if any opportunities emerged. She said, 'OK, try it!' and so I set to work. When I showed her the result, she was surprised: 'I didn't expect you to be so prepared already!' she said. From that moment on, she gave me a lot of freedom in handling the work, allowing me to experiment and really contribute to the hotel's activities (Davide).

Adelina, another alumna of the 2023/2024 cohort, demonstrated her ability to apply her skills creatively across different professional contexts. During her first internship at a five stars Hotel in Rapallo, she identified an opportunity to enhance the hotel's branding by creating an internal newspaper. The newspaper, which featured information about the hotel's services, local attractions, and historical insights about Rapallo, became a key communication tool and was adopted as an annual publication by the marketing team. Adelina credited her marketing and communication training at IATH for equipping her with the tools to conceptualize and execute this initiative.

> I was sipping coffee during a break, in front of me I had a beautiful view. At that moment, I noticed a gentleman sitting not far away. He looked like something out of an old Italian film, he represented perfectly the Italian style. But there was something out of place in that perfect scene: he kept his eyes glued to the screen of his phone. It was an image that clashed with the magic of the place. I said to myself: 'No, it can't be! This gentleman should have a newspaper in his hands and leaf through it'. It was this scene that gave me the idea to create a hotel newspaper. I wanted to give experience, just like the one I had imagined for the gentleman sitting at the bar. [...] I created a newspaper with all the information on the hotel, the spa, the rooms, the restaurants and also on the history of the town where the hotel is located. They liked it so much that the chain decided to print it and put it in every room and in the common areas (Adelina).

The following two examples offer valuable insights into how ITS training can foster students' ability to navigate between educational and professional settings, facilitating problem-solving, adaptability, and incremental innovation in the workplace. The experiences of Davide and Adelina demonstrate how boundary-crossing dynamics, when supported by a structured pedagogical design and meaningful workplace engagement, can result in both creative contributions and professional growth. However, as anecdotal cases, they reflect individual trajectories rather than statistically generalizable outcomes. Their narratives should therefore be considered illustrative rather than representative.

Nevertheless, these accounts are consistent with emerging patterns observed across multiple interviews, particularly with respect to the development of autonomy, the application of theoretical knowledge to real-world problems, and the importance of supportive mentorship in

shaping students' workplace identities. Conversely, variations between cases, such as differences in sectoral context, company culture, and tutor involvement, underscore the uneven nature of boundary-crossing opportunities and highlight the necessity for institutional strategies that can ensure more equitable and consistent learning experiences across ITS programs.

3   The Case of ITS Piacenza Sustainable Logistics [5]

Founded in 2010, the ITS Academy for Sustainable Mobility and Logistics in Piacenza (Emilia-Romagna) addresses challenges of ecological transition and supply chain complexity. A key feature is its strong industry integration: over 75% of faculty are active logistics professionals, and the academy partners with 31 companies and 20 industry stakeholders. The two-year program totals 2,000 hours, including 800 hours of mandatory internships (June–July) and 1,100 hours of classroom instruction (October–May), plus 100 hours of group and individual projects focused on real-world problem-solving. Students complete 400 hours of hands-on training each year, gaining direct experience in logistics, transport, and production firms. Internship quality is ensured through structured monitoring, tutor meetings, post-internship surveys, and continuous feedback from students and companies.

3.1 Insights from Alumni Interviews

Filippo's journey through the ITS Piacenza Sustainable Logistics program offers a compelling example of boundary crossing – navigating between educational settings and professional environments. Assigned to the Florida facility, he encountered a disorganized warehouse and inefficient workflows. Drawing on his ITS training, the student reorganized the warehouse layout, introduced systematic inventory management, and optimized material flows, achieving record production levels. However, evidence of sustained change remains partial. At the time of the interview, some of Filippo's practices were reportedly still in place, but no formal assessment or follow-up data from the company were available to verify long-term impact. He explained:

> When I arrived at the facility in Florida, the warehouse was completely disorganized. Over the next few months, I implemented changes that not only streamlined operations but also set production records (Filippo).

Filippo highlighted the value of his ITS education in navigating these challenges

> What I learned at ITS gave me the foundation to understand and address real-world logistics challenges. While I wasn't always the best student in theory, the practical training was invaluable for tackling these problems head-on (Filippo).

Filippo's reflections underscore the role of ITS training in cultivating not only technical competence but also adaptive capacity – the ability to respond flexibly to unfamiliar and complex situations. Rather than following pre-scripted solutions, Filippo had to interpret operational inefficiencies in a live work setting and design responses with incomplete information and under time constraints. This ability to act under uncertainty – what some might describe as "learning in action" (Schön, 1987) – is a core feature of boundary-crossing experiences and reflects the pedagogical strength of dual learning environments.

Filippo's ability to navigate the boundaries between education and work is further illustrated by his entrepreneurial journey. After completing the ITS program, he co-founded a start-up focusing on virtual and augmented reality solutions for logistics and other sectors. While his

---

5   https://www.itslogisticasostenibile.it/home-page-it

current work diverges from traditional logistics roles, the foundational skills and experiences he gained during his ITS training remain integral to his professional success.

> The ITS program showed me how to approach problems creatively and work across different contexts, skills that I continue to use every day. (Filippo)

Through hands-on internships and practical training, the program equips students with the ability to navigate and integrate knowledge across educational and professional domains, fostering innovation and adaptability in the logistics industry. A professional teacher shared a remarkable case involving an ITS student who developed a calculation system for optimizing pharmaceutical stock in a healthcare facility. Initially launched as a pilot project, it had a significant impact on hospital warehouse management.

> One of our graduates developed a calculation system to optimize pharmaceutical inventory, implementing it in a healthcare facility. It started as a pilot project but had a remarkable effect on warehouse management. He analyzed data on drug consumption, identifying seasonal variations and demand trends. By creating an algorithm to predict optimal reorder levels, he successfully reduced both waste and the risk of shortages. The system was initially introduced on an experimental basis, and due to its success, the company decided to integrate it into regular management processes (Professional Teacher).

Another former student, Marco, shared how his ITS experience provided him with the tools to identify inefficiencies in business processes and implement practical solutions. During his second internship at a multinational company specializing in furniture, accessories, and home décor, he had the opportunity to analyze and improve an outdated logistics planning system that relied on an "obsolete" Excel file. Thanks to the skills acquired at ITS, he successfully optimized the process, significantly reducing planning time.

> During my second internship, I realized that many processes that had been done the same way for years were actually outdated or highly disorganized. I applied what I learned at ITS to improve these processes. Specifically, in the planning department, they were using a 20-year-old Excel file for both Italy and international operations. It was unbelievable. I completely revolutionized it—what used to take six or seven hours to plan a single day was reduced to just an hour and a half thanks to my work. (Marco)

The most notable aspect of this case is that the former student introduced innovation in a highly structured company, where long-standing processes are rarely questioned. His ability to challenge existing methods and implement a more efficient system highlights the practical impact of ITS training on workplace problem-solving and innovation. While the cases of Davide, Adelina, and Filippo exemplify the potential of dual learning pathways to foster innovation and boundary crossing, other accounts from the field present less successful or more constrained experiences. In several interviews, students reported limited autonomy, describing internships where their role was largely observational or administrative, with few opportunities to apply what they had learned in class. For instance, one graduate from the mechatronics sector noted that despite receiving strong technical training, his internship involved repetitive manual tasks unrelated to his field of study, and no structured mentorship was provided. Another student described encountering resistance from senior staff, who were hesitant to implement changes proposed by a trainee, regardless of their grounding in ITS-acquired competencies. These accounts underscore the asymmetry in boundary-crossing opportunities, shaped by factors such as company culture, the presence (or absence) of committed tutors, and how well educational

and professional logic are aligned in practice. While some students succeeded in acting as transition figures, others remained marginalized within workplace hierarchies, struggling to find recognition or space to contribute. These variations, which it was decided not to go into in depth in this contribute but may be the subject of future studies, call attention to the need for institutional safeguards—such as clearer learning agreements, tutor training, and structured feedback loops—that can ensure a more equitable and pedagogically meaningful integration of workplace learning across ITS programs.

4   Conclusion

This study set out to explore how dual learning pathways in Italy's ITS Academies mediate processes of boundary crossing between educational and workplace contexts (Wals et al., 2012). Drawing on case studies and qualitative interviews, the findings confirm several core propositions in boundary literature – particularly the mechanisms identified by Akkerman and Bakker (2011): identification, coordination, reflection, and transformation. These mechanisms were observable in students' efforts to align classroom knowledge with workplace challenges, reconfigure professional identities, and, in some cases, generate situated innovations. However, the study also surfaces critical nuances that both extend and complicate existing theoretical models. A central contribution lies in clarifying how boundary tensions—such as role ambiguity, uneven tutor support, or organizational inertia—were not only present but differently managed across cases. In more successful scenarios (e.g., Davide's integration into revenue management; Adelina's creative rebranding project), tensions were navigated through the presence of reflective company tutors, open channels of communication, and organizational cultures that were receptive to learner input. In contrast, some students faced structural limitations, including lack of recognition, exclusion from decision-making, or rigid hierarchies that reduced their contributions to routine tasks. These cases highlight that boundary crossing does not automatically yield transformation; rather, it depends on enabling conditions that support dialogic engagement and mutual learning.

Theories of situated learning frequently support efforts to make VET programs more workplace-oriented, potentially leading to a blurring of boundaries However, the distinct epistemic nature of educational and workplace settings should not be entirely dissolved (Berner, 2010), as these environments contribute complementary learning opportunities (Aarkrog, 2005; Poortman, 2007; Schaap, Baartman, & de Bruijn, 2012).

This suggests that boundaries will always persist, regardless of how educational and professional practices are structured. As Wenger (1998) argues, boundaries define and hold together different practices. While boundaries may sometimes create obstacles, they also present valuable learning opportunities, particularly due to the challenges they introduce.

Consequently, boundary crossing remains a fundamental concept in VET, regardless of its evolving structure. Even in hybrid learning environments, where academic and workplace learning are integrated, boundaries continue to serve essential functions, requiring ongoing engagement in boundary-crossing activities (Zitter et al., 2016).

The initial findings of this study point in the direction of the idea that ITS Academies represent a crucial mechanism for aligning education with labour market demands, creating a workforce that is not only job-ready but also capable of contributing to industry transformation. However, further research is needed to explore collaborations between ITS and industry. Strengthening policies that foster social and institutional recognition of ITS pathways will be essential to ensure that higher technology education is on an equal footing with traditional academic pathways, ensuring a more inclusive and dynamic labour market.

References

Aarkrog, V. (2005). Learning in the workplace and the significance of school-based education: A study of learning

in a Danish vocational education and training programme. *International Journal of Lifelong Education, 24*(2), 137–147.

Akkerman, S. F., & Bakker, A. (2011). Boundary crossing and boundary objects. *Review of Educational Research, 81*(2), 132–169.

Ballarino, G., & Perotti, L. (2021). L'istruzione terziaria professionalizzante in Italia: un'analisi del sistema ITS. *Scuola Democratica*, 12(2), 275–294. https://doi.org/10.12828/101949

Baumann, Fabienne-Agnes; Vossiek, Janis (2022): Changing skill formation in Greece and Italy: Crisis-induced reforms in light of common institutional legacies. *International Journal for Research in Vocational Education and Training*, 9(3), 340-362. https://doi.org/10.13152/IJRVET.9.3.3

Berner, B. (2010). Crossing boundaries and maintaining differences between school and industry: Forms of boundary-work in Swedish vocational education. *Journal of Education and Work, 23*(1), 27–42.

Bertagna, G. (2012). Per una pluralità di soggetti nella formazione superiore. In G. Bertagna & V. Cappelletti (Eds.), *L'università e la sua riforma* (pp. 111–157). Edizioni Studium.

Brunetti, I., & Corsini, L. (2019). S*chool-to-work transition and vocational education: a comparison across Europe*. International Journal of Manpower, *40*(8), 1411-1437.

Bryman, C., Bryman, A., & Clark, T. (2021). *Bryman's social research methods*. Oxford University Press.

Cedefop. (2023a). Italy: Reform of higher technical institutes (ITS Academy). National news on VET.

Cedefop. (2023b). Vocational education and training in Italy: Short description. Publications Office of the European Union. https://doi.org/10.2801/63112

Dearnley, C. (2005). A reflection on the use of semi-structured interviews. *Nurse Researcher, 13*(1).

Engeström, Y., Engeström, R., & Karkkainen, M. (1995). Polycontextuality and boundary crossing in expert cognition: Learning and problem solving in complex work activities. *Learning and Instruction, 5,* 319–336.

European Commission. (2023). *Education and training monitor 2023: Italy country report. Publications Office of the European Union*. https://op.europa.eu/webpub/eac/education-and-training-monitor/en/country-reports/italy.html

Flynn, M. C., Pillay, H., & Watters, J. (2014). Industry–school partnerships: Boundary crossing to enable school-to-work transitions. *Journal of Education and Work, 29*(3), 309–331. https://doi.org/10.1080/13639080.2014.934789

Gröhn, T. T., & Engeström, Y. (2003). Between school and work: New perspectives on transfer and boundary crossing. Pergamon Press.

INAPP. (2022). *The dual system in Italy: Evolution, achievements, and open issues. Istituto Nazionale per l'Analisi delle Politiche Pubbliche* (INAPP). https://oa.inapp.gov.it/bitstreams/4e2ccc32-c162-4a71-8365-49573299fd47/download

INDIRE. (2024). *ITS – Istituti tecnologici superiori*. https://www.indire.it/progetto/its-istituti-tecnologici-superiori/

Lichtman, M. (2023). Qualitative research in education: A user's guide. Routledge.

Maslak, M. A. (2022). Vocational education in Italy: The case of the Republic of Italy. In *Working Adolescents: Rethinking Education for and on the Job. Global Perspectives on Adolescence and Education* (Vol. 2). Springer.

McGrath, S., & Yamada, S. (2023). Skills for development and vocational education and training: Current and emergent trends. *International Journal of Educational Development, 102*, 102853.

OECD. (2023). *Education policy outlook: Italy.* OECD Publishing. https://www.oecd.org/education/policy-outlook/country-profile-Italy-2023.pdf

Pizzigolotto, A. (2017). *The returns to vocational education in Italy.* University of Padova, Econimics and Finance.

Poortman, C. J. (2007). *Workplace learning processes in senior secondary vocational education* (Doctoral dissertation, University of Twente).

Schaap, H., Baartman, L., & de Bruijn, E. (2012). Students' learning processes during school-based learning and workplace learning in vocational education: A review. *Vocations and Learning, 5*(2), 99–117.

Schön, D. A. (1987). Educating the reflective practitioner: Toward a new design for teaching and learning in the professions. Jossey-Bass.

Schön, D. A. (2017). The reflective practitioner: How professionals think in action. Routledge.

Statista. (2023). *Percentage of young people (aged 15–29) not in education, employment, or training (NEET) in Italy from 2004 to 2023*. https://www.statista.com/statistics/729239/percentage-of-young-people-who-were-neet-in-italy/

Tuomi-Gröhn, T., & Engeström, Y. (Eds.). (2003). Between school and work: New perspectives on transfer and boundary-crossing. Pergamon.

Wals, A. E. J., Lans, T., & Kupper, H. (2012). Blurring boundaries between vocational education, business, and research in the agri-food domain. *Journal of Vocational Education and Training, 64*, 3–23.

Wenger, E. (1998). Communities of practice: Learning, meaning, and identity. Cambridge University Press.

Wenger, E., McDermott, R., & Snyder, W. M. (2002). Seven principles for cultivating communities of practice.

Cultivating Communities of Practice: A Guide to Managing Knowledge, 4, 1–19.

Yin, R. K. (Ed.). (2005). Introducing the world of education: A case study reader. Sage.

Zitter, I., Hoeve, A., & de Bruijn, E. (2016). A design perspective on the school-work boundary: A hybrid curriculum model. *Vocations and Learning, 9*(1), 111–131.

Biographical Notes

Virginia Capriotti is a Research Fellow at the University of Bergamo and a Ph.D. candidate in Human Sciences and Welfare Innovation. Her research explores the intersections of meritocracy, pedagogy, and policy, with a particular focus on tertiary vocational education and training challenges within the Italian context.

Presenting OrientaDig: Co-Creating a Competence Framework for Guidance in the Digital Society

Castaño-Muñoz, Jonatan
jcastanno@us.es, University of Seville

Moreno-Morilla, Celia
cmoreno8@us.es, University of Seville

Romero-Rodríguez, Soledad
sromero@us.es, University of Seville

Abstract

Context: Guidance professionals need updated competencies to support individuals in uncertain societies and labour markets, particularly concerning digital integration and equity promotion. These competencies lack clear definition and validation, hindering professional practice. This paper presents OrientaDig, a Spanish national project (2024-2027) that addresses this gap.
Approach: This ongoing project employs a participatory, mixed-methods approach. Qualitative data is being collected from literature reviews, focus groups with professionals, and co-design workshops, and will be complemented by quantitative data.
Results: Two competence frameworks will be co-developed: one general framework for guidance professionals and one specifically focused on digital competencies. Furthermore, a self-reflection tool based on the latter framework will be developed and validated using a quantitative approach and data from a large sample of professionals. These outputs will define the necessary knowledge, skills, and attitudes for effective guidance practice, including specific components for diverse professional contexts.
Conclusions: The project aims to structure guidance professionals' competences and provide resources for professional development, training and potentially certification. This will contribute to better support and professional practice, contributing to improve individuals lives.

Keywords

competence framework, self-reflection tool, digital transformation, participatory research

1   Introduction and objectives

In a context of uncertainty, where individuals need to be empowered to manage their own career paths, the lifelong guidance approach—endorsed by organisations such as the CEDEFOP et al. (2021), the European Commission (2008), International Labour Organisation (2005), and the OECD (2004)—is important in addressing a "liquid" society in constant transition (Bauman, 2013). This approach redefines career guidance, shifting the focus towards developing compe-

tences in decision-making, resilience, and social justice, conceptualising guidance as a collaborative learning process (Romero-Rodríguez & Moreno-Morilla, 2022) that fosters career management skills and promotes sustainability.

The integration of ICT in guidance systems is an emerging trend, with ICT utilised as a tool, an alternative, or an agent of change, as identified by Watts (2010) and, Hooley and Stauton (2020). This project aligns with the latter perspective, following scholars like Bakke & Hooley (2022), who critically examine the pedagogical use of ICT. Studies by Kettunen et al. (2013, 2015) highlight that technologies are not neutral tools, and their use must be contextualised to avoid widening social disparities and, instead, to promote equity. To address these challenges, guidance professionals must acquire competences that respond to socio-labour changes and the integration of ICT, as indicated by Kadletz et al.'s report for the International Labour Organisation & the European Training Foundation (2021). They must be prepared to support diverse groups (migrants, individuals at social risk, etc.), work with sustainability ("green guidance"), incorporate a social justice perspective, and use qualitative diagnostic tools. However, a gap persists in defining and validating the specific competences guidance professionals need to thrive in this changing environment, especially concerning ICT integration and equity promotion. To address this gap, the OrientaDig project, an ongoing Spanish national research initiative (2024-2027) was launched. This paper presents the conceptual framework, methodological approach and steps of the project.

The OrientaDig research project is guided by the following main research question: What competences are essential for guidance professionals to effectively support individuals in managing and developing their life and career paths within a context of uncertainty and digital integration, while promoting equity and social justice? To answer this general question, this research project is structured around the following specific research objectives:

1) To develop a competent framework for guidance professionals (OrientaComp) that reflects the demands of contemporary societies.
2) Develop a digital competence framework for guidance professionals (DigCompOrienta) that outlines the necessary digital competences for effective technology integration in guidance practice.
3) Create and validate a self-reflection tool on digital competence for guidance professionals (SELFIE4Counselors) to enable self-assessment and professional development planning.
4) Conduct a needs assessment on digital competence training for guidance professionals in Spain, informing targeted policies and professional development initiatives.

2 Methods

The OrientaDig Project adopts a Participatory Research (PR) framework (Vaughn & Jacquez, 2020), recognizing the importance of actively involving guidance professionals in achieving the research objectives. Specifically, the project builds on elements of practitioner inquiry, which is particularly suited for reflecting on and transforming professional practices within their own context and for guaranteeing social validity (Cochran-Smith & Lyte, 2015).

Within this framework, a mixed methods approach (Creswell, 2014; Ivankova & Plano Clark, 2018; Plano Clark & Ivankova, 2016) has been selected. Specifically, a sequential mixed design will be employed, beginning with a qualitative phase followed by a quantitative phase. To ensure a collaborative research process, four groups will be formed: two practitioner groups and two supporting groups.

In the qualitative phase (QUAL component), the first step involves a systematic literature review to establish an initial understanding of existing research and frameworks related to guidance competencies, particularly in the digital realm. This review will be complemented by information from a purposive sample of 80 professionals, with representation from all Spanish

regions (to reflect the diversity of socioeconomic contexts), and from different professional contexts. The combined insights from literature review and the professionals will be used to identify the competences of guidance professionals. Following this inital phase, we will establish two practitioner groups and two steering groups to refine the interpretation of the initial data and transform it into operational frameworks.

The first practitioner group, the "OR" practitioners' group, will consist of 20 guidance professionals selected from the previous sample and will focus on the construction and refinement of the OrientaComp framework. The second practitioner group, the "OR-Dig" practitioners group, will include the 20 "OR" practitioners *and* approximately 10 experts and professionals specializing in digital competence development. This group will provide insights into the digital competences' needs by the guidance professionals and will work on the DigComp Orienta framework and the SELFIE4Counselors self-reflection tool.

Two steering groups will also be established. The "OR" steering group will comprise political representatives, relevant organizations, and associations in the field of guidance (e.g., COPOE, IAEVG, E2O, among others). The "OR-DIG" steering group will include members of the "OR" working group *and* representatives from organizations focused on digital competence development (e.g., Somos F5, All Digital, Guadalinfo, etc.). The contributions of the steering groups will encompass strategic guidance, facilitating access to relevant professional networks, analysing scenarios for the application of the developed competence frameworks, and disseminating research findings. Members of the research team will be incorporated into both the practitioner and supporting groups

For the quantitative component (Quant Component), data to validate the quality of the self-reflection tool items will be collected from a minimum of 450 guidance professionals. This sample will be stratified by main contexts of professional practice, ensuring at least 100 responses per context. Support from associations involved in the project will be leveraged to secure an adequate number of responses.

2.1 Data Collection

In the QUAL Component, various information-gathering procedures will be employed. The process will begin with desk research to conduct a macro-contextual qualitative analysis using major scientific databases (ERIC, Scopus, Web of Science, among others) and reports from international organisations (grey literature). Subsequently, to identify the competences required by guidance professionals in the digital society, approximately ten focus groups will be conducted, segmented by each identified context of practice and involving eight professionals in each group (n=80). The sample of the focus groups will be selected to ensure inclusion of members from all Spanish regions (autonomous communities), as well as Ceuta and Melilla, and will be divided by specific contexts: educational, work-related, and socio-community. Participants will be selected using project network and open calls. These focus groups will follow the DACUM method, a methodology for discussion and consensus to identify the duties, tasks, skills, and knowledge required for successful performance in a specific job or occupation (Norton, 1997).

The Quant Component focuses on the creation, validation, and utilisation of a self-reflection tool on the digital competence of guidance professionals (SELFIE4COUNSELORS). The purpose of the tool will be theoretically defined within the DigCompOrienta framework, allowing us to proceed directly to item design. To ensure comprehensiveness, the tool will capture items covering knowledge, skills, and attitudes, with some items being common and others specific to the professional context of the guidance counsellor using it. A unique feature, compared to similar tools, is the inclusion of open-text questions. The proposal (initial design and item selection) will be developed collaboratively with the "OR-DIG" practitioners' group through expert judgement.

2.2 Data analysis

The analysis of qualitative data will be conducted from a dual perspective. On the one hand, thematic analysis will be performed using NVivo software. This will allow for a first categorization and identification of (general and digital) competences. On the other hand, co-analysis sessions will be integrated into the process. These sessions, conducted with the practitioners and steering groups, are active co-analysis workshops, going beyond mere consultation. They will be integrated at different stages of the research process in an iterative way and are conceived to utilize data from focus groups to refine the frameworks´ core components (areas, competences, etc.), as well as the initial version of the self-reflection tool items and scales. Participants will actively engage in validating competence groupings within areas, refining competence formulations, identifying any missing elements, and specifying components relevant to diverse professional contexts. This collaborative process aims to ensure both validity and practical relevance triangulating and integrating different stakeholders' perspectives.

Quantitative analysis, conducted in two stages, will provide a complementary perspective and further contribute to data triangulation. The first stage will assess the psychometric properties of the self-reflection tool to validate its structure and guarantee its validity and reliability from a quantitative point of view. The second stage will involve analyzing data collected from a diagnostic perspective. This analysis will employ measures of central tendency and dispersion, Student's t-tests, analysis of variance (ANOVA), multivariate contrasts, and other relevant statistical analyses to identify which digital competences are most and least present within the sample.

3 Expected Results and Impact

This project will generate three main outcomes: a) A competence framework for guidance professionals, b) a specific competence framework focused on digital competences for these professionals, and 3) a self-reflection tool based on the digital competence framework. The two competence frameworks (general and digital) follow the same logic, although they differ in scope. They will encompass the knowledge, skills, and attitudes required for effective practice. They will be designed to be modular, incorporating both common components applicable across various guidance contexts and specialized components tailored to specific areas of practice (e.g., career guidance, educational guidance, and the socio-community sphere). This modular structure will allow for flexibility in application, enabling institutions and individual professionals to adapt and utilize the frameworks in diverse settings and for various purposes. The frameworks will clearly define the importance of the competences in each context always emphasizing the promotion of equity and social justice. Moreover, they will make a first approximation to the definition of competence levels, providing a progressive pathway for professional growth and development within the guidance field.

The development and validation of the two competence frameworks, while rooted in the Spanish context, directly address a common challenge in many countries: the absence of a consistently defined professional role for guidance practitioners and the lack of a shared, standardized set of required (digital) competences within the field. Consequently, the project's impact is anticipated to extend beyond the Spanish national context. The "products" will be open and shared with different countries through networks, so that these countries can adapt them to their local needs and context.

These frameworks can represent an initial step towards providing structure for self-reflection, training program design, and offer a foundation upon which diverse national certification systems could be built. Moreover, to maximize their impact, the publications detailing these

frameworks will be released under an open license. This decision allows any interested organization to freely use, translate, adapt, and contextualize these resources to meet their specific needs and professional realities.

The self-reflection tool on digital competence for guidance professionals will be a resource designed to empower individual practitioners in assessing and developing their digital skills. Mirroring the modularity and flexibility of the competence frameworks, the tool will allow users to focus on specific areas of digital competence relevant to their context of practice. This online tool will primarily focus on the individual level. Upon completion of the self-assessment, the tool will generate a report highlighting individual strengths and weaknesses in digital competence for the professional practice. The self-assessment process and the report generated will serve several purposes. First, the use of the tool can facilitate reflection on individual professional use of technology in practice. Second, it can provide information about areas needing development. Third, the report can serve as a basis for creating professional development and career advancement plans. Fourth, the tool will classify and recommend examples of goo practices identified in previous project phases. Moreover, while individual data while remain confidential, aggregated (although non-representative) data collected through the tool can provide insights into the general state of digital competence among guidance professionals. This tool will be also freely accessible and open, enabling its use by anyone interested. At the same time its open nature allows for future adaptations, contextualisations, and updates by the broader community. Ultimately, all the phases of the project together aim to improve the effectiveness of guidance in a rapidly evolving world. Therefore, the project will contribute to enhancing life and career decision-making for individuals, fostering positive outcomes for economies, productive sectors, and individual well-being

References

Bakke, I. B., & Hooley, T. (2022). Neither online, nor face-to-face, but integrated career guidance. In M. V. Buford, M. J. Sharp, & M. J. Stebleton (Eds), *Mapping the Future of Undergraduate Career Education* (1.ª ed., pp. 138-154). Routledge. https://doi.org/10.4324/9781003213000-13

Bauman, Z. (2013). *Liquid modernity.* Wiley.

CEDEFOP, ETF, European Commission (2021). *Investing in career guidance. Revised edition 2021.* Inter-Agency Working Group on Career Guidance WGCG. https://www.cedefop.europa.eu/en/publications/2230

Creswell, J.W. (2014). A concise introduction to mixed methods research. Sage

Cochran-Smith, M., & Lytle, S. L. (2015). *Inquiry as stance: Practitioner research for the next generation.* Teachers College Press.

European Commission (2008). Draft resolution of the council and of the representatives of the Member States meeting within the Council on strengthening policies, systems and practices in the field of guidance throughout life in Europe. (2008/C 319/02)

Hooley, T. & Staunton, T. (2020). The role of digital technology in career development. In P. Robertson, T. Hooley, & P. McCash, (Eds.). *The Oxford handbook of career development* (pp. 297-312). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780190069704.013.22 Pages

International Labour Organisation (2005). *Recommendation concerning Human Resources Development: Education, Training and Lifelong learning. Recommendation 195 (2004).* ILO. https://www.oitcinterfor.org/sites/default/files/file_publicacion/rec195en.pdf

Ivankova, N., & Wingo, N. (2018). Applying mixed methods in action research: Methodological potentials and advantages. *American Behavioral Scientist*, *62*(7), 978-997. https://doi.org/10.1177/00027642187726

Kadletz, F., Kettunen, J., Moreno da Fonseca, P., & Vuorinen, R. (2021). Developing national career Ddevelopment support systems: pathways to enhance lifelong career guidance, career education and career development support for workers. ILO & ETF.

Kettunen, J., Vuorinen, R., & Sampson Jr, J. P. (2013). Career practitioners' conceptions of social media in career services. *British Journal of Guidance & Counselling, 41*(3), 302-317. https://doi.org/10.1080/03069885.2013.781572

Kettunen, J., Vuorinen, R., & Sampson Jr, J. P. (2015). Practitioners' experiences of social media in career services. *The Career Development Quarterly, 63* (3), 268-281. https://doi.org/10.1002/cdq.12018

Norton, R. E. (1997). The DACUM handbook (2nd edition). Ohio State University, Center on Education and Training for Employment..

OECD (2004). *Career guidance and public policy. Bridging the gap.* OECD Publishing.

Plano Clark, V. L., & Ivankova, N. V. (2016). *Mixed Methods Research: A Guide to the Field*. Sage.

Romero-Rodríguez, S. y Moreno-Morilla, C. (2022). La orientación para la construcción de la carrera: un enfoque sistémico-narrativo de justicia social. En S. Romero-Rodríguez, C. Moreno-Morilla y T. Mateos-Blanco. *Orientación para la construcción de la carrera y justicia social.* (pp. 37-67). Octaedro.

Watts, A.G. (2010). Policy issues relating to the use of ICT in lifelong guidance. *Journal of the National Institute for Career Education and Counselling, 25*, 33–39. https://doi.org/10.20856/jnicec.2506

Funding

Biographical Notes

Dr Jonatan Castaño Muñoz is a senior research fellow at the University of Seville (Spain). His research focuses on the impact of digital technologies on education and is IP of the Spanish national project ORIENTA-DIG (PID2023-148173NA-I00). https://prisma.us.es/investigador/8357

Dr Celia Moreno Morilla is an Assistant Professor at the University of Seville (Spain). Her research focuses on career guidance and counselling with people in risk. She is principal researcher of the Spanish national project ORIENTA-DIG (PID2023-148173NA-I00). https://prisma.us.es/investigador/4840

Dr Soledad Romero-Rodríguez is a professor at the University of Seville (Spain). Her fields of interest are career guidance strategies and resources. She is member of the VETNET as part of the EERA, The Career Lead Network and National Correspondent at IAEVG). https://prisma.us.es/investigador/3741

Recruiting and Retaining Industry Partnership in a Vocational-Oriented Education Program in Hong Kong: Challenges and Recommendations

Chan, Kara
karachan@hkbu.edu.hk, Hong Kong Baptist University

Zhang, Jasmine
jzhang0099@gmail.com, Hong Kong Baptist University

Abstract

Context: The Hong Kong government aims at promoting the development of the cultural and creative industry. The dynamic cultural and creative industries need talents in art and technology to meet the rapid technological changes and multimodal immersive consumer experience. Potential creative industry employees should have access to latest industry development through work integrated learning experiences. Educational institutes offering vocational education are keen to engage industry partners to improve their quality of education. However, recruiting and retaining industry partners can be challenging due to the time commitment and manpower resources.

Approach: A qualitative study was conducted by interviewing four staff at a local university who participated in recruitment and day-to-day management of industry partnership in the CLAP-TECH Education Pathway. The purpose was to examine their strategies and processes in recruiting and nurturing industry partnerships. The CLAP-TECH Education Pathway recruited over 35 industry partners as of February 2025 to provide work integrated learning opportunities to over 1,300 high school students taking the Applied Learning courses titled "Tech Basics" and "Multimedia Storytelling".

Findings: The institute staff employed their professional as well as personal networks, university's alumni networks, and current industry partner's professional networks to recruit industry partners. The process involves approaching strategic industry practitioners, targeted pitching, personal touch, and tight follow-ups. Systematic and regular program communication can strengthen partnership relations. Staff encounter challenges such as personnel turnover, change in industry capacity or management decisions, scheduling difficulties, and low mentee enthusiasm.

Conclusions: The paper concludes with recommendations for educational institutions in recruiting and retaining industry partners. These include developing formal communication channels, strengthening industry partnership network, strategic partnership recruitment, and raising the visibility of students' achievements.

Keywords

youth employment, information technology, creative media, work-integrated learning

1   Introduction

There is a growing body of studies investigating school-industry partnership in vocational education. Studies indicate that schools are keen to participate in industry-school partnership to improve their quality of education. However, engaging industry to partner with schools can be a challenge. Large gaps between school and enterprise enthusiasm to engage in work-integrated learning has constrained the development of quality vocational education (Pan et al., 2016). This challenge is shared by vocational education sectors in many regions, ranging from Europe and Australia to mainland China (Flynn et al., 2016; Leney & Green, 2005; Pan et al., 2016).

There are many barriers and constraints for employers' participation in work-integrated learning partnerships. Issues with financial constraints of companies, and costs related to hosting students, apprentices, and trainees were challenges employers encountered. Another barrier to participation involved the lack of time or interest from employers. Employers could not always afford to invest the time or were not interested in supervising and guiding students. Limited information about work-integrated learning, and inconsistent understanding about work-integrated learning programs was a barrier for employers (Atkinson et al., 2015). These barriers would result in varying employer understandings about the aims, roles, and expected outcomes for all parties involved. Differing expectations on outcomes and benefits also posed a challenge. Education institutions involved were not always flexible or responsive in accommodating employers' needs and the requirements of their respective business cycles. This would make partnership and participation in work-integrated learning challenging for employers as participation could conflict with the function of their company (Atkinson et al., 2015).

Atkinson (2016) discusses how complex education systems and limited information on opportunities and processes constrained employer participation in Australia. Employers were confused about the processes and whom they should be contacting at educational institutions. Curricula and technology being outdated made for poor incentives for participation from employer perspectives. The lack of potential students and not having enough time or resources to participate were major barriers for employers.

Other studies identified challenges of industry school collaboration such as lack of appropriate contact with industry (Galan-Muros & Plewa, 2016), insufficient workplace mentors (Mikkonen et al., 2017), lack of communication between industry and schools for curriculum development (Anderson & Sanga, 2019), differing partnership goals and objectives (Abdullah, 2013), and the need to develop mutual trust and commitment from both parties (Plewa et al., 2013).

While much has been learned about the nature of school-industries partnerships from a growing body of literature and research abroad, industry perspectives on school-industry partnerships in Hong Kong is a subject that remains under investigated and ripe for study.

To better understand industry perspectives in partnership with educational institutes, a qualitative study was conducted among four staff of a vocationally oriented education program who were responsible for recruiting and maintaining industry relationships. The objective was to examine the perceived challenges faced in recruiting and maintaining employer engagement and their proposed solutions.

The education program examined, known as CLAP-TECH Education Pathway, was launched in 2019 to provide young people with an alternative educational pathway to enter high-demand industries in Hong Kong. At present, Hong Kong features a vocational education system that has shifted towards post-secondary education, due to changing market conditions and deindustrialization; vocational education opportunities at the secondary level have dwindled (Leung & Tse, 2018). CLAP-TECH is a new attempt to introduce vocational education opportunities and diverse education pathways beginning at the secondary school level. Modelled after the widely replicated Pathways in Technology Early College Highschool (P-TECH)

model developed by IBM in the United States, it also draws on the vocational education experience of The Hong Kong Jockey Club's locally developed program CLAP@JC (Career and Life Adventure Planning). The program is rooted in a tripartite partnership between industry, higher education (i.e. Hong Kong Baptist University), and secondary schools. It is a five-year program that offers two applied learning courses for three years in high school, followed by two corresponding two-year higher diploma programs at a higher education institute. This aims to prepare young people for jobs in future-oriented industries that are highly skilled but do not necessarily require a four-year degree (Litow & Kelley, 2021). The tripartite partnership was not legally-binding, and the two applied learning courses were approved and supported by the Education Bureau. The initiative received generous funding from The Jockey Club Charities Trust.

The CLAP-TECH Pathway offers two areas of study, namely information technology (IT) and creative media. As of February 2025, it had recruited over 35 industry partners to provide learning opportunities to over 1,300 high school students. These included students in five high schools offering the "Tech Basics" Applied Learning course and ten offering "Multimedia Storytelling". The industry partnership program was managed by the CLAP-TECH Centre of the Hong Kong Baptist University. The office has 12 full-time staff.

The onboarding process included the signing of a memorandum of understanding (MOU) specifying areas that the company offered to contribute, including curriculum support, workplace exposure activities, career mentorship, internship, or first-in-line interviews for job applicants. Some industry partners served on the Program Management Committee, Expert Committee, and Steering Committee to provide support in program oversight and leadership, insights into the latest industry trends, and curriculum development.

Throughout the year, there were activities such as committee meetings, train-the-trainer sessions for schoolteachers and institution lecturers, mentorship sessions, company visits, and internship placement. After setting up the schedules for the student activities, the CLAP-TECH Centre colleagues invited the industry partners to sign up. Industry partners exhibited varied levels of commitment to the program. Industry partners gained media publicity as their logos were displayed on the CLAP-TECH Education Pathway website, event venues, and regular e-newsletters.

The research questions are:
1. What strategies help to recruit companies to serve as industry partners?
2. What strategies help to maintain a good relationship with industry partners to make the program sustainable?

This study contributes to the literature on work-integrated learning by adding to the limited body of research on enterprise perspectives, utilizing observations from staff who work with industry on a regular basis. The findings will inform educational institutes on how to recruit industry partners strategically and maintain industry commitment to the program over a long period of time. Retaining good industry partnership relationships can also yield the benefits of partnership referral, further enhancing resources for the development of the program. As a dynamic city with a liberal economics system revolving around high end services industries, Hong Kong provides a good example for industry engagement in work-integrated learning practices in many developed regions. Furthermore, due to the general nature of the findings, which primarily pertain to day-to-day relationship management, the findings are transferable to many other regions, despite variations in partnership models.

2 Research Method

Based on the study context and research objectives outlined above, a qualitative interview methodology was adopted. This study interviewed a total of four program staff with experience

in recruiting and/or managing relationships with industry partners. Potential industry partners refer to those who were invited by the CLAP-TECH Centre to be industry partners and who had not committed at the date of the interview.

To collect and reflect on this experience, the study interviewed four industry relationship program staff who have played significant roles in the recruitment and partner management processes. Two of the interviewed staff were involved in both recruitment and everyday management of industry partnership relationships, while two primarily participated in the recruitment of industry partners. Program staff were interviewed about their recruitment and partnership management experience, including their work content, the feedback they had received from industry partners, and good practices or problems in the partnership process.

Ethical approval was obtained from the Research Ethics Committee of Hong Kong Baptist University before data collection. Interviews were conducted either in person or online between March and July 2023 as well as in September 2024. Interviewees were given a choice between conducting the interviews in English or Cantonese. Interviews ranged from 35 to 67 minutes. All interviews were audio recorded and transcribed for accuracy. The transcripts were then coded for themes by repeated thorough reading. Codes of similar nature and meaning were group into themes. Selected quotes from interviews were translated into English by the authors to illustrate the themes.

3 Findings

3.1 Industry Partnership Recruitment Channels

Regarding industry partner recruitment, staff shared their experience of the channels through which new partners could be recruited, the work involved in recruitment, factors that influenced recruitment success, and problems that they encountered in the recruitment process.

The work of developing an industry partnership program begins with the recruitment of industry partners. Potential industry partners are reached through a variety of channels. In the case of CLAP-TECH Pathway, the networks of key partners IBM, The Hong Kong Jockey Club Charities Trust (the funder), and Hong Kong Baptist University played a central role. The professional and personal contacts of program staff and the networks of existing industry partners were important avenues for reaching new potential partners. Staff identified strategic industry practitioners and approached them. After contacting potential partners, recruitment work consisted primarily of informally and formally introducing partners to the program, ensuring regular follow-up, and projecting future need for industry support to plan further recruitment. Staff noted that identifying the priorities of potential partners, maintaining a personal touch, and ensuring a clear division of labour to maintain follow-up were important during the recruitment process.

For the early recruitment of IT industry partners, the networks of IBM and The Hong Kong Jockey Club Charities Trust played a key role. IBM and The Hong Kong Jockey Club have experience running P-TECH and CLAP@JC, respectively. Both have extensive industry networks. The active involvement of these founding partners in the early stages of the program's establishment brought several recognizable industry names to the program. The recognizability of early industry partners later played a role in encouraging others to join.

Partner recruitment for the Creative Media program relied primarily on the professional and personal networks of program staff and the alumni networks of the Hong Kong Baptist University School of Communication. One staff member who played a key role in recruitment for the Creative Media track cited former students, personal friends, and university networks as primary recruitment channels. Alumni and long-term collaborators with the university were an important source of potential partners.

> Some were maybe the university's long-term contacts—contacts we have long had collaboration with. Of course, we also ask them, are there any peer companies or organizations you are familiar with that might be interested. They give me those contacts and I then reach out. (Person A, teaching staff)

As the program matured, staff personal contacts and contacts of existing industry partners were noted as increasingly important for recruitment. Program staff noted that several newer IT track partners had also been recruited from among their personal friends and professional contacts. A few existing industry partners played a role by introducing their own industry contacts. Staff reported that they identified strategic industry practitioners and approached them.

> I'll attended the talks delivered by the potential partners and self-introduced. Then I shall follow-up with an email to see if they would like to learn more. (Person D, teaching staff)

3.2 Recruitment Process

After identifying and reaching out to new potential partners, the recruitment work of program staff consists of pitching the program, following up, and forecasting future need for additional industry partners. Staff noted that over the course of this recruitment work, it was important to identify potential partners' priorities, maintain a personal touch, and ensure clear allocation of responsibility within the staff team for follow-up.

Staff noted that the key for successfully getting industry partners on board is to identify company leaders who are passionate about youth development, for example, they attend youth-related events. Staff noted that many partners were first introduced to the program informally. With personal contacts, existing trust played an important role in facilitating recruitment. Staff tended to first approach them about the program in a more casual manner. Informal discussions were then followed by a formal pitch and regular follow-up.

> The reason I know them is because of events passionate about youth. They attended the course with me, or they were the speaker at the workshop. So, I saw that they seemed to be interested in this kind of thing, and I invited them. (Person C, program staff)

Staff noted that it was important to identify the needs and priorities of the potential partner enterprise and to pitch the program in accordance with these needs. For example, they noted that large companies were more likely to be interested in corporate social responsibility and company image than smaller companies. The large scale and long-term stability of the program were also likely to appeal to large companies. The foremost interest of smaller companies, on the other hand, was more likely to be attracting talent. However, as one staff stressed, "it depends on the initial conversation, what I perceive their point of departure to be." (Person A, teaching staff) Recruiters must pay attention to enterprise priorities during their conversations with potential partners.

Secondly, staff who had participated in recruitment noted that a personal touch was important during the recruitment process. When asked what factors affected the likelihood of a company agreeing to join the program, one staff member pointed to the personal relationship with the industry partner. Another pointed to the importance of face-to-face contact.

> When we first contact an industry partner, whether they are large, medium, or small, [we need to] show sincerity and respect. The other party is often a decision-maker, so most of the time when we first meet or discuss, I attend. (Person A, teaching staff)

Thirdly, staff both stressed the importance of follow-up and identified gaps in follow-up as a problem that had affected partner recruitment thus far. One staff stressed "*consistent conversation*" after initial contact has been made. It was also noted by staff that handover of responsibility between different staff for follow-up with industry partners had in some cases been a problem.

Staff reported that potential partners were interested in knowing who the current industry partners were. If they could find companies that they knew or were familiar with, they had more confidence in the program.

3.3 Practices and Challenges in Partnership Management

Staff were asked to share factors they felt were important for good partnership management and challenges in the current partnership management process. The factor most stressed by staff was the importance of regular communication and personal relationship building with industry partners. However, staff reported that relationship building and regularity of communication with partners were insufficient.

Staff mentioned a series of challenges in managing the current partnership relationship. These included the large number of partners, making it difficult to provide sufficient involvement opportunities or maintain sufficient communication with each partner. Another significant difficulty was personnel turnover among industry partner staff, including at the management level and among industry mentors. To address these problems, staff discussed systematizing internal management and more systematic formal communication with partners.

3.4 Relationship Building, Regular Communication, and Involvement

The importance of relationship building and regular communication with industry partners was mentioned by all interviewed staff. As one staff commented, it is critical to ensure the "*conversation keep[s] going.*" As another described it, staff must "*spend time to communicate with them [industry partners], to build that bonding.*" This staff member also stressed the need for a personal touch in the communication and for filling in the gaps where there is not yet formal information available through informal communication.

> You can't have one discussion and then let go and not follow-up. That is, I'm thinking of consistent conversation, updating industry partners every so often, how we've developed, what we might be planning in the next two months. It's actually a very short message, to let industry partners know you're doing something, I'm involved in this event, so they'll know you're still around. (Person A, teaching staff)

Furthermore, one staff member explained why personal connections with mentors as well as industry senior managers were valuable. As mentors serve as the critical day-to-day bridge between industry and education in the partnership, more personal understanding of mentors helps program staff to make appropriate work arrangements.

> Luckily, I had previously joined some of the mentorship program meet-ups and had met the mentors. […] They are real people, so I feel… [you must have a] personal touch. For me, if I have met them then immediately it will pop up who I feel is suitable for which event or what position, because I can feel what that person is like. (Person B, program staff)

While agreeing on the importance of communication and personal relationship building, staff also noted that there were currently some shortcomings in this respect. Staff were concerned about the insufficient level of communication, given that they recognized the importance of continuity and regularity in relationship-building.

> Right now, we are not quite able to achieve this. The second point is we need to have regular communication with them, but this really takes a lot of time, because it's all personal touch, meaning if you pause for maybe half a year and don't have contact, it's really very difficult to restart. (Person B, program staff)

> Industry partners expected that they would be invited for some events, annual gatherings, or an opportunity to see students' work at least once a year. (Person D, teaching staff)

The communication problem is dual edged, with insufficient contact meaning both that industry partners receive too little information from program staff, and that program staff receive limited information on industry partners' needs and situation. One staff member noted, for example, that insufficient regular communication sometimes left them unclear why partners failed to respond or to participate in certain events.

> A lot of companies haven't told us [what the challenges are]. As in, how can we achieve what they want to achieve? They have joined, but I imagine they have some goals in joining. […] There are some things they would like to see [achieved], but what those things are, they haven't told us. (Person C, program staff)

It was noted that part of the reason for this insufficiency was that there are currently many industry partners collaborating with the program and staff capacity is stretched. In the program's initial stages, day-to-day contact with industry partners relied heavily on informal personal communication, or "*picking up the phone.*" However, with the growing number of industry partners involved in the program, it is increasingly hard to maintain sufficient communication through personalized, informal means. Many partners lead to partnership activities being distributed across many different partners, with limited frequency of participation from each individual partner. Meanwhile, staff members do not have sufficient time to maintain regular personal communication with all partners, as this is a particularly time-consuming activity.

> The number of industry partners is quite high, so I feel that we have done a lot of things, but each company's exposure is limited. They feel like there's little going on, but we are doing a lot. (Person B, program staff)

> I'll make sure I go to those events that will meet up with industry partners. I'll spend time communicating with them to build the bonding. (Person C, program staff)

> We need more mingling opportunities with industry partners. Face to face interaction with them can spark new ideas of co-curricular activities. (Person D, teaching staff)

In addition to difficulties maintaining strong relationships and sufficiently regular communication with the growing size of the program, staff also repeated the observation also made by some industry partners that industry partners sometimes had insufficient opportunities for involvement. The growing size of the program has made relationship building and strong involvement more difficult, with partnership activities spread out across many more partners and staff sometimes unable to involve all of them.

3.5 Staff Turnover

Another challenge that hinders the partnership relationship is turnover among industry partner personnel. Turnover among industry mentors has created difficulties for industry partner senior management in recruiting new mentors. In addition, it has created logistical difficulties and additional orientation, and training demands for program staff. Turnover among industry partner senior management is an even greater challenge. This may occur either because of staff departure or because of shifts in work responsibilities. Handover concerning the program from one senior management contact point to their replacement often does not take place, and program staff sometimes must re-establish contact and rebuild relationships when such changes take place. One staff member mentioned a case in which the program's point of contact at one partner company changed three to four times. Another described the difficulties of rebuilding the partnership relationship after such a changeover.

> That new colleague may not even know about CLAP-TECH, only the working level staff under them know a bit, but they are not in charge. (Person B, program staff)

In such cases, program staff must reintroduce the program to the new person in charge and build new relationships with them. It was noted that turnover among program staff could also create problems of continuity in relationship building, but to a more minor extent. In addition, staff mentioned changes in industry partner capacity, scheduling difficulties, and low mentee enthusiasm as additional challenges in partnership management. The former might be due to external shocks like COVID-19, leading to sudden changes in partners' capacity to participate. The difficulty of scheduling events to accommodate multiple parties and problems of low mentee enthusiasm also posed challenges for the partnership relationship.

3.6 Recommended Solutions

In response to these challenges and as ways to improve partnership management, staff members emphasized the need to systematize internal management and create more systematic communication mechanisms with partners. Staff proposed that a newsletter updating industry partners about CLAP-TECH progress and milestones would be desirable.

Concerning internal management, staff mentioned the need for clear division of responsibility, standardized processes, and more systematic internal progress tracking. Staff also commented that such internal systematization was becoming increasingly necessary with the growing number of partners. Related to this systematization was the need for more systematic mechanisms for communicating the program's work to partners.

> Our team first has to have an internal process, […] one that is set… Mainly, a platform would be good, or it could be sharable material. Because we have more and more industry partners, we can't just make phone calls, contacting people individually, like we did early on. That model won't work anymore. It's necessary to evolve. (Person C, program staff)

> Maybe the system can generate some good-looking infographics that are ready for people to view, so that we don't have to spend extra time processing the statistics and producing new communication materials. If possible, see if we can have some student feedback, a quote or two, because after each event we have a post-event survey. […] If we can do this, then with each industry partner's participation, we can let all twenty plus companies see what we have done. (Person B, program staff)

With the growing scope of the program and the limited capacity of staff, systematization of partnership management can help to relieve the burden on staff. Some of the tasks of partnership management can be shifted from informal modes to more systematic, formal communication.

4   Conclusion

The recruitment of industry partners for the CLAP-TECH Pathway program leverages key partner networks, personal contacts, and existing industry partners. Initial recruitment, especially for IT partners, benefited from the networks of IBM and The Hong Kong Jockey Club Charities Trust. As the program matured, Hong Kong Baptist University School of Communication's alumni networks and personal contacts became crucial for the Creative Media partners. Successful recruitment involves informal and formal introductions, regular follow-up, and strategic pitching. Key factors include understanding partners' priorities, maintaining a personal touch, and clear division of labour for follow-up. With more partners on board and occasional staff turnover, maintaining communication and building relationship becomes a challenge. To address these challenges, staff recommend systematizing internal management and communication. This includes clear responsibilities, standardized processes, and platforms for sharing updates. By moving from informal to more formal communication methods, the program can better manage its expanding network and ensure sustained engagement.

References

Abdullah, H. (2013). The role of VET providers in training partnerships with industry in East Java, Indonesia. *TVET@Asia, 1*, 1–14. https://www.tvet-online.asia/issue1/alias_hassan_tvet1.pdf

Anderson, W., & Sanga, J. (2019) Academia-industry partnerships for hospitality and tourism education in Tanzania. *Journal of Hospitality and Tourism Education, 31*(1), 34–48. https://doi.org/10.1080/10963758.2018.1480959

Atkinson, G. (2016). *Work-based learning and work-integrated learning: Fostering engagement with employers*. National Centre for Vocational Education Research. https://files.eric.ed.gov/fulltext/ED568154.pdf

Atkinson, G., Misko, J., & Stanwick, J. (2015). *Work integrated learning in STEM disciplines: employer perspectives*. National Centre for Vocational Education Research. https://www.chiefscientist.gov.au/sites/default/files/NCVER_WIL-employer-perspectives.pdf

Flynn, M. C., Pillay, H., & Watters, J. (2016). Industry-school partnerships: Boundary crossing to enable school to work transitions. *Journal of Education and Work, 29*(3), 309–331. https://doi.org/10.1080/13639080.2014.934789

Galan-Muros, V., & Plewa, C. (2016). What drives and inhibits university-business cooperation in Europe? A comprehensive assessment. *R&D Management, 46*(2), 369–382. https://doi.org/10.1111/radm.12180

Leney, T., & Green, A. (2005). Achieving the Lisbon goal: The contribution of vocational education and training. *European Journal of Education, 40*(3), 261–278. http://www.jstor.org/stable/3496941

Leung, Y., & Tse, W. C. V. (2018). An exploration of the history of vocational education in Hong Kong. *US-China Education Review B, 8*(5), 213–220. https://www.davidpublisher.com/Public/uploads/Contribute/5b890827c8e5b.pdf

Litow, S. S., & Kelley, T. (2021). *Breaking barriers: How P-TECH schools create a pathway from high school to college to career*. Teachers College Press. https://www.tcpress.com/breaking-barriers-9780807765586

Mikkonen, S., Pylvas, L., Nokelainen, P., & Postareff, L. (2017) Guiding workplace learning in vocational education and training: a literature review. *Empirical Research in Vocational Education & Training, 9*(9),1–22. https://doi. org/10.1186/s40461-017-0053-4

Pan, H., Wang, S., & Long, D. (2016). Analysis of the current state of school-enterprise cooperation in Chinese higher vocational education and influencing factors. *Chinese Education & Society, 49*(3), 152–165. https://doi.org/10.1080/10611932.2016.1218253

Plewa, C., Korff, N., Baaken, T., & Macpherson, G. (2013). University-industry linkage evolution: an empirical investigation of relational success factors. *R&D Management, 43*(4), 365–380. https://doi.org/10.1111/radm.12021

Biographical Notes

Dr Kara Chan is a Professor and Associate Dean (Teaching & Learning) at the School of Communication at Hong Kong Baptist University, China. Her research interests include social inclusion, youth empowerment and creativity education. She also serves as the Curriculum Director (Creative Media) of the CLAP-TECH Education Pathway.

Ms. Jasmine Zhang is a Senior Research Assistant at the Department of Communication Studies at Hong Kong Baptist University, China. Her research interests include migration policy and rural workers.

Appendix

Person A	teaching staff, female
Person B	program staff, female
Person C	program staff, male
Person D	teaching staff, female

Acknowledgments

Factors Influencing the Effectiveness of Online Training for TVET Engineering Educators: Towards Inclusive and Accessible Professional Development[1]

Dolgova, Nataliia

nataliia.e.dolgova@gmail.com, Europa-Universität Flensburg

Abstract

Context: In an era of rapidly evolving technology, the need for prompt and high-quality training for TVET engineering educators has become acute. Providing quality education regardless of professional, geographical or institutional needs is a key challenge in the preparation of TVET engineering educators. While online learning is inherently flexible, the factors that influence the effectiveness, accessibility and adaptability of education remain unexplored. This article presents the findings of a study examining how course structure, instructional design, and alignment with learner needs can enhance the inclusiveness, adaptability, and professional relevance of online learning.

Approach: This study applied an exploratory sequential mixed-methods design, incorporating standardized in-person open-ended in-depth interviews with TVET engineering educator trainers (N=11) and a survey of TVET engineering educators (N=237). The first stage was a qualitative study, which provided a framework for forming hypotheses and a questionnaire for further testing through a quantitative study. The quantitative study was used to test the hypotheses as well as to identify previously unexplored factors of effectiveness of online learning for TVET engineering educators. Thematic, statistical and contextual analysis were used to analyze the findings.

Findings: The majority of respondents mentioned curriculum flexibility**,** structured support systems, and professional relevance as the pivotal factors influencing the effectiveness of online courses. The inability to combine work with learning was a key challenge for TVET engineering educators (66,7% of respondents), who mentioned the importance of flexible schedules and modular course structure (χ^2 = 286,1, p < 0,05). Course adaptation was highly valued, with 85,23% of participants favoring personalized learning pathways and scheduling flexibility (χ^2 = 117,68, p < 2,2e-16). However, while 57,81% of TVET engineering educators supported content customization (χ^2 = 139,41, p-value < 2,2e-16), engagement strategies and interactive learning were more highly prioritized. Additionally, age was not a determining factor in course adaptation preferences (ρ = -0,0475, p > 0,05), suggesting a universal demand for accessibility and structured learning environments.

---

[1] The author used AI-assisted translation tools (e.g., ChatGPT) to support the English-language revision. All content was reviewed and adapted based on personal research and writing.

Conclusions: The findings emphasize the need for a balanced approach to implementing online learning by combining flexible scheduling and well-structured curriculum to increase adaptability, engagement, and inclusion in education. Considering the generation difference, the study underlined the similarity of views on course adaptation regardless of age. These results contribute to the ongoing discussion on inclusive and scalable digital learning models for TVET education.

Keywords

online learning, adult education, vocational education and training, training of trainers, education and training needs

1 Introduction

The preparation of engineering educators for the Technical and Vocational Education and Training (TVET) system is essential to ensuring they are equipped with the skills necessary for training future professionals in engineering and applied sciences. However, access to high-quality professional development programs remains a significant challenge, particularly for educators in remote areas, those facing economic constraints, or those balancing multiple responsibilities. The emergence of online learning platforms has introduced new opportunities for accessible and flexible training, yet questions remain regarding their effectiveness, inclusivity, and adaptability to the individual learning needs of TVET educators.

This study is part of a larger doctoral research project that examines multiple dimensions of TVET online education, including pedagogical effectiveness, digital learning models, and institutional policies. However, within the scope of this article, particular attention is given to:

- Accessibility of online education for TVET educators, particularly in addressing geographic, economic, and professional constraints.
- Adaptation of online courses to individual learning needs, ensuring relevance and engagement for diverse educators.

By investigating these aspects, this study aims to contribute to the development of inclusive, adaptive, and scalable training models that enhance the quality and accessibility of professional development in TVET.

2 Theoretical Framework and Research Questions

To explore the factors that could influence on the accessibility and adaptability of online learning for TVET educators, this study builds on three interrelated theoretical perspectives:

1. Theories of Educational Accessibility – examining barriers to learning and strategies for inclusive education.
2. Adaptive Learning Models – exploring how personalized learning pathways improve engagement and effectiveness.
3. E-learning and Distance Education Theories – analyzing how technology-enhanced learning environments support diverse learners.

This framework guides the qualitative and quantitative stages of the study, ensuring that the analysis captures both practical experiences of educators and broader trends in online course effectiveness (Creswell & Plano Clark, 2018).

3 Pedagogical Theories as the Basis for Research Theoretical Frameworks

The evolution of pedagogical theories provides a foundation for selecting the most appropriate approaches for designing educational programs and shaping unique learning experiences.

For decades, researchers have attempted to classify pedagogical theories into specific categories, yet a universally accepted division has not been established. Various classifications exist, including those by Donald (1964), Hilgard and Bower, and Gage, among others (Knowles et al., 2006; Malone, 1981). Recent studies have outlined five meta-groups of learning theories (Akpan, 2020):

1. Humanistic Theories – emphasizing learner autonomy, intrinsic motivation, and self-actualization.
2. Behaviorist Theories – focusing on structured learning processes, reinforcement mechanisms, and skill repetition.
3. Cognitive Theories – highlighting information processing, scaffolding, and problem-solving strategies.
4. Constructivist Theories – advocating for experiential learning, collaboration, and real-world application of knowledge.
5. Intelligence- and Skill-Oriented Theories – integrating elements of competency-based education and domain-specific expertise development.

Given the specific needs of online training for TVET educators, this study expands beyond traditional classifications and incorporates additional theoretical frameworks that are particularly relevant for designing adaptive and accessible online learning environments (Sjöström & Eilks, 2020).

The key theoretical foundations guiding this study include:

- Humanistic Learning Theory – forming the core of this research, as it aligns with the principles of inclusive education, individual learning needs, and active engagement in online environments (Navy, 2020).
- Behaviorist Learning Theory – emphasizing the role of structured, self-paced learning and reinforcement mechanisms in online education (Akpan, 2020).
- Cognitive Learning Theory – supporting the use of multimedia tools and visualization techniques to enhance comprehension and engagement for learners with diverse needs (Piaget, 1962; Vygotsky, 1999).
- Social Learning Theory– highlighting the importance of interactive technologies, peer collaboration, and practical application in online learning environments (Rumjaun & Narod, 2020).
- Digital Didactics – a relatively recent theoretical development that explores the technological and instructional aspects of digital learning, serving as a basis for structuring TVET online courses. (Bilenko et.al., 2020; Buzaubakova, et.al., 2023)
- Andragogy and Heutagogy – providing a learner-centered approach for adaptive course design, enabling TVET educators to engage in self-directed, problem-based learning (Blaschke, 2012; Hase & Kenyon, 2013; Knowles et al., 2006).
- «Pädagogischer Doppeldecker» Model – integrating theory and practice to enhance the effectiveness of online training, ensuring cohesion between theoretical knowledge and applied skills (Geissler, 1985; Wahl, 2023).

From a didactic perspective, this study aligns with the blended learning model, incorporating Hybrid-Flexible (HyFlex) learning structures, hybrid curricula, and synchronous online sessions. This approach ensures that TVET educators receive training that is both flexible and practically relevant, allowing for adaptive learning paths based on their professional requirements and learning preferences.

3.1 E-Learning and Distance Education Technologies

The rapid development of e-learning and distance education technologies has significantly influenced the landscape of TVET training, offering new opportunities for accessibility and

adaptability. Understanding the characteristics, methodologies, and technologies used in online education is essential for addressing the learning needs of TVET educators and developing an effective and inclusive training system (Mishra & Koehler, 2006; Review Lecture—The technology of teaching, 1965; Verduin & Clark, 1991).

This study includes a detailed analysis of existing online training models for TVET educators in Russia, considering the economic, geographic, social, and technological factors influencing their implementation. The selection of Russia as the study location is justified by the extensive network of TVET institutions, each operating under varied socio-economic and infrastructural conditions.

While the historical evolution of distance learning can be traced back to the 1840s (Pitman's correspondence courses) (Verduin & Clark, 1991) and early 20th century developments in Russia, (Maslakova, 2015) this study does not focus on historical analysis. Instead, the primary emphasis is on the pedagogical, didactical and technological aspects of modern e-learning models in Russia.

Although there is no official distinction between these terms in the legislation, they differ conceptually in their modes of implementation:

- E-learning refers to fully online courses that rely exclusively on internet-based platforms.
- Distance education is broader in scope, incorporating various forms of mediated learning (including blended formats) to create an accessible educational environment, regardless of a learner's geographic, social, or economic status.

These two approaches often intersect but share a common goal: to maximize accessibility and educational reach for a diverse learner population (Grechushkina, 2018).

This brief explanation of theoretical framework serves as a foundation for the study's mixed-methods research design. The qualitative phase examines trainers who teach TVET engineering educators' perspectives on accessibility challenges and adaptation needs in online learning. These insights inform the quantitative phase, where a large-scale survey evaluates the prevalence and impact of adaptation strategies across a broader population of TVET engineering educators.

This study integrates pedagogical theories, digital learning models, and accessibility frameworks to develop evidence-based strategies that enhance the inclusivity and adaptability of online training programs for TVET educators. By addressing accessibility challenges and individual learning needs, the research provides insights into optimizing online course design for broader and more equitable participation.

3.2 Research Question

The aim of this study is to identify the key factors influencing the accessibility and adaptability of online training programs for TVET engineering educators, with the goal of fostering an inclusive and equitable digital environment for professional development.

The primary research question guiding this study is: *What factors influence the accessibility and adaptation of online courses for training TVET engineering educators?*

To address this overarching question, the study explores the following methodological questions:

- Qualitative Question: How do instructors of online training courses for TVET engineering educators perceive the key factors affecting the effectiveness of these courses?
- Mixed-Methods Integration Question: How can insights from in-depth interviews with online course instructors be used to develop a survey investigating TVET engineering educators' perspectives on course accessibility and adaptation?
- Quantitative Question: How do TVET engineering educators participating in online training programs assess the impact of various factors on course effectiveness?

- Exploratory Sequential Design Question: How do the large-scale survey results compare with instructors' perspectives on the key factors shaping the accessibility and adaptability of online courses for TVET engineering educators?

4   Methodology

This study is based on data collected as part of a doctoral research project conducted at Europa-Universität Flensburg. A mixed-methods research design was employed, specifically an exploratory sequential design (Creswell & Plano Clark, 2017), incorporating both qualitative and quantitative research phases (Spöhring, 1989).

The choice of an exploratory sequential design allowed for a structured synchronization of research phases, facilitating an in-depth exploration of TVET engineering teacher trainers' experiences in online education followed by a broader quantitative analysis of the perspectives of TVET engineering educators enrolled in these courses (Creswell & Plano Clark, 2018; Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 1998; Tashakkori & Teddlie, 2010).

5   Qualitative Stage

The first stage of the empirical study employed qualitative research methods, specifically in-depth expert interviews with TVET engineering teacher trainers who had experience teaching online courses for TVET engineering educators.

A purposive sampling strategy was employed to ensure participant selection based on relevant expertise and experience. The inclusion criteria for the study participants were:
- TVET teacher trainers actively teaching online courses.
- Aged 25–60 years with a minimum of five years of experience in adult education.
- Participation in teacher training, professional development, or retraining programs for engineering and pedagogy educators.
- Holding a pedagogical or engineering degree and/or relevant professional retraining in these fields.
- A minimum of three years of teaching experience.
- Experience teaching in at least five online TVET programs over the past three years.
- Residency in the Russian Federation.

Participants were recruited through professional networks, academic databases, and social media platforms. Participation in both the pilot and main interview phases was voluntary and unpaid, ensuring the validity and reliability of the collected data (Hall, et. al., 2016; Patton, 2015; Spöhring, 1989) Table 1 provides an overview of the interviewees' characteristics.

The qualitative research phase employed semi-structured interviews with open-ended questions, following the methodology of Patton (2015). The interview protocol was standardized, ensuring consistency and comparability of responses, as recommended by Johnson & Christensen (2014) и Johnson & Onwuegbuzie (2004). The interview questions were designed based on the literature review and conceptual frameworks of learning theories.

A pilot study was conducted to refine the questions, resulting in a final set of 15 thematic sections. Each interview lasted 30 to 90 minutes and was recorded and transcribed using Charla-AI. The transcribed data were analyzed using Moustakas' (1994) structured method, which facilitates inductive data analysis through full immersion in interview transcripts. (Hall, et. al., 2016)

The coding process was conducted manually, followed by verification using ATLAS.ti software to ensure accuracy and relevance. Based on the qualitative findings, the following hypothesis was proposed for quantitative validation: "Adapting course content to the professional experience, educational needs, and objectives of TVET engineering educators enhances the perceived usefulness and effectiveness of online training programs."

Table 1
Profile of Interview Participants

No	Profile	Gender	Pedagogical qualification	Teaching experience	Federal districts
T1	TVET teacher trainer, university teacher	female	yes	15	Siberian
T2	TVET teacher trainer, university teacher	male	yes	38	Central
T3	TVET teacher trainer, university teacher	female	yes	35	Central
T4	TVET teacher trainer, university teacher	female	yes	13	Northwestern
T5	TVET teacher trainer, university teacher	female	yes	30	Ural
T6	TVET teacher trainer, university teacher	female	yes	17	Southern
T7	TVET teacher trainer, university teacher	male	yes	22	North Caucasian
T8	TVET teacher trainer, university teacher	female	yes	11	Siberian
T9	TVET teacher trainer	female	no	4	Ural
T10	TVET teacher trainer, university teacher	female	yes	23	Volga
T11	TVET teacher trainer, university teacher	female	yes	7	Far Eastern

5.1 Quantitative Stage

The second phase of the study aimed to empirically test the hypothesis derived from the qualitative phase through a large-scale survey of TVET engineering educators. The target population comprised TVET engineering educators who had participated in at least one online professional development program in the past three years. No upper age limit was imposed, and all respondents were based in the Russian Federation. The survey was conducted between June and October 2024, yielding 237 valid responses, deemed representative for statistical analysis (Field, 2018). The respondents' breakdown is presented in Table 2.

The survey was developed based on the key factors identified in the qualitative phase and was designed to measure the perceived effectiveness, accessibility, and adaptability of online TVET courses. The questionnaire consisted of 12 thematic blocks, covering: Motivation and Objectives, Course Selection and Topics, Challenges and Technical Issues, Support and Comfort Level, Resources and technologies, Engagement and adaptation in online courses, Practical Application and Tools, Interactive Learning Experience, Improvements and Features, Professional Development and Skills, Satisfaction and Feedback, Improvements and Recommendations. The survey included various question formats, such as multiple-choice questions, Likert-scale items, and open-ended responses. The estimated completion time was 15 minutes.

A pilot test was conducted with 10 participants: 5 TVET online course instructors and 5 engineering educators with experience in online learning. To assess the reliability and validity of the survey instrument, the intraclass correlation coefficient (LeBreton & Senter, 2008) was calculated, yielding a value of 0,81, indicating a high degree of consistency among expert evaluations. The average relevance score across all survey items was 4.3 out of 5.

Table 2
Data of Survey Participants

Variable	Category	Count	Percentage
Gender	Male	27	11.4%
	Female	210	88.6%
Age Group	25-34	27	11.4%
	35-44	69	29.1%
	45-54	73	30.8%
	55-64	50	21.1%
	65+	11	4.6%
	Under 25	7	3%
Federal District	Central	90	38%
	Far Eastern	65	27.4%
	Northwestern	20	8.4%
	Siberian	42	17.7%
	Southern	20	8.4%
Education Level	Bachelor (full-time)	90	38%
	Bachelor (part-time)	50	21.1%
	Candidate of Sciences	7	3%
	Doctoral degree	3	1.3%
	Graduate education	14	5.9%
	Master (distance)	15	6.3%
	Master (full-time)	29	12.2%
	Master (part-time)	13	5.5%
	VET/TVET	16	6.8%
Job Experience	0-2 years	15	6.3%
	10-20 years	7	3%
	20-30 years	88	37.1%
	3-5 years	27	11.4%
	30+ years	34	14.3%
	6-10 years	66	27.8%

The survey data were analyzed using RStudio version (2024.12.1+563) running R (version 4.4.3). (Wickham & Grolemund, 2017) A combination of descriptive and inferential statistical methods was employed to examine response distributions, test research hypotheses, and assess relationships between key variables. Statistical Methods Applied:

- Descriptive Statistics – means, standard deviations, and frequency distributions.
- Chi-Square Test (χ^2) – to determine whether the distribution of categorical responses was statistically significant.
- Non-Parametric Statistical Methods – employed due to the presence of binary and ordinal variables (e.g., Likert-scale responses).
- Wilcoxon Signed-Rank Test – to compare median values against neutral benchmarks.
- Spearman's Rank Correlation & Kendall's Tau Correlation – to evaluate associations between demographic factors (e.g., age, teaching experience) and perceptions of online learning effectiveness. (Kendall, 1948; Conover, 1999; Wickham & Grolemund, 2017)

The methodological framework follows established statistical approaches in educational and social science research (Field, 2017; Agresti, 2018), ensuring the validity and reliability of findings.

6 Findings

The findings of this study are structured around the primary research question, which aims to identify the key factors influencing the accessibility and adaptation of online training programs for TVET engineering educators.

6.1 Challenges in Balancing Academic Workload

According to the results of the analysis, 66.7% of respondents indicated "Difficulties in combining teaching load with other responsibilities" as significant. The results of the χ^2 test confirmed the statistical significance of the obtained results ($\chi^2 = 286,1$, p < 2,2e-16, (< 0,05), which indicates the need to include in the educational process flexible formats of training, considering the professional commitments of educators. Respondents noted the availability of asynchronous learning, modular programs, and opportunities for self-paced learning as options of increasing engagement and improving retention rates during online-courses.

6.2 Preferences for Course Adaptation

The results of the analysis of indicators of successful adaptation of courses showed that 85.23% of respondents chose at least one of three options: the need for more personalized educational routes, flexible course schedule and/or adaptation of course content to the capabilities and individual needs of the learners. The chi-square test confirmed statistically significant differences ($\chi^2 = 117,68$, p-value < 2,2e-16 (< 0,05)) in preferences, which emphasizes flexibility and personalization of courses as crucial factors in improving the effectiveness and accessibility of online educational programs. The high percentage of support and statistically significant differences confirm that customization is perceived by respondents as a necessary factor that increases the usefulness and efficiency of online learning.

6.3 Content Customization for Learner Needs

The analysis showed that 57.81% of respondents chose the option to adapt the content to the specific needs of learners, including geographical, territorial, economic, etc. The chi-square test ($\chi^2 = 139,41$, p-value < 2,2e-16 (< 0,05)) confirmed a statistically significant difference between the selection of this option and a random distribution, indicating that regional, territorial, economic, and contextual adaptation is perceived by the study participants as an important element of online courses individualization.

However, a percentage of support remains below 60% may indicate that additional features such as content customization are perceived as a lower priority than other key aspects such as increased interactivity and multimedia resources.

6.4 Factors Limiting Learning Satisfaction

In order to identify factors that contribute to maximizing satisfaction with learning outcomes, respondents were asked to select aspects missing in online courses. The chi-square test ($\chi^2 = 23,515$, df = 5, p-value = 0,000269) confirmed a statistically significant difference between the choices of this option and a random distribution.

Notably, only 7.6% of respondents supported the individual approach, which emphasizes the priority of organizational aspects (e.g., a developed support system, availability of timely

feedback, and the opportunity to interact with the instructor) over the individual approach. Respondents emphasize the importance of a balance between a flexible and structured education system to increase the effectiveness of online learning. While course adaptation remains crucial, learners seem to prefer organized, well-structured courses with clear guidelines rather than fully customized programs.

6.5 Correlation Between Age and Course Adaptation Preferences

This study traced the relationship between course adaptability preferences and age of the respondents with the help of **Spearman's and Kendall's correlation tests**.

- Spearman's test showed (ρ = -0,0475, p-value = 0,4667 (> 0.05)) that there was no statistically significant relationship between respondents supporting the hypothesis and their age.
- Kendall's test (τ = -0,0352, p-value = 0,4819 (> 0,05)) confirmed the results by Spearman's test, which suggests that there is no relationship between age and support for the hypothesis.

The results suggest that TVET engineering educators have similar expectations regarding online course flexibility and accessibility regardless of age.

6.6 Summary of Findings

The analysis points course adaptation as one of the integral aspects that dictate overall success in online education, where the focus of training encompasses educational TVET engineering instructors. However, the results tend to reveal that learners are more inclined toward practical adjustments, such as program flexibility, scheduling adaptability, and enhancements in accessibility, than to full content individualization.

The main results from this study include:

- Heavy workloads are challenging for learners; hence a more flexible learning structure is required.
- Best adaptation strategies: personalized learning pathways and flexible scheduling.
- Adaptation to geographical and economic issues is still significant; however, engagement strategies may have a more powerful effect.
- Most learners prefer that course designs be structured and clearly organized, rather than highly individualized.
- Age did not prove to be a contributor to varying preferences for adaptations for the online courses. This suggests that there is a universal interest for accessible and flexible models for online learning.

The insights suggest that adopting a fully wholistic approach to online course adaptation that integrates professional and interdisciplinary needs cohesively whilst ensuring inclusivity and, therefore, accessibility to a wide array of educators is crucial.

7   Conclusion

This article discusses some of the common issues affecting the quality, availability, and adaptability of online training programs for TVET engineering educators. Results indicate a preference for course flexibility, supported systems, and professional relevance over full individualization of content.

The results confirm that balancing workload remains a major challenge, highlighting the need for flexible scheduling and modular learning structures. Course adaptation is a critical factor, with 85.23% of respondents favoring personalized learning pathways and scheduling flexibility (χ^2 = 117,68, p <2,2e-16). However, while 57.81% supported content customization (χ^2 = 139,41, p-value <2,2e-16 (<0,05)), interactive learning models and engagement strategies

were preferred. Notably, the demand for accessible and structured online education was not influenced by age (ρ = -0,0475, p > 0,05).

The findings emphasize the necessity of a balanced adaptation strategy, integrating flexible scheduling and program structures with a well-organized instructional design to enhance engagement and inclusivity. Future research could explore the longitudinal impacts of course adaptation and cross-cultural differences in online learning preferences among TVET engineering educators to further refine digital learning models.

References

Agresti, A. (2018). *Statistical methods for the social sciences* (5th ed., global ed.). Pearson Education.

Akpan, B. (2020). Classical and operant conditioning—Ivan Pavlov; Burrhus Skinner. In B. Akpan & T. J. Kennedy (Eds.), *Science education in theory and practice* (pp. 71–84). Springer International Publishing. https://doi.org/10.1007/978-3-030-43620-9_6

Bilenko, P. N., Blinov, V. I., Dulinov, M. V., Yesenina, E. Y., Kondakov, A. M., & Sergeev, I. S. (2020). *Didakticheskaya kontseptsiya tsifrovogo professionalnogo obrazovaniya i obucheniya* [Didactic concept of digital vocational education and training] (V. I. Blinov, Ed.).

Blaschke, L. M. (2012). Heutagogy and lifelong learning: A review of heutagogical practice and self-determined learning. *The International Review of Research in Open and Distributed Learning, 13*(1), 56. https://doi.org/10.19173/irrodl.v13i1.1076

Buzaubakova, K. D., Amirova, A. S., & Makovetskaya, A. A. (2023). *Tsifrovaya pedagogika* [Digital pedagogy]. Taraz Publishing.

Conover, W. J. (1999). *Practical nonparametric statistics* (3rd ed.). Wiley.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE.

Donald, F. J. M. (1964). The influence of learning theories on education (1900–1950). *Teachers College Record: The Voice of Scholarship in Education, 65*(9), 1–26. https://doi.org/10.1177/016146816406500901

Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). SAGE.

Geissler, K. A. (1985). *Lernen in Seminargruppen: Studienbrief 3 des Fernstudiums Erziehungswissenschaft „Pädagogisch-psychologische Grundlagen für das Lernen in Gruppen"*. DIFF.

Grechushkina, N. V. (2018). Onlajn-kurs: opredelenie i klassifikaciya. *Vy`sshee obrazovanie v Rossii* [Online course: Definition and classification. *Higher Education in Russia*]*, 27*(6), 125–134.

Hall, E., Chai, W., & Albrecht, J. A. (2016). A qualitative phenomenological exploration of teachers' experience with nutrition education. *American Journal of Health Education, 47*(3), 136–148. https://doi.org/10.1080/19325037.2016.1157532

Hase, S., & Kenyon, C. (2013). *Self-determined learning: Heutagogy in action*. Bloomsbury Publishing.

Johnson, R. B., & Christensen, L. B. (2014). *Educational research: Quantitative, qualitative, and mixed approaches* (5th ed.). SAGE.

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33*(7), 14–26. https://doi.org/10.3102/0013189X033007014

Kendall, M. G. (1948). *Rank correlation methods*. Griffin.

Knowles, M. S., Holton, E. F., & Swanson, R. A. (2006). *The adult learner: The definitive classic in adult education and human resource development* (6th ed.). Elsevier.

LeBreton, J. M., & Senter, J. L. (2008). Answers to 20 questions about interrater reliability and interrater agreement. *Organizational Research Methods, 11*(4), 815–852. https://doi.org/10.1177/1094428106296642

Malone, T. (1981). Toward a theory of intrinsically motivating instruction. *Cognitive Science, 5*(4), 333–369. https://doi.org/10.1016/S0364-0213(81)80017-1

Maslakova, E. S. (2015). Istoriya razvitiya distantsionnogo obucheniya v Rossii [The history of distance learning in Russia]. *Moluch.ru*. https://moluch.ru/conf/ped/archive/185/9249/

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record: The Voice of Scholarship in Education, 108*(6), 1017–1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

Moustakas, C. (1994). *Phenomenological research methods*. SAGE.

Muehlfeld, C., Windolf, P., Lampert, N., & Krueger, H. (1981). Auswertungsprobleme offener Interviews. *Soziale Welt, 32*(3), 325–352.

Navy, S. L. (2020). Theory of human motivation—Abraham Maslow. In B. Akpan & T. J. Kennedy (Eds.), *Science education in theory and practice* (pp. 17–28). Springer International Publishing. https://doi.org/10.1007/978-3-030-43620-9_2

OpenAI. (2023, March 14). *ChatGPT* (Mar 14 version) [Large language model]. https://chat.openai.com/

Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). SAGE

Publications.

Piaget, J. (1962). Comments by Jean Piaget. In E. Hanfmann & G. Vakar (Eds.), *Thought and language* (pp. 1–14). MIT Press. https://doi.org/10.1037/11193-008

Review lecture—The technology of teaching. (1965). *Proceedings of the Royal Society of London. Series B. Biological Sciences, 162*(989), 427–443. https://doi.org/10.1098/rspb.1965.0048

Rumjaun, A., & Narod, F. (2020). Social learning theory—Albert Bandura. In B. Akpan & T. J. Kennedy (Eds.), *Science education in theory and practice* (pp. 85–99). Springer International Publishing. https://doi.org/10.1007/978-3-030-43620-9_7

Sjöström, J., & Eilks, I. (2020). The Bildung theory—From von Humboldt to Klafki and beyond. In B. Akpan & T. J. Kennedy (Eds.), *Science education in theory and practice* (pp. 55–67). Springer International Publishing. https://doi.org/10.1007/978-3-030-43620-9_5

Spöhring, W. (1989). *Qualitative Sozialforschung* (Studienskripten zur Soziologie, Band 133). Teubner.

Tashakkori, A., & Teddlie, C. (1998). *Mixed methodology: Combining qualitative and quantitative approaches*. Sage.

Tashakkori, A., & Teddlie, C. (2010). *SAGE handbook of mixed methods in social & behavioral research* (2nd ed.). SAGE Publications. https://doi.org/10.4135/9781506335193

Verduin, J. R., & Clark, T. A. (1991). *Distance education*. Jossey-Bass Publishers.

Vygotsky, L. S. (1999). *Pedagogicheskaya psikhologiya* [Educational psychology]. Pedagogika-Press.

Wahl, D. (2023). Wirkungsvolle Lehr-Lern-Arrangements für den Weg vom Wissen zum Handeln. *Seminar, 31*, 69–83. https://doi.org/10.3278/sem2303w006

Wickham, H., & Grolemund, G. (2017). *R for data science: Import, tidy, transform, visualize, and model data* (1st ed.). O'Reilly.

Biographical Notes

Nataliia Dolgova is a doctoral student at Europa-Universität Flensburg, specializing in TVET research. Her work focuses on engineering teacher training, online education, and instructional design, exploring key factors that determine the effectiveness of online courses.

Profiles of VET Students Attending Apprenticeship Courses in Portugal: Educational Trajectories and Reasons to Enrol in VET

Doroftei, Alexandra
adoroftei@fpce.up.pt, University of Porto

Marques da Silva, Sofia
sofiamsilva@fpce.up.pt, University of Porto

Abstract

Context: The scientific literature produced on vocational education and training (VET) in Portugal, broadly describes young people in VET as being associated with educational trajectories characterised by school failure, dropout, and low socio-economic status measured by their parents' academic qualifications (Alves et al., 2001; Guerreiro & Abrantes, 2004; Neves et al., 1993; Neves & Figueiredo, 2007; Torres & Araújo, 2010). For other countries in Europe or beyond, the described characteristics of VET students are similar. Following that, the objective of this research was to address the following research questions: What were the educational trajectories of VET students attending Apprenticeship Courses (AC) in Portugal? How did those educational trajectories influence the enrolment in Apprenticeship Courses?
Methods: The study employs a qualitative methodology, focused on the analysis of 54 semi-structured interviews conducted with VET students from 23 different Apprenticeship Courses (corresponding to 16 areas of education and training), in nine training centres in northern Portugal. Analysis of the educational trajectories ideal-types was based on the work of Tomaszewska-Pękała and colleagues (2017). The analysis of the reasons for enrolling in AC was based on the work of Ryan and Lőrinc (2018).
Findings: The results point to diverse ideal types of educational trajectories of VET students. Nevertheless, the ideal types that gather more participants (35%) are the linear or smooth educational trajectories, meaning no school difficulties or risk factors, contradicting the idea that VET students were underachievers. Concerning the reasons for attending VET, there is a relatively even distribution of influence between wider contextual factors and individual preference, with relational influences being the least significant factor.
Conclusions: Studying the profile of VET students serves two purposes. The first is to acknowledge the heterogeneity of VET students. The second is to recognise that not all VET students have failed or dropped out of school. Therefore, it is evident that a transformation in the social prestige of VET is imperative to achieve greater equity in education so that VET can be a first option for all young people.

Keywords

apprenticeship courses, VET, Portugal, educational trajectories, qualitative methodology

1   Introduction

The scientific literature produced on vocational education and training (VET) in Portugal, broadly describes young people in VET as being associated with educational trajectories characterised by school failure, dropout, and low socio-economic status measured by their parents' academic qualifications (Alves et al., 2001; Guerreiro & Abrantes, 2004; Neves et al., 1993; Neves & Figueiredo, 2007; Torres & Araújo, 2010). For other countries in Europe or beyond, the described characteristics of VET students are similar (cf. Bruin et al., 2023; Chankseliani et al., 2016; Hyland, 2017; Pantea, 2020; Taylor et al., 2013). The social prestige of VET relies heavily on the representations about VET students (Doroftei & Silva, 2024). Consequently, we wanted to ascertain the profiles of VET students in order to evidence that they are not homogeneous, thereby contributing to the social valorisation of the VET track. Following that, this research addressed the following research questions: What were the educational trajectories of VET students attending Apprenticeship Courses (AC) in Portugal? How did those educational trajectories influence the enrolment in Apprenticeship Courses?

2   Theoretical framework

2.1 Typologies of Educational Trajectories

In their study about early school leaving (ESL), Tomaszewska-Pękała and colleagues (2017) defined six typologies of educational trajectories of youth at risk of ESL: boomerang, downward spiral, parabola, resilient route, shading out, unanticipated crisis. These typologies are considered useful for analysing the educational trajectories of VET students. The aforementioned typologies were adapted to align with the educational trajectories of the young participants in this study, suggesting ideal types, irrespective of their risk of or actual early leaving from education and training. The study of Tomaszewska-Pękała and colleagues (2017) defined the following typologies:

- Boomerang - an educational pathway that includes several exits and returns to the education and training system. These breaks can be due to various reasons, such as continuous dropouts, or expulsions for absences or dissatisfaction with the areas of study of the various courses attended.
- Downward spiral - difficult educational pathway, always getting worse, with various risk factors. Includes leaving the education and training system. Returning to the education and training system is usually due to the 'imposition' of the labour market.
- Parabola - educational pathway with difficulties and decreasing school commitment that, at a certain point, finds some support or situation that makes the young person interested in studying again.
- Resilient route - an educational pathway with several risk factors which are counterbalanced by protective factors. These are constantly present and are enough to keep the young person wanting to complete the 12th grade.
- Shading out – an educational pathway with small problems related to school performance not valued by school staff but that are gradually accumulating, leading to loss of motivation and school disaffection.
- Unanticipated crisis - an educational pathway that develops smoothly, without or with few risk factors, but is crossed by one or more moments of crisis that lead to a deterioration in the school situation, which can lead to dropping out.

It should be noted that the ideal types of educational trajectories relate to the education and training path of each young person until they enrolled in the AC they were attending at the time

of data collection, and are not profiles of the young people, i.e. profiles of personality, behaviour, life, etc. Grouping the young participants into ideal types is not intended to homogenise them into categories, because even those considered under the same ideal type have specific justifications for their position that may not coincide with the justifications of others in the same group. Furthermore, the characteristics of an ideal type may not all be concentrated in the same person. This construction only aims to systematise the variety of educational trajectories that these young people present and certainly does not encompass all the possible trajectories that young people attending AC in Portugal may have, which is in line with Max Weber's conceptualisation of the ideal-type, as Hendricks and Breckinridge Peters (1973, p. 39) put it: 'as Weber stated almost three quarters of a century ago, reality is hardly exhaustible, the establishment of order is obviously a selective process and can never be interpreted as a complete statement'.

2.2 Reasons to Enroll in VET

To gain insight into the motivations behind the decision to pursue VET, we build on the research conducted by Ryan and Lőrinc (2018) on the experiences of young people engaged in apprenticeships in England. The authors identified three primary interrelated factors influencing young people's enrolment in apprenticeships: "individual preference", "relational influences", and "wider contextual factors" (Ryan & Lőrinc, 2018, p. 6):

- Individual preference (IP) - refers to a choice for AC out of a desire to obtain specific training in a particular area of education and training that the course offers, or with a preference for practical learning, usually related to each young person's "learner identity".
- Relational influences (RI) - refers to attending AC under the recommendation and influence of family members, friends, teachers and/or other professionals or other adults of reference. Young people in this category may also refer their choice to the existence of family members or friends working in the same field of the course or who had previously attended the same course.
- Wider contextual factors (WCF) - refers to attending AC for reasons related to "structural constraints and political discourses". For example, in the options available to complete secondary education or in the labour market requirements when demanding the 12th grade as a minimum educational qualification for getting a job.

These categories are not mutually exclusive, and there are cases of young people being reported in more than one category, for example, relational influences and wider contextual factors.

3 Methods

The present study employs a qualitative methodology, focused on the analysis of 54 semi-structured interviews conducted with VET students from 23 different Apprenticeship Courses (corresponding to 16 areas of education and training), in nine training centres in northern Portugal. Table 1 presents some sociodemographic characteristics of the participants.

With regard to socio-economic status, the situation of the young people interviewed is in line with the literature on the subject (Alves et al., 2001; Cabrito, 1994; Neves et al., 1993; Neves & Figueiredo, 2007). These are families with low educational qualifications, the majority of whom, both mothers and fathers, have qualifications up to the 9th year of schooling.

The interviews were conducted in person by the first author and took place in quiet rooms at the training centres. Only the researcher and the interviewee were present. The interviews were audio recorded and fully transcribed with the permission of the participants. The first author transcribed all the interviews.

Table 1
Sociodemographic Characteristics of Participants Interviewed (N = 54)

Age			Gender		Year of AC attended		
Min	Max	Average	Female	Male	1st (grade 10)	2nd (grade 11)	3rd (grade 12)
17	26	21.1	21 (39%)	33 (61%)	1 (2%)	24 (44%)	29 (54%)

A script was designed based on literature review and a previous exploratory case study in a training centre. The script contained questions, probes and prompts. The following questions from the students' interview script were considered for analysis: *Tell me about your journey since you started school until now; Why are you attending an AC?; How did you hear about the course?; Have you taken any other VET courses?; Have you had any work experience?*

Content analysis (Bardin, 2011) of the responses to these questions was made with NVivo 12®, for two codes: educational trajectory, and reasons to enrol in AC (Table 2). The coding was conducted by the first author and debated with the second author. After analysing these codes, the participants' interviews were recoded into cases. Static sets were created in NVivo to aggregate the cases corresponding to the educational trajectories' typologies based on the work of Tomaszewska-Pękała and colleagues (2017) considered for analysis. The same process was used concerning the reasons for enrolling in AC, based on the work of Ryan and Lőrinc (2018).

The study observed the ethical standards of the SPCE (the Portuguese Society of Educational Sciences).

Table 2
Excerpt of the Codebook of the Interviews' Coding

Name	Files	References	Description
Educational trajectory	54	185	Questions about the educational trajectory prior to joining the AC
Reasons to enrol in Apprenticeship Courses	54	104	Questions about the reasons for joining AC and how young people found out about the course

4   Results and conclusions

Table 3 summarises the education and training trajectories and reasons for joining the AC for the young people interviewed. While each young person was assigned only one ideal type of educational trajectory, the dimension relating to the reasons for entering the AC may present, as already mentioned, more than one possibility.

The results point to diverse profiles of school trajectories of VET students. As the study of Tomaszewska-Pękała and colleagues (2017) was focused on educational trajectories that ended up in early school leaving, we found it necessary to add the following ideal types to fit the data collected:

- Kangaroo - an educational pathway that includes one or more changes of course or pathway without leaving the education or training system.
- Linear - A straightforward educational pathway without any problems or failures, including a direct transition between general education and the Apprenticeship Course (VET).
- Smooth - An unproblematic educational pathway, but which may include a year of school failure, with a direct transition between general education and the Apprenticeship Course (VET), or a brief absence (up to 3 months) from the education and training system.

Table 3

Ideal Types of Educational Trajectories

Ideal types of educational trajectories	Smooth	Downward spiral	Boomerang	Resilient route	Parabola	Unanticipated crisis	Linear	Kangaroo
N	10	3	7	6	12	2	9	5
Percentage	18%	6%	13%	11%	22%	4%	17%	9%

The data indicates that 19 VET students (35%) have linear or smooth educational trajectories, i.e. no school difficulties or risk factors. VET students with unanticipated crisis trajectories (2; 4%) also had school trajectories without risk factors, but moments of crisis caused them to change their trajectory. VET students with kangaroo trajectories (5; 9%) were dissatisfied with the areas of secondary education they were studying. They changed courses until they found their preferred area or were forced to finish the course due to their age (because of the age limits of VET-type modalities in Portugal). Students with boomerang-type trajectories (7; 13%), roughly speaking, were trying to enter or settle in the labour market and were making their way in and out of the education and training system until they also found themselves constrained by age or realising that they couldn't access the labour market without having completed secondary education. VET students with resilient trajectories (6; 11%) had various factors in their path that could have prevented them from obtaining secondary school certification, but they remained focused on this. VET students with parabola-type trajectories (12; 22%) always presented many difficulties and declining school performance, leaving the education and training system, but at some point, they found motivators that made them return. Finally, the three students with downward spiral trajectories (2; 6%) always had a lot of difficulty being in the school environment. They only returned to the education and training system because they could not get a job due to lacking an upper secondary education certificate.

Concerning the reasons for attending VET (Table 4), the findings converge with those of Ryan and Lörinc's study (2018). There is a relatively even distribution of influence between wider contextual factors (referred by 33 students) and individual preference (referred by 34 students), with relational influences (referred by 12 students) being the least significant factor, situated at a considerable distance from the other two. The wider contextual factors mentioned were essentially the pressure exerted by the labour market for having a certificate of upper secondary education, the failure of general schools to support them and socio-economic conditions. As for individual preference, there was a preference for the area of education and training that the course offers and a preference for a practical type of learning. Relational influences relate particularly to the influence of family members or friends who either recommend the course based on the young person's profile, work in the same occupation, or have studied at the same course or training organisation.

The analysis presented here concerns all the students that have participated in the study. For an analysis of the reasons to drop out of general education and enrolling in VET, concerning the participants who were once in the condition of early school leavers, please see Doroftei (2021).

Table 4

Reasons to Enrol in Apprenticeship Courses

Reasons to enrol in AC	WCF	IP	RI
N		33	34	12
Percentage		61%	63%	22%

Studying the profile of VET students serves two purposes. The first is to acknowledge the heterogeneity of VET students. The second is to recognise that not all VET students have failed or dropped out of school. Several students reported individual preferences for enrolment but also wider contextual factors. The problem lies in the fact that VET is not seen as a valid pathway for all young people, but as "something for those who do not have the cognitive skills to follow a 'normal curriculum' and who happen to be almost exclusively from the lower classes and ethnic-cultural minorities" (Alves, 2007, p. 64). It is thus evident that a transformation in the social prestige of VET is imperative to achieve greater equity in education (Baker et al., 2004) so it can be a first option for all young people. In order to improve the social image of vocational education, the participants consider that, among other suggestions, it would be pertinent and necessary to focus on publicising the advantages of this route and the students' abilities, clearing up their social image as less capable. Therefore, vocational education needs to be publicly valued, identifying its advantages, increasing the quality of its curricula, attracting young people who are not just those immediately identified with this route, and reducing public references (particularly in the media) that induce negative images about this type of education. In addition, it would be important to extend access to career guidance provided by psychologists to help students in the 9th grade choose a school and an area of study for secondary education. We suggest that career guidance should take place outside educational institutions, in order to ensure that psychologists are independent of the school where the students are enrolled. This could help to avoid any bias in the guidance of young people, in the sense of leading them to follow educational paths that coincide with the educational offers of the school they attend, a situation pointed out in other parts of this study.

References

Alves, N. (2007). E se a melhoria da empregabilidade dos jovens escondesse novas formas de desigualdade social? *Sísifo. Revista de Ciências da Educação*, *2*, 59–68. https://www.researchgate.net/publication/28156803

Alves, N., Almeida, A. J., Fontoura, M., & Alves, P. (2001). *Educação e formação: Análise comparativa dos subsistemas de qualificação profissional de nível III*. Observatório do Emprego e Formação Profissional.

Baker, J., Lynch, K., Cantillon, S., & Walsh, J. (2004). *Equality: From theory to action*. Palgrave Macmillan. https://doi.org/https://doi.org/10.1057/9780230508088

Bardin, L. (2011). *Análise de conteúdo* (4ª). Edições 70.

Bruin, M., Tutlys, V., Ümarik, M., Loogma, K., Kaminskiené, L., Bentsalo, I., Väljataga, T., Sloka, B., & Buligina, I. (2023). Participation and learning in Vocational Education and Training - A cross-national analysis of the perspectives of youth at risk for social exclusion. *Journal of Vocational Education and Training*, *00*(00), 1–22. https://doi.org/10.1080/13636820.2023.2283745

Cabrito, B. G. (1994). Formações em Alternância: Conceitos e práticas. In A. Nóvoa (Ed.), *Educa-Formação* (Issue 2). Educa.

Chankseliani, M., Relly, S. J., & Laczik, A. (2016). Overcoming vocational prejudice: How can skills competitions improve the attractiveness of Vocational Education and Training in the UK? *British Educational Research Journal*, *42*(4), 582–599. https://doi.org/10.1002/berj.3218

Doroftei, A., & Silva, S. M. da. (2024). Representations that society builds about Vocational Education: Perspectives of stakeholders involved in Portuguese Apprenticeship Courses. *Revista de Investigación Educativa*, *42*(1), 15–32. https://doi.org/10.6018/rie.547481

Doroftei, A. (2021). Do ensino regular aos cursos de aprendizagem: Percursos de saída e de retorno ao sistema de educação e formação. *Educação, Sociedade & Culturas*, *60*, 93–115. https://doi.org/https://doi.org/10.24840/esc.vi60.364

Guerreiro, M. D., & Abrantes, P. (2004). *Transições incertas: Os jovens perante o trabalho e a família* (CITE (ed.); Issue 2). DGEEP.

Hendricks, J., & Breckinridge Peters, C. (1973). The ideal type and sociological theory. *Acta Sociologica*, *16*(1), 31–40.

Hyland, T. (2017). Craft working and the "hard problem" of Vocational Education and Training. *Open Journal of Social Sciences*, *5*, 304–325. https://doi.org/10.4236/jss.2017.59021

Neves, A. O. das, & Figueiredo, A. (Coords.) (2007). Estudo de avaliação do Sistema de Aprendizagem - Relatório final Vol. 1 (Vol. 1). IEFP.

Neves, A. O. das, Pedroso, P., & Matias, N. (1993). O Sistema de Aprendizagem em Portugal. Experiência de avaliação crítica. In *Estudos* (Vol. 10). IEFP.

Pantea, M.-C. (2020). Perceived reasons for pursuing Vocational Education and Training among young people in Romania. *Journal of Vocational Education & Training*, *72*(1), 136–156. https://doi.org/10.1080/13636820.2019.1599992

Ryan, L., & Lőrinc, M. (2018). Perceptions, prejudices and possibilities: Young people narrating apprenticeship experiences. *British Journal of Sociology of Education*, 1–16. https://doi.org/10.1080/01425692.2017.1417821

Taylor, A., Lehmann, W., & Raykov, M. (2013). "Should I stay or should I go?" Exploring high school apprentices' pathways. *Journal of Education and Work*, 1–25. https://doi.org/http://dx.doi.org/10.1080/13639080.2014.887199

Tomaszewska-Pękała, H., Marchlik, P., & Wrona, A. (2017). Finding inspiring practices on how to prevent ESL and school disengagement. Lessons from the educational trajectories of youth at risk from nine EU countries. University of Antwerp.

Torres, L. L., & Araújo, M. (2010). O Sistema de Aprendizagem em alternância – Alternativa ou mais do mesmo? In *Actas do X Congresso Luso-Afro-Brasileiro de Ciências Sociais* (pp. 1215–1231). Universidade do Minho. https://doi.org/http://repositorium.sdum.uminho.pt/handle/1822/10093

Biographical Notes

Alexandra Doroftei is a researcher at the Centre for Research and Intervention in Education (CIIE) of the University of Porto. Her work has been focused on Vocational Education and Training, particularly in the scope of Social Justice.

Sofia Marques da Silva is the head of the Department of Education Sciences of the Faculty of Psychology and Education Sciences of the University of Porto and member of the research team of CIIE. Her work has been focused mainly on Youth Studies.

Incorporating Intercultural Competencies into Vocational Education and the Impact on Integration in Germany

Drexler, Alexandra
alliedrexler@gmail.com, University of Oxford

Abstract

Context: This research paper investigates the integration of intercultural education practices within Germany's vocational education system, specifically focusing on retail, hospitality, and gastronomy sectors. It highlights the importance of vocational schools (*Berufsschulen*) in equipping students with essential workforce skills, while also addressing barriers such as cultural differences and lack of intercultural competencies that hinder migrants' successful integration into German society and all students' integration into the workforce.
Approach: The study seeks to explore how established theoretical frameworks, including Bennett's Developmental Model of Intercultural Sensitivity, UNESCO's Global Citizenship Education Framework, and Culturally Relevant/Sustaining Pedagogy, can inform the development of an inclusive intercultural curriculum. The curriculum and theoretical approaches will be analysed to identify areas of compatibility with vocational education.
Findings: Germany has made some efforts to promote intercultural education in vocational education, but these remain superficial and politically driven, often framed as global citizenship. To strengthen vocational education, established theories should be integrated into the curriculum. Bennett's Developmental Model of Intercultural Sensitivity offers a practical framework with adaptable recommendations. Additionally, integrating Culturally Relevant/Sustaining Pedagogy into teacher training could help address integration struggles, reduce discrimination, support educators in managing diverse classrooms and ease the incorporation of intercultural teaching methods into the curriculum.
Conclusion: By focusing on the needs of all vocational students this research fosters more equitable and effective vocational education that benefits both migrant and local students, remains realistic for teachers, while also addressing Germany's pressing labour market demands. The paper advocates for systemic changes beyond superficial curriculum updates, emphasising the necessity of embedding intercultural competencies into vocational training to prepare all students for a culturally diverse workforce.

Keywords

intercultural competencies, curriculum, integration, vocational education

1   Introduction and Research Questions

For decades Germany has struggled to integrate migrants into the workforce and adapt quickly to international global trends (Funk, 2018). The integration of migrants into vocational education systems presents both challenges and opportunities for some of Germany's key issues

such as filling the gaps in the workforce and internationalising the German economy. Vocational schools (*Berufsschulen*) play a crucial role in equipping students with the skills required; however, many migrants face additional barriers including cultural differences, language challenges, and a lack of representation in the curriculum (Bergseng et al, 2019). Furthermore, German students are not properly equipped with the intercultural skills necessary for excelling in a globalised workplace. This research seeks to explore how intercultural education practices can enhance the curriculum and which pedagogical approaches can best address these challenges in vocational education to ensure successful integration into the German workforce.

Three key vocational fields: retail (*Verkauf)*, hospitality (*Hotellerie*), and gastronomy (*Gastronomie*), will be the focus of the curriculum analysis. They are among the most popular fields for migrant students in Germany, especially hospitality and gastronomy. Furthermore, retail is especially struggling under significant labour shortages (Bundesinstitut für Berufsbildung, 2022, 2024; Burstedde & Tiedemann, 2024; Kroll, 2022). These fields are characterised by significant migrant representation resulting in intercultural classrooms. The frequent interactions with international customers and clients make intercultural skills also relevant for the workplace and to all students in these careers. By focusing on retail, hospitality, and gastronomy, this study addresses the needs of high-demand vocational fields. However, the insights gained can be applied to diverse vocational education contexts.

The research will address the following questions:

1. How can concepts from the Developmental Model of Intercultural Sensitivity (Bennett, 1993), Global Citizenship Education Framework (UNESCO, 2015; 2022), and Culturally Relevant Pedagogy (Ladson-Billings, 1995; 2014) inform the development of an intercultural curriculum in vocational schools in Germany?
2. What aspects of these frameworks are most adaptable to the specific needs and structure of vocational education?
3. How do current policies and practices in the vocational education curriculum align with or diverge from these concepts?

The second part of the research, which will follow in spring/summer 2025, will incorporate additional perspectives from administrators, teachers and students to apply the theoretical insights to real-world experiences. Ultimately, this research aims to offer actionable recommendations for integrating intercultural education practices into vocational education curricula in Germany to address the needs of migrant students and the market by enhancing intercultural competencies across all learners.

1.1 Conceptual and Theoretical Framework

As Ladson-Billings says changes in pedagogy need to be grounded in theory to not only provide an explanation of what happens, but why it happens (2014). The results produced from this study will benefit from deeper theoretical exploration on why things happen first, which will then inform what should happen. This research is grounded in three theoretical perspectives:

Developmental Model of Intercultural Sensitivity: Bennett identifies a continuum on which intercultural sensitivity and the associated competencies can be tracked. The key stages are denial, defense, minimisation, which belong to the ethnocentric category, and acceptance, adaptation, and integration, which belong to the ethnorelative category. By understanding the obstacles between the stages and the experiences that encourage movement, Bennett provides a clear path for increasing cultural awareness, understanding, and adjustment (Bennett, 1993; 2009; 2017).

Global Citizenship Education Framework (UNESCO): UNESCO's framework promotes the development of skills, values, and attitudes necessary for individuals to navigate and contribute to an increasingly interconnected world (UNESCO, 2015). The goal is to cultivate knowledge, critical thinking, and understanding of global, regional, and local issues; foster a sense of belonging, empathy, and respect for diversity; and encourage responsible action at local, national, and global levels for a more peaceful and sustainable world.

Culturally Relevant Pedagogy (CRP) and Culturally Sustaining Pedagogy (CSP): This framework focuses on using students' cultural backgrounds as assets in teaching and learning. By fostering academic success, cultural competence, and critical consciousness, it provides a lens for creating more inclusive and equitable education practices (Ladson-Billings, 2014). Culturally relevant pedagogy has been more recently expanded to Culturally Sustaining Pedagogy, which emphasises educational practices that do not just relate to cultures represented in a class but actively contributes to the growth and recognition of cultures (Paris, 2012).

The analysis of these frameworks will guide the recommendations for how vocational education curricula can be adapted to enhance the learning and teaching of intercultural competencies in vocational schools. This research is unique because of its focus on compatibility with vocational education curriculum and effectiveness for improving the experience of migrants and local German students in a more comprehensive approach. Improvements in these competencies can have overarching benefits that go beyond the classroom and into the German economy (Georgescu et al., 2018, Chapter 4). Therefore, while the perspective of migrants in research on the incorporation of intercultural competencies is key, all teachers, employers, and local students should be just as invested in improving their intercultural competencies.

2 Defining the Terms

To establish the terminology used in this article I have defined key terms and explained the logic for using these specific terms:

2.1 Intercultural

The goal of this research is to improve the intermingling and collaboration of cultures. Therefore, I have chosen to utilise the term intercultural instead of multi- or cross-cultural. Intercultural captures the idea of the fluidity of culture and interconnectedness of peoples (Georgescu et al., 2018, Chapter 4; Yerschova et al., 2000). Multicultural tends to focus on a static representation of multiple cultures and their coexistence. This fails to fully acknowledge the effects of cultures interacting with each other and the process of adaptation from separate cultures to a new mixed culture and everything in between.

2.2 Competencies

In the study of intercultural education there is a strong focus on communication skills, especially in early literature (Spitzberg & Cupach 1984; Yershova et al., 2000). German initiatives also often tie intercultural skills to language learning (Bergseng et al., 2019). These approaches limit the knowledge, perspectives and skills needed in intercultural learning to a narrow scope. This research will focus on a broader range of intercultural competencies beyond language and communication. The Council of Europe's definition of competencies is key to this perspective: "Competence is the ability to mobilise and deploy relevant values, attitudes, skills, knowledge and/or understanding in order to respond appropriately and effectively to the demands, challenges and opportunities that are presented by a given type of context" (Council of Europe, 2024, p. 15).

2.3 Vocational Education

Germany has some of the highest rates of enrollment in vocational education at about 40 percent of the population (Eurydice, 2024). Vocational education in Germany is designed to prepare students for careers in over 300 jobs through a practice-oriented curriculum. This study will focus primarily on Germany's dual vocational education system. The dual system requires students to attend classes at a vocational school known as a *Berufsschule* and take part in on-the-job training to apply the skills they learn in the classroom.

This system has the added benefit of allowing students to learn in a variety of environments with opportunities to directly apply knowledge. However, this is also an added challenge for a pedagogical approach that must address needs inside the classroom and at the workplace. The *Rahmenlehrpläne* (curriculum in schools) and *Ausbildungsordnungen* (training regulations for the workplace) are the established guidelines for teachers and employers in the dual vocational system and will be used to analyse the curriculum of the three chosen fields. Unless specifically stated, when discussing curriculum both the *Rahmenlehrpläne* and the *Ausbildungsordnungen* are relevant in this research.

In Germany, contrary to the regional curriculum in schools geared toward an academic path known as "*Gymnasium*", the curriculum of vocational schools is unified at the national level by the Federal Institute for Vocational Education (*BIBB*) in cooperation with state agencies. However, states can still mandate additional curriculum and the structure of the schools and lessons.

2.4 Migrants vs "Local" Students

Migrants will be defined as non-German citizens who have come to Germany with long-term settlement plans, including refugees and asylum seekers. German should not be their first native language. Local German students will be identified as students with German as their first and native language, who attended all levels of schooling in Germany, and with German citizenship. While these definitions do not allow for some of the nuances of Germany's multicultural society and the struggles with obtaining citizenship, they are effective at identifying specific demographics and their unique experiences.

While migrants who have fully integrated into Germany and have lived in Germany for decades, may see themselves as "German" they still hold a multicultural background and will likely not have German citizenship. Even second-generation migrants may not have German citizenship due to Germany's previously strict citizenship laws that were based on the citizenship of your parents, not your residence or place of birth. This is yet another hurdle for integrating migrants.

2.5 Integration

The integration of migrants in Germany is measured through different statistics ranging from participation and achievement in education to employment to language abilities. Since the focus of this study is integration through vocational schools, completion rates at the varying levels of vocational study were key to identify trends.

Vocational students without German citizenship are 13% less likely to complete their vocational education than their German peers, with the gap widening to nearly 20% for students from asylum-seeking countries (Bundesinstitut für Berufsbildung, 2024; Kroll, 2022). This highlights broader integration challenges that extend beyond vocational curricula. However, curriculum plays a crucial role in shaping both completion rates and integration by establishing the standards against which all students, not just migrants, are assessed. In vocational education, successful completion goes beyond mastering competencies and learning objectives, it also requires navigating bureaucratic processes and integrating into the workplace (Bergseng et al.,

2019). As such, completion rates serve as a meaningful indicator of a migrant's overall integration into the education system and labour market.

3   Current State of Affairs

Starting in 2015 an increased influx of migrants, mainly from the Middle East, came to Europe hoping to escape violence and poverty. Then Chancellor Angela Merkel openly encouraged immigration and welcomed immigrants into Germany (Korntheuer, 2018). Germany's need for additional labour to fill the gaps created by the ageing population certainly played a role in not just welcoming the migrants, but also efforts to integrate them into the education system and guide them specifically towards vocational education (Bergseng et al., 2019). This led to progress in improving access to education and dozens of government and NGO programs to support migrants on their journey through Germany's infamous bureaucracy and establish lives in a new culture. Over a decade later, best practices for integrating migrants need to be fully incorporated into German education. Relying on supplementary programs and the goodwill of those on the frontlines, like teachers, is not an effective long-term plan. Therefore, sustainable changes, such as improving the curriculum, are essential to ensure the success of Germany's integration efforts.

3.1 Training Areas: Retail, Hospitality, and Gastronomy

According to a study by the German Economic Institute (IW), Germany is expected to face a shortage of 728,000 skilled workers by 2027. The most affected sectors include retail, with approximately 37,000 unfilled positions (Burstedde & Tiedemann, 2024). The study also emphasises the need to improve the integration of foreign professionals into the workforce.

Retail, hospitality and gastronomy are all customer-facing careers, which require many interpersonal skills. Their vocational curricula reflect this by covering competency categories such as professional representation, customer service, reception duties, marketing, sales, and event organisation. In 2022, the hospitality and gastronomy sectors underwent curriculum updates to reflect changing skill demands, particularly by adding learning objectives for digitalisation and sustainability, whereas the retail curriculum has remained unchanged since 2017 (Bundesministerium für Wirtschaft und Energie, 2017, 2022; Sekretariat der Ständigen Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland, 2017, 2021).

Notably, all three sectors include explicit sections in the curriculum on sustainability but assign no specific time for the teaching of these subjects. However, even with the recent updates to the hospitality and gastronomy curriculum (Bundesinstitut für Berufsbildung, 2022), intercultural competencies are absent from all three curricula. Instead, they appear only in the introductory statement expressing expectations of high levels of "intercultural communication skills". The addition of "intercultural communication skills" only in the introductory remarks highlights a lack of interest in comprehensive change and only surface-level efforts.

4   Addressing the Theoretical and Achievement Gap

While the achievement gap between migrants and German students is widely researched. The blame is often assigned to factors external to education itself, like access, socio-cultural differences, and language barriers. This ignores the numerous possibilities for improving education to mitigate societal problems and fails to recognise education's role in contributing to the challenges (Ladson-Billings, 2006). There is also a significant gap in the application of theory in vocational education research (McGrath et al., 2022). I hope to bridge not only the achievement gap but also the theory gap through this research.

My approach also aligns with Allemann-Ghionda's (2010) emphasis on the different spheres of focus needed to make systemic changes: (1) education theory, represented by the

intercultural education theories chosen; (2) education policy, represented by the existing policy recommendations and curricula; and (3) education practice, which includes concrete examples for integration and will be further explored in part two of the research. If Germany truly wants to fill the gaps in its workforce, as stated in the introductory remarks of the new hospitality and gastronomy curricula (Sekretariat der Ständigen Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland, 2021), then it must be ready to make deeper and holistic changes to the curriculum.

When incorporating intercultural education into curricula, subjects such as history, languages and the arts seem to be the most logical choices, since this is where culture is commonly encountered in school (Georgescu et al., 2018, Chapter 5). These subjects are a very minimal part of vocational education, which tends to focus more on hard skills and job-related themes. Therefore, to incorporate intercultural education into vocational education, additional creativity is required to integrate these theoretical approaches.

4.1 Developmental Model of Intercultural Sensitivity:

A strength of Bennett's continuum is its ability to analyse different approaches, while also providing its own framework (Bennett, 2009; 2017). For instance, when intercultural education is integrated into vocational schools there are two common forms. One is to assist migrants to assimilate often by moving them into separate classes for language help and lessons on German culture. This form falls under Bennett's continuum in the defense stage because it isolates cultures and promotes the adoption and protection of the host culture. The second common approach focuses on encouraging German students to understand the foreign cultures present in their classes, stepping into the acceptance stage. This approach can also belittle and isolate migrant students, while still providing inadequate lessons to the local students (Allemann-Ghionda, 2004).

These examples highlight the current state of intercultural education in vocational education. Using Bennett's continuum there are many possible changes that can be made to elevate vocational education to promote more ethnorelative approaches. I suggest aligning the progression of the curriculum with the development stages. It is also key to be intentional about naming intercultural competencies and prioritising time for the teaching of these skills in the curriculum. For example, in the category focused on guest experience (Bundesministerium für Wirtschaft und Energie, 2022, pg. 324, 336, 362, 369, 378), which is the only place where culture is referenced in the learning outcomes, there can be competencies associated with adaption and integration added to each year. The first year should be focused on adapting to different cultural scenarios and reacting intuitively to the preferences of international guests. The second year should require integration into a different culture's workplace and/or the integration of international approaches into German standards of service. This approach is more holistic and integrated than the sections added on for sustainability and digitalisation (pg. 334, 346, 367, 376, 385).

4.2 Global Citizenship Education

The integration of intercultural competencies into vocational education is strongly supported by international political institutions, such as UNESCO, OECD, and the EU. Each of these organisations has released several reports and policy recommendations; however, most focus on global citizenship, which closely relates to intercultural competencies and focuses on cognitive, socio-emotional and behavioural learning (Council of Europe, 2024; OECD, 2023; UNESCO, 2015). These frameworks take a political approach by proposing the application and

acquisition of skills through student government and connecting competencies to civic engagement. Furthermore, the recommendations are formulated through input from policymakers and practitioners without presenting a strong theoretical foundation.

There are advantages to this more political approach. It resonates well with policymakers and fits neatly into political agendas. The frameworks and recommendations are also very clearly formulated for practitioners and provide extensive practical resources (Council of Europe, 2024; OECD, 2023; UNESCO, 2022). On the other hand the focus on citizen engagement and politics risks isolating non-citizens and others unable or unwilling to participate in political discussions, particularly in a country where citizenship has historically been difficult to obtain and those without it fear of repercussions for speaking out and speaking their opinions (Ten Dam & Volman, 2003). This limitation could alienate a significant portion of the student body.

Finally, vocational education is influenced not only by educational experts but also by market representatives. To gain their support, the benefits of intercultural competencies must be framed in terms of their tangible business value. Arguing for skills related to global citizenship may not resonate with stakeholders, whose primary concern is economic performance (Council of Europe, 2024). Hence, the focus should shift towards the workplace relevance of intercultural competencies, demonstrating their contribution to improving team dynamics, customer relations, and organizational efficiency.

4.3 Cultural Relevant Pedagogy (CRP) or Culturally Sustaining Pedagogy (CSP)

CRP and CSP provide critical perspectives for understanding how vocational education curricula can incorporate intercultural competencies. Drawing from Ladson-Billings' (2014) discussion of African American students in the United States, vocational education in Germany faces a similar challenge: migrants are often framed in policy and media narratives as deficient rather than recognised for the diverse skills and knowledge they bring. Ladson-Billings also argues that when educational improvements target marginalised groups, they often lead to benefits for all students. This aligns with the assumption that intercultural competencies should not be framed solely as a tool for migrant integration but as a critical skill set that benefits all vocational students, particularly those entering customer-facing careers.

Ladson-Billings (2014) also critiques the "achievement gap" narrative, arguing that the issue is "education debt," highlighting the responsibility of institutions to address longstanding inequities rather than focusing solely on student deficits. This perspective encourages curriculum changes instead of problematising migrants' abilities like language disparities. By integrating CRP/CSP, vocational curricula can promote cultural fluidity, encouraging students to not just memorise facts, but also develop critical thinking skills and global identities. This can be accomplished by prioritising understanding different perspectives of customers and the changing market.

For example, in all three vocations marketing and market analysis are important topics. A CSP approach would require the development of marketing strategies that speak to and empower culturally different potential customers. This goes beyond superficial advertisements targeting specific religious holidays. Instead, marketing campaigns should include inclusive language and adapt to diverse needs. These skills and perspectives must be carefully taught.

While the benefits of CRP/CSP in vocational education are clear, its implementation presents challenges. One concern is its connection to critical race theory, which has been politicised and stigmatised in various educational contexts (Welton et al., 2023). Additionally, if not carefully applied, CRP/CSP can risk isolating cultural groups rather than fostering meaningful integration (Paris, 2012). For vocational education, this means ensuring that intercultural competencies are not taught in a way that reinforces cultural division but instead prepares students to navigate diverse workplaces with confidence and mutual respect. Addressing these challenges requires careful curriculum design, educator training, and a commitment to fostering

intercultural competencies. Therefore, this theoretical perspective should be integrated into teacher training. Incorporating CRP/CSP into teacher training could help address integration struggles, reduce discrimination, support educators in managing diverse classrooms and ease the integration of intercultural teaching methods (Paris, 2012).

5 Conclusion

To effectively incorporate intercultural competencies, vocational education should draw on well-established theoretical frameworks. Bennett's Developmental Model of Intercultural Sensitivity provides a practical roadmap for understanding how individuals progress, recognising the barriers that hinder this progression and designing curricula that facilitate movement through these stages. This structure appears to be the most applicable to vocational education's stages of learning and skills-based approach.

CRP/CSP also provide a crucial lens for making vocational education more inclusive, equitable and intercultural (Ladson-Billings, 2014). However, their focus on pedagogy and critical approach lend themselves better to changes at the teacher training level. This in combination with Bennett's approach integrated into the student curricula would represent powerful change at multiple levels of the education system.

UNESCO's Global Citizenship Education Framework (GCE) is more often used to emphasise the development of skills, values, and attitudes necessary for individuals to engage with our interconnected world by governments and international organisations. Even though there are numerous recommendations for integration in vocational education curricula and teaching, it lacks the applicability to the workplace skills approach of vocational education. Finally, its isolating language can alienate migrants and others who feel abandoned by politics.

Curriculum changes can set the course for widespread improvements; however, sustainable change relies on many connecting factors. As I move forward in this research the key will be to analyse a theory of change (Weiß, 2001) to ensure that the theoretical curriculum developments proposed are practical and lead to further improvements in the experience of migrants, the intercultural competencies of all vocational education students and ultimately a stronger intercultural German economy. The first step is important: Germany needs to equip students with the tools and skills to become adaptable, empathetic, and globally competent professionals, who actively contribute to a future that values cultural plurality over conformity.

References

Allemann-Ghionda, C. (2004). Interkulturalität und Internationalität im Curriculum – vom theoretischen Postulat zur Institutionalisierung?. *Zeitschrift für Pädagogik, 50*(6), 798–802. https://www.pedocs.de/volltexte/2011/4840/pdf/ZfPaed_2004_6_AllemannGhionda_Interkulturalitaet_und_Internationalitaet_im_Curriculum_D_A.pdf

Allemann-Ghionda, C. (2010). Comments on intercultural education in German guidelines and curricula. In C. A. Grant & A. Portera (Eds.), *Intercultural and multicultural education: Enhancing global interconnectedness* (pp. 49–68). Taylor & Francis. https://doi.org/10.4324/9780203848586

Bennett, M. J. (1993). Towards ethnorelativism: A developmental model of intercultural sensitivity. In R. M. Paige (Ed.), *Education for the intercultural experience* (2nd ed., pp. 21–71). Intercultural Press.

Bennett, M. J. (2009). Defining, measuring, and facilitating intercultural learning: A conceptual introduction to the intercultural education double supplement. *Intercultural Education, 20* (S1–2), S1–S13. https://doi.org/10.1080/14675980903370763

Bennett, M. J. (2017). Developmental model of intercultural sensitivity. In Y. Y. Kim (Ed.), *The international encyclopedia of intercultural communication* (1st ed., pp. 1–10). Wiley. https://doi.org/10.1002/9781118783665.ieicc0182

Bergseng, B., Degler, E., & Lüthi, S. (2019). *Unlocking the potential of migrants in Germany.* Organization for Economic Cooperation & Development. http://ebookcentral.proquest.com/lib/oxford/detail.action?docID=30229324

Bundesinstitut für Berufsbildung. (2022). Die neuen 7 – Eine Branche voller Chancen. BIBB. Retrieved November 25, 2024, from https://www.bibb.de/de/pressemitteilung_154421.php

Bundesinstitut für Berufsbildung. (2024). Datenreport zum Berufsbildungsbericht 2024: Informationen und Analysen zur Entwicklung der beruflichen Bildung. https://www.bibb.de/datenreport/de/189191.php

Bundesministerium für Wirtschaft und Energie. (2017). Verordnung über die Berufsausbildungen zum Verkäufer und zur Verkäuferin sowie zum Kaufmann im Einzelhandel und zur Kauffrau im Einzelhandel (Verkäufer- und Einzelhandelskaufleuteausbildungsverordnung – VerkEHKflAusbV), vom 13. März 2017. https://www.bibb.de/dienst/berufesuche/de/index_berufesuche.php/profile/apprenticeship/110815

Bundesministerium für Wirtschaft und Energie. (2022). Verordnung zur Neuordnung der Ausbildung in den Hotel- und Gastronomieberufen Vom 9. März 2022. https://www.bibb.de/dienst/berufesuche/de/index_berufesuche.php/profile/apprenticeship/110815

Burstedde, A., & Tiedemann, J. (2024, August 9). 2027 fehlen 728.000 Fachkräfte in Deutschland. *Institut der deutschen Wirtschaft.* Retrieved November 24, 2024, from https://www.iwkoeln.de/presse/pressemitteilungen/alexander-burstedde-jurek-tiedemann-2027-fehlen-728000-fachkraefte-in-deutschland.html

Council of Europe. (2024). Reference framework of competences for democratic culture (RFCDC): Guidance document for vocational education and training. Council of Europe Publishing. https://www.coe.int/en/web/reference-framework-of-competences-for-democratic-culture/-/review-of-the-implementation-of-the-council-of-europe-reference-framework-of-competences-for-democratic-culture-rfcdc-2023

Eurydice. (n.d.). Germany – Secondary and post-secondary non-tertiary education. European Education and Culture Executive Agency. https://eurydice.eacea.ec.europa.eu/national-education-systems/germany/secondary-and-post-secondary-non-tertiary-education

Funk, N. (2016). A spectre in Germany: refugees, a 'welcome culture' and an 'integration politics.' *Journal of Global Ethics,* 12(3), 289–299. https://doi-org.ezproxy-prd.bodleian.ox.ac.uk/10.1080/17449626.2016.1252785

Georgescu, M., Nestian Sandu, O., Lyamouri-Bajja, N., Surian, A., Titley, G., & Gomes, R. (2018). T-KIT 4: Intercultural learning. Council of Europe. https://pjp-eu.coe.int/documents/42128013/47262514/Ch2.pdf

Korntheuer, A., Gag, M., Anderson, P., & Schroeder, J. (2018). Education of refugee-background youth in Germany: Systemic barriers to equitable participation in the vocational education system. In S. Shapiro, R. Farrelly, & M. J. Curry (Eds.), *Educating refugee-background students: Critical issues and dynamic contexts* (pp. 191–207). Multilingual Matters. https://doi.org/10.21832/9781783099986-017

Kroll, S. (2022) Ausländische Auszubildende in der dualen Berufsausbildung nach Ausbildungsberufen/Berufsgruppierungen, Deutschland 2021 und 2022. *Berufsbildungsstatistik der statistischen Ämter des Bundes und der Länder*. Datensystem Auszubildende (DAZUBI). https://www.bibb.de/de/1868.php

Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. American Educational Research Journal, 32(3), 465–491. http://links.jstor.org/sici?sici=0002-8312%2819923%2932%3A3%3C465%3ATATOCR%3E2.0.CO%3B2-4

Ladson-Billings, G. (2006). From the Achievement Gap to the Education Debt: Understanding Achievement in U.S. Schools. *Educational Researcher, 35(7)*, 3–12. https://doi.org/10.3102/0013189X035007003

Ladson-Billings, G. (2014). Culturally relevant pedagogy 2.0: A.k.a. the remix. *Harvard Educational Review*, 84(1), 74–84. https://doi.org/10.17763/haer.84.1.p2rj131485484751

McGrath, S., Powell, L., Alla-Mensah, J., Hilal, R., & Suart, R. (2022). New VET theories for new times: The critical capabilities approach to vocational education and training and its potential for theorising a transformed and transformational VET. Routledge, Taylor & Francis. https://doi.org/10.1080/13636820.2020.1786440

OECD. (2023). Building future-ready vocational education and training systems. OECD. https://doi.org/10.1787/28551a79-en

Paris, D. (2012). Culturally Sustaining Pedagogy: A Needed Change in Stance, Terminology, and Practice. *Educational Researcher, 41(3),* 93–97. https://www.jstor.org/stable/41477769

Sekretariat der Ständigen Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland. (2021). Rahmenlehrplan für die Ausbildungsberufe Hotelfachmann und Hotelfachfrau sowie Kaufmann für Hotelmanagement und Kauffrau für Hotelmanagement (Beschluss der Kultusministerkonferenz vom 17.12.2021). https://www.kmk.org/fileadmin/Dateien/pdf/Bildung/BeruflicheBildung/rlp/Hotel-EL-21-12-17_01.pdf

Sekretariat der Ständigen Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland. (2016). Rahmenlehrplan für die Ausbildungsberufe Kaufmann im Einzelhandel und Kauffrau im Einzelhandel, Verkäufer und Verkäuferin. https://www.kmk.org/fileadmin/pdf/Bildung/BeruflicheBildung/rlp/KfmEinzelhandelVerkaeufer04-06-17idF16-09-16-E.pdf

Spitzberg, B. H., & Cupach, W. R. (1984). *Interpersonal communication competence*. Sage Publications.

Ten Dam, G. T. M., & Volman, M. L. L. (2003). A life jacket or an art of living: Inequality in social competence education. *Curriculum Inquiry, 33(2)*, 165-186. Blackwell Publishing. https://doi.org/10.1111/1467-873X.00235

UNESCO. (2015). Global citizenship education: Topics and learning objectives.

https://doi.org/10.54675/DRHC3544

UNESCO. (2022). Transforming technical and vocational education and training for successful and just transitions: UNESCO strategy 2022–2029. United Nations Educational, Scientific and Cultural Organization. https://unesdoc.unesco.org/ark:/48223/pf0000382350

Yershova, Y., DeJaeghere, J., & Mestenhauser, J. (2000). Thinking not as usual: Adding the intercultural perspective. *Journal of Studies in International Education, 4(1)*, 39–78. https://doi.org/10.1177/102831530000400105

Weiss, C. H. (2001). Theory-based evaluation: Theories of change for poverty reduction programs. In O. N. Feinstein (Ed.), *Evaluation and poverty reduction* (1st ed.). Routledge. https://doi.org/10.4324/9781351325325

Welton, A., Diem, S., & Lent, S. (2023). Let's face it, the racial politics are always there: A critical race approach to policy implementation in the wake of anti-CRT rhetoric. *Education Policy Analysis Archives, 31*. https://doi.org/10.14507/epaa.31.7694

Biographical Notes

Alexandra Drexler is currently studying at the University of Oxford for her MSc in Comparative and International Education. She is also an assistant director at Cultural Vistas in Berlin, Germany, managing exchange programs for young professionals.

Are Degree Apprenticeships Widening Participation to Higher Education and Higher-Level Roles for Under-Represented Groups?

Emms, Katherine
kemms@edge.co.uk, Edge Foundation

Laczik, Andrea
alaczik@edge.co.uk, Edge Foundation

Abstract

Context: Degree apprenticeships (DAs) were introduced in 2015 in England, making them a relatively new addition to the vocational education and training system, and the higher education system in England. A degree apprentice is an employee where they spend the majority of their time, complemented by the off-the-job training offered by an education and training provider. The focus of this project is to consider the relationship between widening participation (WP) and DAs. Specifically, the research sought to understand the extent to which degree apprenticeships were part of existing university outreach plans and identify the barriers that might exist for including DAs in WP activities.

Approach: The research has a case study approach, focusing on two post-92 universities offering degree apprenticeships, interviewing key stakeholders from these two institutions along with two policy makers involved in widening participation and/or higher education. The paper also draws on 92 semi-structured interviews conducted with DA stakeholders, which draw on themes related to widening participation, demography of apprentices, diversity and motivations for participation.

Findings: There are two types of degree apprentices – those who are newly recruited to a DA programme and existing staff who get on the DA programme from an internal post. The first are usually young, less disadvantaged and go into sectors such as digital, engineering and professional services. The latter group tend to be older, more likely to come from backgrounds where parents did not have a degree and tend to be in sectors such as nursing and other health-related roles. The research found that outreach and recruitment for DAs was generally not integrated, although both institutions in the study highlighted increasing interest in DAs from schools with a greater proportion of higher-attaining students and non-state schools, rather than the schools where their outreach typically takes place.

Conclusions: The findings explore differences that exist between with older apprentices already working for the organisation and younger apprentices as new recruits, in relation to widening participation. It also explored the role universities are playing in terms of using DAs as a driver of widening participation. We found that although universities see DAs as part of their wider offer, which can feed into their access and participation plans, employers make the final decision on whether to employ an apprentice and which one to employ. This means that universities can influence but do not have ultimate control over recruitment to address certain imbalances of disadvantaged or underrepresented cohorts.

Keywords

apprenticeships, higher education, widening participation

1 Introduction

Degree apprenticeships (DAs) are a relatively new addition to the vocational education and training system in England. However, having been introduced in 2015 they are becoming a well-embedded element of the vocational and higher education (HE) landscape. DAs were introduced as an inclusive, debt-free vocational pathway into higher education, through a model that integrates higher learning and in-work training (DBIS, 2015). A degree apprentice must have obtained employment with an employer before they are eligible to enrol in an apprenticeship programme offered by an education and training provider (ETP). Apprentices spend most of their time with their employer. For funding purposes, at least 6 hours per week on average should be dedicated to study if they work 30 hours or more per week (generally for around 20% of their time). Off-the-job training is provided by an ETP. The majority of these ETPs are universities or other higher education institutions (HEIs).

The rationale supporting the rollout of DAs is that it can support national economic growth, address levels of low productivity and meet higher-level skills shortages by establishing a pipeline of skilled entrants into the workforce (DfE, 2020). As of 2024 there were 109 Level 6 (England's RQF) apprenticeship standards approved for delivery (IfATE, 2024) and 101 universities in England involved in delivering these (McLaughlin, 2023). These DAs span numerous roles and sectors, including digital, automotive engineering, health, banking, and construction (Hubble and Bolton, 2019), extending to both public and private sectors. They have proved popular, and the number of DA starts (at RQF level 6) trebled from 6,400 in 2017/18 to 25,000 in 2022/23 (DfE, 2023). This popularity translates into relatively high entry requirements.

DAs are intended to be a key part of the government's strategy of improving economic productivity through enhancing the skills of the workforce, but they have also been advocated as a route to address social inequalities (DfE, 2021). Apprenticeships are often considered as catalysts for social mobility (SMC, 2020) and DAs may also have the potential to widen access to higher education and professional employment for traditionally underrepresented groups (McKnight et al., 2019). Indeed, since their inception, DAs have been portrayed as a solution to social mobility, particularly by the late-Conservative Government, on the basis that they provide "particular value for those from disadvantaged backgrounds" (Halfon, 2023). Social mobility is often defined as the ability to move from a lower to a higher level of education, occupational status, social class, or income group (Joye & Falcon, 2014), which could be regarded as an output. In this research we study widening participation (WP), an input factor, which refers to strategies and policies designed to increase the diversity of the student populations in HE. This involves creating opportunities for individuals from groups that are historically underrepresented or disadvantaged, such as those from lower socioeconomic backgrounds, ethnic minorities, students with disabilities, and first-generation university students. In this research we sought to understand how far degree apprenticeships are widening participation to HE and higher-level jobs.

On the other hand, for employers, DAs are promoted as a qualification pathway for recruiting, retaining, retraining or upskilling staff with higher-level skills and knowledge tailored to the needs of specific industries (OfS, 2019). This aligns with a general sense of employer dissatisfaction with existing education and training routes, particularly around their expectation that graduates should be 'ready for work' and 'able to have an impact' for employers immediately (Mason, 2020; Rowe, 2018; Spencer et al., 2022). Due to the significant differences between employers, which include large private multinationals, public sector organisations and SMEs, there is considerable variation in employer motivations.

Apprentices are generally motivated by the prospect of progression opportunities and gaining qualifications, earning while learning, and the enhanced status of being linked to an employer (OfS 2019; 2019b). The absence of tuition fees for a higher education degree makes DAs a particularly attractive pathway for those from low income or disadvantaged backgrounds, thus avoiding debt along with the appeal of earning a salary whilst studying (Engeli & Turner, 2019). However, tensions also exist as to whether apprenticeship pay is adequate. Analysis of job adverts for DA new starts showed wide variation in salaries. In adverts posted in 2019-2020, annual salaries ranged from £7,500 to £30,000 with a mean of £16,497, with around half advertising at greater than national minimum wage (Baker, 2019; Fabian et al., 2023). Low pay would disproportionately affect those from disadvantaged backgrounds, for instance those with low or no financial support net or those with caring responsibilities. Additional evidence also suggests that DA opportunities are not falling with young people who are most disadvantaged and who would benefit the most for having no tuition fees and a level of income. Mackay (2022) found that private schools saw degree apprenticeships as a positive addition to post 18 options and promoted these compared to other schools or colleges who tended to push their students down the traditional university route. Difficulty exists in finding degree apprenticeship vacancies and support throughout the application process, with state school failing to provide useful information, leaving them to find and apply for vacancies on their own. Therefore, students who had the cultural and social capital needed to manage the application process, as well as being in receipt of good support from the school, are those who are likely to be successful in gaining a place on a DA.

For the older workforce without existing degree level qualifications, DAs can offer the opportunity to progress in their careers into more high-skilled roles which offer the opportunity of increased salaries. For some of these older degree apprentices DAs offer an opportunity to engage in higher education that was not available to them previously, at the traditional entry point to university, given for example, caring responsibilities, learning difficulties, disenchantment with education, or high opportunity costs (Laczik et al., 2025).

2   Methodology

This paper considers the relationship between widening participation and degree apprenticeships (DAs). Firstly, it aims to understand the extent to which degree apprenticeships are part of existing outreach plans to widen participation in universities and identify the barriers that might exist for including DAs in WP activities. It also explores whether DAs are widening participation to higher education and higher-skilled roles for both young people, new to the labour market, and for older adults already in the workforce. Lastly, the paper considers to what extent DAs are supporting opportunities to diversify the workforce.

In order to investigate these objectives, the paper uses two research studies. The first research took a mixed-method approach involving two case study universities based in England (University 1 and University 2), both have significant DA provision as a proportion of their higher education offer. They are also institutions with a strong commitment to WP and their local labour market. Semi-structured interviews took place with stakeholders from both case study universities, including staff involved in outreach and WP activities, employer engagement staff and DA staff involved in policy and strategy at the institution. We also interviewed national-level policy makers. In total nine interviews were conducted. Anonymised demographic data on the qualifications and profile of degree apprentices at each institution was also analysed, as well as the publicly available access and participation plans of the two universities. A limitation of this is that interviews were not conducted with employers for this part of the research in order to get a clearer understanding of their views on WP and diversity.

The second research piece took a much broader look at the design and delivery of DAs by investigated the experiences of stakeholders involved, including apprentices, employers, education and training providers (namely universities), and policy makers. Their perceptions were explored through semi-structured interviews, which lasted approximately 1 hour. In total, 92 interviews were conducted. All interviewees were actively engaged with DAs, except one SME, which initially considered engagement but ultimately chose not to, citing their employees' disinterest in DAs. The notes and transcripts from the interviews from both research pieces were thematically analysed (Braun & Clarke, 2006). Since the latter piece of research covered many areas of DA delivery, for the purpose of this paper, only relevant themes are drawn on from the coding structure, such as those relating to widening participation, demography of apprentices, diversity and motivations for participation.

All interviews were recorded and transcribed anonymously, with researchers following the British Education Research Association Ethical Guidelines 2024, concerning issues such as informed consent, anonymity of interviewees, confidentiality of research data and data protection (BERA, 2024).

3   Findings

There are two types of degree apprentices – those who are newly recruited to a DA programme and those existing staff who get on the DA programme from an internal post with their existing employer. The first group of apprentices are young, going into a new job role as a degree apprentice, often more affluent than the intake for traditional undergraduate programmes, and in sectors like engineering, digital, and professional services (see also Cavaglia et al., 2022). The second group of degree apprentices are usually older existing staff; at University 1, 78% of degree apprentices were aged 25+. At University 2 there was a smaller proportion aged 25+ yet still considerably high compared to the traditional higher education cohorts (41%). Much of these differences in age are related to the specific sectors where DAs were offered. For example, nursing and other health-related degree apprentices are most commonly existing staff who have progressed onto a degree apprenticeships from their jobs.

There is evidence that for universities these mature apprentices would count as widening participation, as these degree apprentices may not have otherwise attended university. Although we have limited data on socio-economic background of these apprentices, our study gained data from one university on highest parental education level. We found that at University 2, of those who provided information on their parental education, 57% of degree apprentices' parents did not have degree level qualifications. In health and related areas, this was higher at 64%. This is similar to, but higher, than the figure for other undergraduates at the university, where slightly more than half of students come from a family where their parents do not have degree level qualifications. The limited information available on parental background indicates that it is older apprentices who are more likely to come from homes where their parents did not attend university. However, currently, existing measures of social mobility in England do not consider these older workers, who may have missed out on higher education at 18, as 'disadvantaged'.

In contrast, sectors including engineering, manufacturing and digital see DAs as a way of recruiting new people to a new job role into the organisation and training them up. These employers may have ageing workforces, particularly in engineering and manufacturing, and see these new recruits as a talent pipeline and the future of their businesses. Some interviewees stated that for certain sectors, such as digital and engineering, employers often view DAs as an opportunity to diversify their workforce to those traditionally under-represented groups, such as women. Recruitment to DAs could also be associated with addressing skills shortages in areas of deprivation. Similarly, DAs were identified as contributing to some employers' corporate social responsibility agenda as they were developing those in the workforce who had not

previously engaged in degree level study. This was particularly prevalent in the health sector. As one employer explained:

> [DAs] capture a demographic that might otherwise not enter our company. So often I interview people who say, "I just knew university wasn't right for me, that's not the way I learn. I'm a practical learner […]. So, I think it captures people that learn via different routes to maybe traditional options […] as a result, it brings in diverse talent to the organisation. (Large Employer 14)

Ultimately however, diversity was only discussed by a limited number of employers, and not a major consideration for the majority of employers when recruiting to DAs. Some stakeholders within healthcare remarked that diversity is not a big issue they need to consider because they already have a diverse workforce, for example a large number of ethnic minorities within nursing '*is there because there is a skills need*' (Large Employer 14). Employers have a skills agenda that is primarily their focus, issues around diversity may be a secondary consideration, if at all.

DAs are becoming an established part of the HE landscape, and there is increasing demand from schools and young people to understand and apply for DAs as an alternative to traditional full-time university study. However, outreach staff at both our case study universities explain how private schools have been more aware of the possibilities of DAs for their students, leaving young people at state secondary schools at a disadvantage with less awareness of different levels of apprenticeships and different ways of obtaining a degree. Our stakeholders regarded the school leavers who took the DA route as being highly motivated and possessing clarity around their short-term career plans. As one of the apprentices explained:

> I knew that I wanted to be like a biological scientist since I was about fifteen or something. So, I think when you're sort of presented with the fact that when you're 18 you can just go and do it rather than having to wait three years. (Apprentice 14).

With regard to the outreach and recruitment activity at the two case study universities, generally these were not integrated, with outreach activity still very much focussed on non-apprenticeship traditional degree recruitment from disadvantaged groups of secondary school students. The recruitment at the universities for DAs was more orientated towards employer engagement. This was regarded as more of a priority since the employer is the ultimate decision-maker as to whether to offer DAs or not, and who to recruit to these positions. Universities can however have a role in challenging employers in terms of recruitment and practice. As one policy maker claimed, universities, as part of their business engagement activity, must advocate for certain candidates in the employment setting and support employers with recruitment decisions. We saw limited evidence of universities doing this, such as through strong employer-university relationships, and through the university supporting the sifting of CVs, in order to put forward a balanced portfolio of candidates to the employers. Where this existed, there was a trusted relationship between university and employer. However, these practices varied, both amongst employers and universities.

Although universities see DAs as part of their wider offer, which can feed into their access and participation plans, employers make the final decision on whether to employ an apprentice and which one to employ. This means that universities can influence but do not have ultimate control over recruitment to address certain imbalances of disadvantaged or underrepresented cohorts. Ultimately, while DAs may enhance social mobility by creating career advancement training opportunities for some who had missed out on higher education at age 18, they may not contribute to WP in current policy terms which targets young people in its definition.

References

Baker, D. (2019). Post-levy apprenticeships in the NHS – early findings [Post-levy apprenticeships in the NHS]. *Higher Education, Skills and Work - Based Learning, 9*(2), 189-199. https://doi.org/10.1108/ HESWBL-10-2018-0114

BERA (2024). Ethical Guidelines for Educational Research, fifth edition. BERA.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Cavaglia, C., McNally, S., & Ventura, G. (2022). *The Recent Evolution of Apprenticeships: Apprenticeship pathways and participation since 2015*. The Sutton Trust. Available at https://www.suttontrust. com/wp-content/uploads/2022/12/The-recent-evolution-of-apprenticeships.pdf

Department of Business Innovation and Skills (DBIS) (2015a). Government rolls-out flagship Degree Apprenticeships. Published 12 March 2015. Available at: https://www.gov.uk/government/news/government-rolls-out-flagship-degree-apprenticeships

Department for Business, Innovation & Skills (DBIS) (2015b) English Apprenticeships: Our 2020 Vision. https://www.gov.uk/government/publications/apprenticeships-in-england-vision-for-2020

Department for Education (DfE) (2021) Skills for Jobs: Lifelong Learning for Opportunity and Growth Available at: https://assets.publishing.service.gov.uk/media/601980f2e90e07128a353aa3/Skills_for_jobs_ lifelong_learning_for_opportunity_and_growth__web_version_.pdf

Department for Education (DfE) (2023) Academic year 2022/23: Apprenticeships and traineeships. Published 30 November 2023. Available at: https://explore-education-statistics.service.gov.uk/find-statistics/ apprenticeships-and-traineeships

Engeli, A. & Turner, D. (2019). *Degree Apprenticeships Motivations Research. Wavehill*. Office for Students. https://www.officeforstudents.org.uk/media/12bf6e97-2163-4f0d-a547-e28c02e573e0/degreeapprenticeships-motivations-research-report.pdf

Fabian, K., Taylor-Smith, E., Smith, S., & Bratton, A. (2023). Signalling new opportunities? An analysis of UK job adverts for degree apprenticeships. *Higher Education, Skills and Work-Based Learning, 13*(2), 299-314. https://doi.org/10.1108/HESWBL-02-2022-0037

Halfon, R. (2023). How we are supporting degree apprenticeships and higher technical education? Higher Education and Skills Minister Robert Halfon's speech to University UK's conference on degree apprenticeships. Available at: https://www.gov.uk/government/speeches/how-we-are-supportingdegree-apprenticeships-and-higher-technical-education

Hubble, S., & Bolton, P. (2019). *Degree Apprenticeships House of Commons Briefing Paper 8471*. Published 18 December 2019. Available at: https://researchbriefings.files.parliament.uk/documents/CBP-8741/ CBP-8741.pdf

IfATE (Institute for Apprenticeships and Technical Education) (2024). Apprenticeship search. https://www. instituteforapprenticeships.org/apprenticeship-standards/?levels=6&includeApprovedForDelivery=true

Joye, D., & Falcon, J. (2014). Social mobility. In A.C. Michalos (Eds.). *Encyclopaedia of quality of life and wellbeing research*. Springer. https://doi.org/10.1007/978-94-007-0753-5_2775

Laczik, A., Patel, J., Emms, K., Hordern, J., Orr, K., Dabbous, D., Polding, E., Wormald, J., James Relly, S., O. Newton., & Quyoum, A. (2024). *Degree Apprenticeships in England: What Can We Learn from the Experiences of Apprentices, Employers, and Education and Training Providers?*. The Edge Foundation.

Mackay, J. (2022). An assessment of degree apprenticeships as a vehicle for widening participation. Ph. D. Thesis. University of Bath. https://purehost.bath.ac.uk/ws/portalfiles/portal/243493261/Jane_Mackay_179414257_Final_Thesis.pdf

Mason, G. (2020). Higher education, initial vocational education and training and continuing education and training: where should the balance lie? Journal of Education and Work, *33*(7-8), 468-490. https://doi.org/ 10.1080/13639080.2020.1755428

McKnight, S., Collins, S.-L., Way, D., & Iannotti, P. (2019). Case study: Establishing a social mobility pipeline to degree apprenticeships. *Higher Education, Skills and Work-Based Learning*, *9*(2), 149-163. https://doi.org/10.1108/HESWBL-01-2019-0012

Mclaughlin, O. (2023). *Standards, starts and achievements: Quality and growth in the HE apprenticeship market*. HEPI. https://www.hepi.ac.uk/2023/07/14/standards-starts-and-achievements-quality-and-growthin-the-he-apprenticeship-market/

Office for Students (2019b). *Degree apprenticeships: a viable alternative?* (Insight. 2). Office for Students. https://www. officeforstudents.org.uk/media/c791216f-a1f1-4196-83c4-1449dbd013f0/insight-2-degreeapprenticeships.pdf

Office for Students (2019c). *Degree Apprenticeships Motivations*. Research Report by Wavehill Social and Economic Research. Available at: https://www.officeforstudents.org.uk/media/12bf6e97-2163-4f0da547-e28c02e573e0/degree-apprenticeships-motivations-research-report.pdf

Rowe, L. (2018). Managing Degree Apprenticeships Through a Work Based Learning Framework: Opportunities and Challenges. In D. A. Morley (Ed.), *Enhancing Employability in Higher Education through Work Based Learning* (pp. 51-69). Palgrave Macmillan. https://doi.org/10.1007/978-3-319-75166-5_4

SMC (Social Mobility Commission) (2020). *Apprenticeships and social mobility: fulfilling potential*. Social Mobility Commission. https://assets.publishing.service.gov.uk/media/5ef1bb3dd3bf7f6c053a28a4/Apprenticeships_and_social_mobility_report.pdf

Spencer, T., Parr, S., & Clark, R. (2022). Making Connections Between Work and Study — Maximising the Value of Degree Apprenticeships. In C. Hong, W.W.K. Ma (Eds.), *Applied Degree Education and the Future of Learning*. Lecture Notes in Educational Technology. Springer.

Biographical Notes

Katherine Emms is a Senior Education & Policy Researcher at the Edge Foundation. She undertakes primary and commissioned research around topics such as higher education, vocational education and training, skills shortages in the economy and employability skills.

Andrea Laczik is Director of Research at the Edge Foundation and an Honorary Research fellow at the Department of Education, University of Oxford. She has over 25 years of experience with education research and policy evaluation, including VET, 14-19 education and youth transitions.

The Two-Year Apprenticeship and Occupational Development in Switzerland - A Success Story Between Inclusion and Labour Market Orientation?

Engelage, Sonja

sonja.engelage@sfuvet.swiss, Swiss Federal University for Vocational Education and Training

Strebel, Alexandra

alexandra.strebel@sfuvet.swiss, Swiss Federal University for Vocational Education and

Abstract

Context: The introduction of the Federal Vocational Certificate (Eidgenössisches Berufsattest, EBA) as part of the vocational education and training (VET) reform in Switzerland in the early 2000s aimed to support the national education policy goal that 95% of all 25-year-olds should obtain an upper secondary-level qualification. This two-year VET program was designed for individuals with low academic achievement who previously had limited access to formal vocational training. While the EBA facilitates labour market integration for disadvantaged youth, research on the creation and adaptation of EBA occupations remains scarce. This study addresses this gap by investigating how EBA occupations have evolved since their introduction in 2004 and the extent to which they meet labour market and societal needs.

Approach: The study employs a mixed-methods approach. First, an analysis of statistical data from the Federal Statistical Office and documents from the State Secretariat for Education, Research and Innovation examines the evolution of EBA occupations over the past two decades. Second, case studies are conducted based on expert interviews with professional organisations responsible for developing VET programs. The interviews cover historical and economic aspects of new occupational profiles, social integration considerations, and collaboration dynamics between stakeholders, including federal and cantonal authorities.

Findings: Since 2004, 60 new EBA occupations have been introduced across various sectors, particularly in health, retail, logistics, and hospitality. The EBA program has successfully provided low-threshold access to vocational qualifications for young people with weaker academic backgrounds, particularly those with a migration history. However, employment rates and wages for EBA graduates remain lower than those for individuals with a Federal VET Diploma (Eidgenössisches Fähigkeitszeugnis, EFZ). The creation of new EBA occupations is primarily driven by employer demand for skilled labour rather than social integration objectives. The two case studies - system catering practitioners and two-wheeler assistant - illustrate that professional organisations initiate EBA programs mainly in response to labour shortages rather than educational inclusivity goals.

Conclusions: While the EBA has become an established entry point into the labour market, the goal of significantly increasing upper secondary-level qualification rates in Switzerland has not been met. The findings suggest that technological changes or social inclusion alone is not a sufficient driver for the creation of new EBA occupations; economic necessity remains the key motivator. The Swiss VET system must balance economic interests with social inclusion by

ensuring that EBA programs provide viable career pathways and further training opportunities. Future research should explore additional occupational fields and long-term career trajectories of EBA graduates to enhance the system's effectiveness.

Keywords

vocational education, labour market integration, federal vocational certificate, occupational development, social inclusion

1 Introduction

The introduction of the Federal Vocational Certificate as part of the reform of vocational education and training (VET) in the 2000s was intended to support the common educational policy goal of the Swiss Confederation, cantons, and professional organisations (POs) that 95% of all 25-year-olds should have an upper secondary level qualification (Sempert & Kammermann, 2006). In the last 20 years, 60 federal VET certificate (Eidgenössisches Berufsattest, EBA) occupations have been created, which are part of the occupational development cycle, with regular revisions of all 260 basic vocational training programmes across all occupational fields.

The two-year basic VET with EBA is one of the most important innovations introduced by the Federal Vocational and Professional Education and Training Act (VPETA), which was enforced in 2004. It is primarily aimed at 'practically gifted' individuals and—in contrast to the former apprenticeships, the so-called 'Anlehre'—leads to a federally recognised qualification with uniform skills throughout Switzerland (SBFI, 2016). The EBA training programme is intended to provide young people with a post-compulsory certificate education. The training courses are based on independent job market-oriented occupational profiles, guarantee follow-up solutions to the three- and four-year basic vocational training courses with a federal VET diploma (Eidgenössisches Fähigkeitszeugnis, EFZ), and provide learners with skills that enable long-term integration into the labour market.

As is generally the case with VET in Switzerland, the POs decide whether there should be a two-year basic VET in their occupational field. The Confederation and the cantons, as partners in the network, are involved by creating the necessary framework conditions. As with the three- and four-year VET programmes, the development of new EBA occupations requires a needs assessment to show that the planned EBA qualification profile is in demand on the labour market and that permeability to other VET programmes is guaranteed (SBFI, 2014). Thus, the EBA is caught in a field of tension: 'On the one hand, the aim is to define the competencies in such a way that holders of the federal VET diploma have good opportunities on the labour market. On the other hand, as many young people and adults as possible should be given the opportunity to obtain a federally recognised qualification' (SBFI, 2016, p. 4). Thus, this can lead to conflicting goals between integration and inclusion as social objectives and the selection mechanisms in the labour market under the given economic conditions (supply of apprenticeships, demand for skilled workers, etc.).

The regular development of occupations and basic VET is a key reason for why the VET system in Switzerland can continue to adapt to changing labour market situations and social challenges. However, the development of occupations in Switzerland in general and the EBA occupations in particular have barely been studied empirically to date. Although there have been a few studies on the retention of EBA graduates in the labour market (Hofmann et al., 2019; Kammermann et al., 2009; SBFI, 2016), there is a lack of research on the creation and permanent adaptation of existing occupations. This project addresses this research gap and seeks answers to the following questions: How have EBA occupations developed since their

introduction in 2004? Which needs of the labour market and society do EBA occupations address?

2 Methodological Approach

First, we analyse existing data from the Federal Statistical Office and documents from the State Secretariat for Education, Research, and Innovation (SERI). The focus is on the research question of how EBA occupations have developed since their introduction 20 years ago.

Second, we examine the social and economic aspects of the development of EBA occupations through case studies. The analysis is based on expert interviews with responsible representatives of the POs and, if available, reports from the five-year review or the analysis of new basic vocational training. The guided interviews cover the following topics:

- History of the new occupation
- Economic aspects of career development/assessment of the labour market
- Social aspects of occupational development and the target group
- Cooperation and lines of conflict within the POs and with the Confederation/cantons

The second of the research focuses on the question of which needs of the society and labour market (supply and demand vs. inclusion as a desirable goal) should be met by EBA occupations. As the project has not yet been completed, we can only present a few preliminary results in this paper. Further analyses will follow.

3 Historical Context: Triggers and challenges

The introduction of the two-year training programmes in Switzerland, known as EBA, took place against the backdrop of specific social, historical, and economic conditions and was a response to several interrelated challenges.

Economic development (de-industrialisation, automation, and outsourcing) in the 1980s and 1990s led to a higher demand for qualified workers. Simultaneously, there was a reduction in the demand for simple, unskilled jobs, which were often performed by young people who had not completed vocational training. Young people with poor school results or a migrant background had difficulties entering the labour market or finding an apprenticeship. The apprenticeship crisis (Strahm, 2008) led to a growing number of school leavers who had no prospects in the education system or labour market. Youth unemployment particularly affected young people with a migration background, learning difficulties, or school deficits. Due to the uncertain economic situation, many companies offered fewer apprenticeships, particularly in traditional apprenticeships, which had higher requirements and were primarily geared towards the three- to four-year EFZ.

Further, in the political debates of the 1990s, education and vocational training were increasingly recognised as the key to solving social problems. Countries such as Germany and Austria had already introduced low-threshold training programmes that served as models for Switzerland, thus prompting political actors and associations to make the vocational training system more permeable and inclusive to better integrate disadvantaged groups and relieve the burden on social systems (Di Maio et al., 2019). However, the introduction of the two-year EBA programmes as part of the VET reform was not only aimed at better integrating disadvantaged young people into the labour market and promoting equal opportunities in the education system but also to enable employers to adapt training content and formats to their specific needs and market requirements (Di Maio et al., 2020).

The newly created two-year basic training programme is primarily aimed at young people with 'basic academic qualifications' and does not specifically define other aspects of inclusion

that relate to the mental or physical condition of young people. It leads to a fully recognised vocational qualification and provides them with low-threshold access to the world of work and further training. If required, support is available in the form of expert individual guidance (Stern et al., 2018) and the option of subsequently transferring to a shortened three- or four-year basic vocational training program. As with the EFZ programme, the learning process for the EBA programme is based on practical work in a training company, lessons at a vocational school, and inter-company courses. The training is completed with an examination and awards the federally recognised 'Federal Vocational Certificate'. The previous option of completing a one- to two-year apprenticeship with an individual apprenticeship certificate was abolished (Trede & Dauner Gardiol, 2018) and was replaced with a practical training (PrA) for people with learning difficulties introduced by social institutions, which is based on vocational training and leads to the awarding of individualised certificates of competence (INSOS, 2024).

4 The Occupational Development of EBA Professions: Decentralised Implementation

Once the legal basis for the EBA was determined, the corresponding new qualification profiles were created in the specific occupational fields. This process of occupational development was decentralised—that is, the 140 POs are responsible for creating and revising all occupations. Their institutional work has a significant impact on the VET system (Baumeler et al., 2018; Lawrence & Suddaby, 2006; Strebel et al., 2019). Although it is possible for employees to be represented in the process, most POs are organised by employers (Strebel et al., 2019). They cooperate in the collective VET system (Busemeyer & Trampusch, 2012), along with the responsible state authorities and the cantons. SERI sets guidelines regarding national standards for VET and issues an education ordinance for each occupation. It coordinates cooperation among the stakeholders and provides financial support for occupational development processes. The cantons bear the main financial burden of the public sector, as they are not only responsible for vocational schools and teaching supervision but also for conducting the final examinations. As intermediary organisations, the POs ensure that the qualification needs of companies are met and that they also contribute to VET, mainly by offering apprenticeships. Therefore, both the public and private sectors are highly committed to VET and work together as partners (Berner, 2013; Berset, 2024).

The introduction of the EBA involved intensive collaboration among these stakeholders (Gonon, 2023): The POs played a central role in the design and implementation of the EBA programmes. In addition to the legal framework, the federal government supported the introduction of the EBA programmes by providing incentives. For example, companies that were willing to train young people as part of an EBA received state support in the form of wage subsidies to reduce the financial risks and costs of training. In addition to the direct support for companies, the POs also received funding to develop sector-specific training models for EBA programmes. The VPETA also enables the federal government to support the cantons by funding measures to promote VET. Meanwhile, vocational development of the EBA has been standardised and is no longer specifically promoted. Nevertheless, new EBA occupations continue to emerge.

5 Development of EBA Occupations: Facts and Figures

Since the 2004 VET reform, 60 EBA occupations have gradually been created in addition to approximately 200 EFZ occupations (see Figure 1). The first two were kitchen assistants EBA and retail sales assistants EBA. The most recent occupation is the two-wheeler assistant EBA.

Figure 1
Number of new EBA Occupations since 2004 (Author's own Illustration)
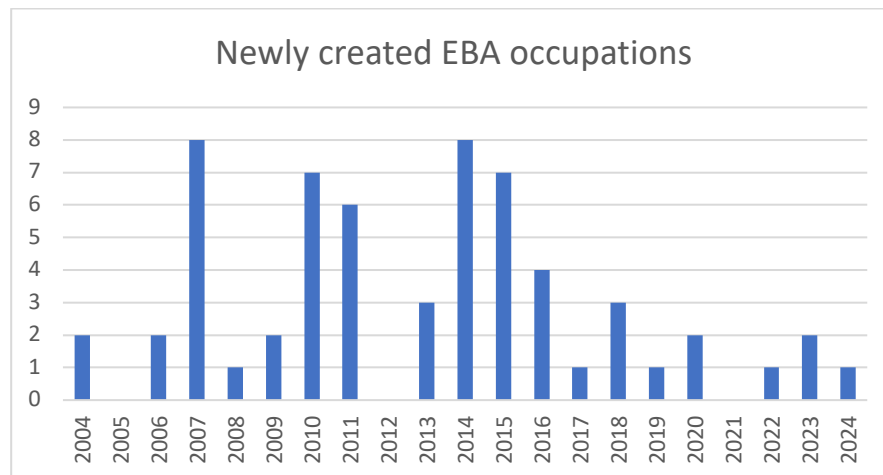
EBA occupations have emerged in all branches of the labour market. Currently, apprentices are, by far, the most likely to choose an EBA apprenticeship in the field of health and social services, with the majority of apprentices being young women. In the case of retail sales assistants, the gender ratio is balanced. Young men often choose EBA training to be logistics or automotive assistants (see Figure 2). The EBA thus reflects the same gender differences as are common in vocational training in general.

Figure 2
10 Most Popular EBA Apprenticeships in 2023 (Author's own Illustration)
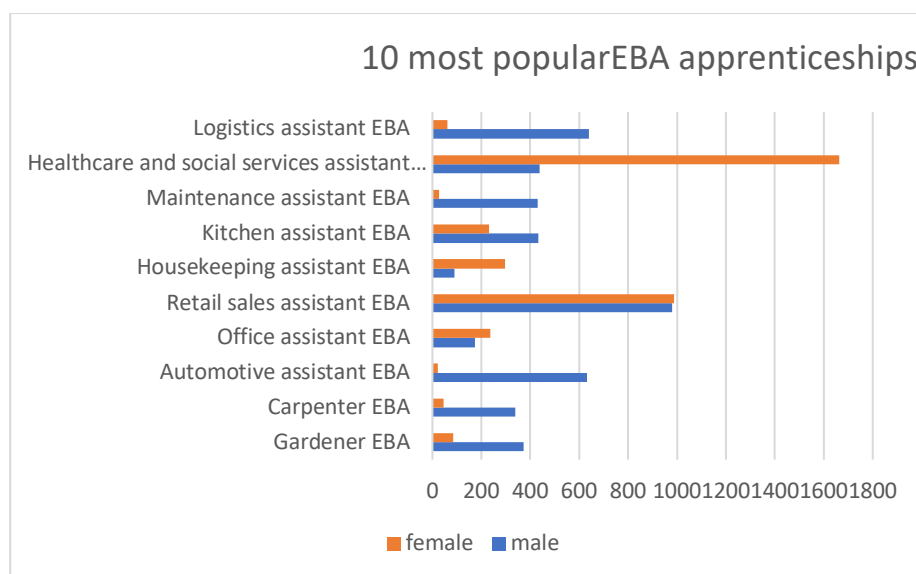
Initially, the number of apprentices in EBA training programmes increased in keeping with the growing number of EBA occupations since their introduction 20 years ago. However, since 2020, the numbers have fallen slightly, although new EBA occupations are still being created (see Figure 3).

Figure 3

Development of the Number of EBA Apprentices by Gender
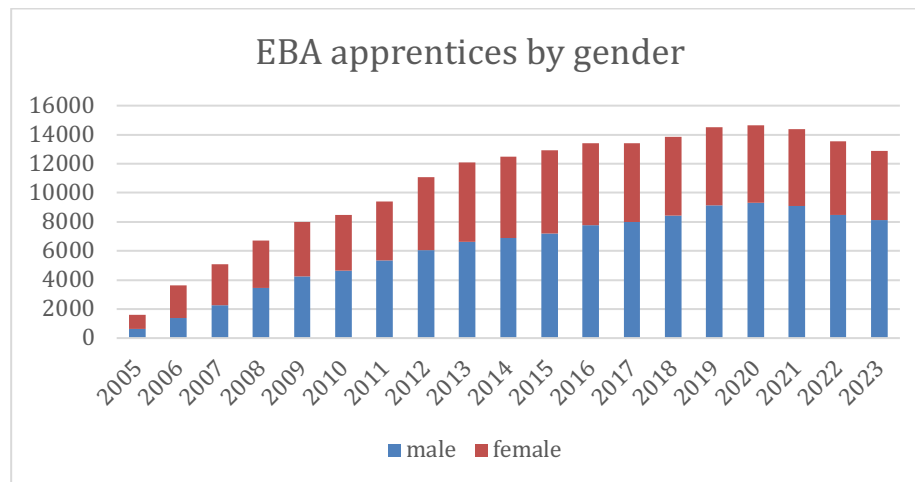
EBA apprentices currently constitute approximately 6.6% of all apprentices in basic vocational training. Compared to the EFZ, slightly fewer number of young women embark on an EBA apprenticeship, but young people with a migration background are significantly overrepresented. Most EBA learners successfully complete their training, and there are barely any differences in the number of apprenticeship contract terminations; however, significantly fewer EBA than EFZ learners subsequently return to basic vocational training. The employment rates 18 and 42 months after completing an EBA indicate that many EBA graduates remain in training after graduation or combine further training and employment. In contrast, the majority of EFZ graduates enter the job market straight away. Approximately one-third of them continue further education (BFS, 2023). Further, five years after entering the labour market, EBA graduates earn CHF 700 less than those with an EFZ (BFS, 2021) (see Table 1).

Overall, just under 90% of apprentices in basic vocational education have successfully completed their training (BFS, 2024). However, Switzerland's education policy goal of 95% of all 25-year-olds having a qualification at upper secondary level will not be achieved in VET, even with the further expansion of EBA occupations.

6   Occupational Development Processes of EBA in Switzerland: Two Case Studies

In the following subsections, two newly created occupations in the two-year basic VET with EBA are analysed in more detail. In addition to a description of the occupations and occupational activities, we discuss the history of the creation of the new EBA occupations, the economic and social reasons for their creation, the cooperation and possible lines of conflict in the development phase of the occupations within the POs and in the VET partnership.

Table 1

Comparison of EBA and EFZ Learners and Outcomes in Switzerland

Category	EBA	EFZ
Learners	14,000	198,000
Share of females	37%	41%
Share of migrants	53%	22%
Graduates (2023)	6,700	59,000
Females (graduates)	40%	45%
Termination of apprenticeship contract	26%	24%
Re-entry rate after termination	61%	82%
Employment (18 months after graduation)	43%	68%
Employment (42 months after graduation)	72%	67%
Salary (five years after graduation)	4,550 CHF	5,220 CHF

Note. EBA = Eidgenössisches Berufsattest, EFZ = Eidgenössisches Fähigkeitszeugnis. Data from Bundesamt für Statistik BFS.

6.1 System-catering practitioners

System-catering practitioners work in companies that operate several restaurants according to a standardised catering concept that is typical for the business. They work according to instructions and ensure that they act according to the standards of the existing catering concept. Their field of work is not limited to the front, with the guests, but also extends to the back area of the kitchen and office, where they receive orders and plan the implementation of these orders.

The PO Hotel & Gastro Formation, Switzerland, has been represented by cantonal or regional organisations throughout Switzerland for over 90 years and unites companies and trade unions in a social partnership. These organisations are responsible, for example, for the promotion of apprentices and the organisation of intercompany courses.

The main reasons cited for the creation of the new occupation are economic considerations. Previously, the number of new apprentices had fallen sharply and the number of apprentices dropping out was very high for the EFZ system catering specialist created in 2012.

> But there are very, very many apprenticeship drop-outs. And when we look at the reasons for this, it's very often that either the parents had the wrong idea, the young people had the wrong idea, they couldn't cope with the level or the vocational trainer. (vocational development specialist in system catering).

Instead of adjusting the level of the three-year basic vocational training, the decision was made to create a new profession that can be trained for in two years. The aim is to include new target groups to alleviate the shortage of skilled workers in system catering: On one hand, school leavers who do not reach the level required to qualify for the EFZ; on the other hand, career changers and those returning to the catering sector, particularly mothers.

> There were many, many mothers who had once trained as bakers or tailors or hairdressers or in the retail trade. (...) And they said, yes, but then again, I don't necessarily want to go into retail, but... Gastronomy would also be something, and they developed really well. (vocational development specialist in system catering).

By expanding the target group of apprentices to include migrants and people with mental health problems, the sector also considers those people to be suitable for EBA training who are less likely to be seen in EFZ apprenticeships. This is an inherent part of system catering, not only for purely social reasons but also in terms of business development:

> Of course, you also have to say that the large companies in system catering, can't really afford to behave antisocially. They can't pay the highest wages, so they must focus on other things as well, so that people stay in the companies for a long time. (vocational development specialist in system catering).

However, the introduction of the EBA profession was not without controversy. There were concerns on the part of the cantons, which questioned the funding and need for it and argued differently from region to region.

> With the cantons in particular, we faced a lot of headwinds. Because the numbers of apprentices were so low, especially in French-speaking Switzerland and Ticino. So, when an apprenticeship had to be started for less than ten people from all the cantons of Western Switzerland, they were of course not happy when they had to implement another EBA profession. (vocational development specialist in system catering).

There was also initial resistance within the PO, as the organisation represents a large number of rather diverse businesses, which often have a different understanding of gastronomy than the system caterers and should nevertheless support occupational developments in this area. It was not the idea that was questioned but, rather, 'the input-output ratio of the process' and the question of how much money should be invested. In summary, it can be said that the association's main aim in developing the EBA profession was to counteract existing shortages of skilled workers.

> On the other hand, we need skilled workers in the company who can work with guests. And the guest doesn't care whether someone has an EFZ or EBA on paper. The main thing is that the food tastes good. (vocational development specialist in system catering).

6.2 Two-wheeler Assistant

Two-wheeler assistants work in stores, workshops, garages, or at bicycles or motorcycle manufacturers. They work under the supervision of an EFZ mechanic. Their work involves assembling and checking parts, repairing and maintaining two-wheelers, and carrying out administrative work. Depending on the company, they may also have customer-facing roles.

The EBA occupation was created in 2024 by the PO 2rad Schweiz. At the EFZ level, there is a three-year apprenticeship as a bicycle mechanic EFZ and a four-year apprenticeship as a motorcycle mechanic EFZ. The PO has 10 regional sections and there is a generally binding vocational training fund to which 1,900 companies contribute, and which is used to finance occupational development. Over the last 10 years, the number of apprentices in the motorcycle branch has remained stable but has risen sharply in the bicycle branch. During the COVID-19 pandemic, the bicycle branch experienced a boom, which also increased the demand for skilled workers.

Before the 2004 vocational training reform, two-year apprenticeships were offered regionally in the bicycle branch. The integrative effect of the apprenticeships was perceived as positive, as many young people succeeded in entering the job market:

> ...that was already apparent during the apprenticeship, these are the people who are super loyal and faithful employees, long-term [...] these are people who were grateful that they were able to do an apprenticeship, that they have a job. (PO Board member, Northwestern Switzerland section).

Despite the introduction of the new Vocational Training Act, the PO did not create an EBA. At the time, 2rad Switzerland argued that the branch had no need for this:

> We had to say, yes, we can train, that's true, but A), the quantity structure and B), what do the young people do afterwards when they get out of this apprenticeship? Then the environment wasn't like it is today. The small companies had one to two hundred percent employment less than today. (2rad Switzerland vocational development specialist).

Other reasons against the EBA, according to the board member of the Northwestern Switzerland section, were the fear of the occupation being devalued, the costs of occupational development, and the financing of potentially small vocational school classes. The social aspect, which was put forward by individual companies and institutions, did not prevail. For companies that had previously trained 'Anlehre', this created a gap in the integration of learners with learning difficulties. Practical training (PrA) ultimately served as a 'stopgap' but was perceived as having a lower threshold than the former apprenticeship.

Economic growth and the shortage of skilled workers triggered a change of heart at the PO and the cantons also called for a review of whether an EBA was possible. The PO then stated that there was now a job market for this profile:

> The branch has grown in general[...]. And the importers in particular have done more themselves. [...] That was also an incentive for us to say, okay, now we'll look at it. (2rad Switzerland vocational development specialist).

The EBA is designed to appeal to young people:

> ... who may also be a bit fed up with school but are good at their craft. (2rad Switzerland vocational development specialist)

In the association's communication, the EBA is clearly distinguished from an integration offer: vetd, companies are being encouraged to use the potential of the EBA apprenticeship to counteract the shortage of skilled workers and find motivated employees in the long term. The economic arguments are clearly at the forefront. The companies hope that the two-year apprenticeship will enable them to attract skilled workers who will support the mechanics with EFZ and remain in the branch for many years. In contrast, social institutions do not see the EBA as competition to the PrA, but rather as aligning their integrative offers accordingly.

> We don't set ourselves apart. [...] And they are all very happy that this now exists. [...] And if they can take it on, if they want to do it, then all the better. (2rad Switzerland vocational development specialist).

7 Conclusion

Since its introduction in 2004, 60 new occupations have been created in Switzerland that apprentices can complete with an EBA after two years of dual training. The EBA occupations primarily appeal to young people who are struggling at school and integrate them into the labour market relatively quickly and with a low threshold. Nevertheless, not all young people are suitable for an EBA, which is why additional offers outside of the education system and the primary labour market are implemented in Switzerland. The goal of 95% of all young people in Switzerland achieving an upper secondary level qualification has not been achieved even with the introduction of the EBA. Nevertheless, it appears to be a good solution for a considerable number of young people to gain a foothold in the labour market.

In contrast to other countries with similar programmes, Switzerland's strong emphasis on employer involvement has proven successful in integrating young people into the labour market in the long term. A comparison with Germany, for example, shows that the short training courses are very industry-specific. In addition, the recognition by employers is not uniformly regulated, which can complicate labour market integration. In Denmark, on the other hand, social integration is the key objective. However, the lack of economic efficiency and standardisation means that many graduates have no stable career prospects.

The assumption that EBA occupations arise from technological change or trends was not confirmed in the interviews. Instead, it was found that EBA occupations are created if there is a real need for skilled workers in the labour market, which was proven by the PO. Companies must provide apprenticeships and declare their willingness to employ EBA graduates. Social aspects and inclusion play a secondary role in the creation of new EBA occupations. In the case of bicycle mechanics, the idea was present, but it was only implemented when companies realised that they could alleviate some of their shortage of skilled workers by taking on EBA learners or employees due to a significant increase in the volume of work. The situation was similar for system caterers: a clear shortage of skilled workers was the trigger for the creation of the EBA occupation. The branch of system caterers experienced that people interested in the occupation had to be rejected because they were not suitable for the demanding EFZ and there was a large proportion of people who dropped out of the apprenticeship because they underestimated the requirements.

In the Swiss system, it appears that the social idea alone does not bring about occupational development. The branches analysed create vacancies only when they witness an urgent need for workers. There are several hurdles to overcome and conflicts to resolve within the VET partnership. For example, large, heterogeneous organisations—such as those in the catering branch—with many different businesses must convince their companies to support occupational developments that do not bring direct benefits for all companies equally. At the same time, they had to justify to the cantons why an additional new EBA occupation should be added to a rather small EFZ occupation, such as a catering specialist. In the case of the two-wheeler association, the cantons were receptive when the association's internal concerns regarding the benefits of the EBA and concerns regarding the good reputation of their traditional training courses were dispelled.

The EBA is established in Switzerland and is a good option for an increasing number of young people to enter the labour market for the first time. With the EBA, Switzerland has created a model that combines economic efficiency with social inclusion and is jointly supported by employers, social partners and the state. In particular, the institutional recognition, the high level of permeability to higher vocational qualifications and the strong involvement of the economy makes the Swiss model unique. Nevertheless, it is not a sure-fire way to success. Young people in EBA apprenticeships need more support on their career paths. The commitment of teachers and company trainers are key factors for the success of these young people. The challenge for occupational development is to create profiles that enable young people to make a productive contribution without overwhelming them and, thus, to develop their potential as qualified specialists and balance economic interests and the need for social inclusion.

In this paper, it was only possible to discuss a small section of the occupational development of EBA occupations in Switzerland, as the research project is still in its early stages. More detailed analyses and an expansion of the sample are in progress and will contribute to a better understanding of the opportunities and challenges offered by this form of short training and the possibilities for reconciling existing areas of tension in this context.

References

2rad Schweiz (2024). Inform - Verbandsmagazin 2rad Schweiz, (1)2024.

Baumeler, C., Engelage, S., & Strebel, A. (2018). Creation, maintenance, and disruption: Occupational associations and their heterogeneous institutional work after the Swiss VET policy reform. In C. Nägele & B. E. Stalder (Eds.), *Trends in vocational education and training research. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network* (pp. 61–69). VETNET. DOI 10.5281/zenodo.1319629.

Berner, E. (2013). Verbundpartnerschaft – Schlagwort oder Erfolgsrezept? In M. Maurer & P. Gonon (Hrsg.), *Herausforderungen für die Berufsbildung in der Schweiz* (pp. 37–60). hep Verlag.

Berset, F. (2024). Wie ein neuer Beruf entsteht. Beispiele aus der Solarbranche. *E2 Newsportal des Staatssekretariats für Bildung, Forschung und Innovation SBFI.* https://e2-news.ch/de/news/wie-ein-neuer-beruf-entsteht-beispiele-aus-der-solarbranche

BFS (2021) Grosse Einkommensunterschiede nach der Lehre. Medienmitteilung. Bundesamt für Statistik BFS. https://www.bfs.admin.ch/asset/de/17544429#:~:text=29.06.2021%20%2D%20F%C3%BCnfeinhalb%20Jahre%20nach,Bildungsfeldern%20bestehen%20allerdings%20grosse%20Unterschiede.

BFS (2023). Lehrvertragsauflösung, Wiedereinstieg, Zertifikationsstatus. Resultate zur dualen beruflichen Grundbildung (EBA und EFZ). Bundesamt für Statistik BFS. https://www.bfs.admin.ch/bfs/de/home/statistiken/bildung-wissenschaft/uebertritte-verlaeufe-bildungsbereich.assetdetail.32886232.html

BFS (2024). Abschlüsse der beruflichen Grundbildung. Bundesamt für Statistik BFS. https://www.bfs.admin.ch/bfs/de/home/statistiken/bildung-wissenschaft/bildungsabschluesse/sekundarstufe-II/berufliche-grundbildung.html

BFS (2025). Entwicklung Bildungsabschlüsse Sek II. Bundesamt für Statistik BFS. https://www.bfs.admin.ch/bfs/de/home/statistiken/bildung-wissenschaft/bildungsabschluesse/sekundarstufe-II.html

Busemeyer, M., & Trampusch, C. (2012). Introduction. In M. Busemeyer & C. Trampusch (Eds.), *The political economy of collective skill formation* (pp. 3–40). Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199599431.001.0001

Di Maio, G., Graf, L., & Wilson, A. (2019). Torn between economic efficiency and social equality? Short-track apprenticeships in Denmark, Germany and Switzerland. *European Educational Research Journal, 18*(6), 699-723. https://doi.org/10.1177/1474904119869561

Di Maio, G., Graf, L., & Wilson, A. Embedded flexibilization and polite employer domination: the case of short-track apprenticeships in Switzerland. *Empirical Research in Vocational Education and Training, 12*(2), 1-21. https://doi.org/10.1186/s40461-020-00088-7

Gonon, P. (2023). Ein Handwerk studieren oder die Revision der Berufsbildung. hep.

Hofmann, C., Müller, X., & Krauss, A. (2019). Lernende in den niederschwelligen Ausbildungsgefässen EBA und PrA. *Transfer, Berufsbildung in Forschung und Praxis* (2/2019), Schweizerische Gesellschaft für angewandte Berufsbildungsforschung SGAB.

INSOS (2024). *Faktenblatt: Die PrA in Kürze. Erste Schritte auf dem Arbeitsmarkt mithilfe der PrA*. INSOS. https://www.insos.ch/files/N9WGM0A/die_pra_in_zahlen__faktenblatt__insos__2024.pdf

Kammermann, M., Amos, J., Hofmann, C., & Hättich, A. (2009). Integriert in den Arbeitsmarkt? Personen mit Berufsattest im Detailhandel und im Gastgewerbe ein Jahr nach Ausbildungsabschluss. Interkantonale Hochschule für Heilpädagogik.

Lawrence, T. B., & Suddaby, R. (2006). Institutions and institutional work. In S. R. Clegg, C. Hardy, T. B. Lawrence, & W. R. Nord (Eds.), *The SAGE Handbook of Organization Studies* (pp. 215-254). SAGE. https://doi.org/10.4135/9781848608030.n7

Pusterla, F., Schweri, J., Strebel, A., & Zbinden, A. (2023). *Berufsentwicklung vor dem Hintergrund aktueller Entwicklungen und des Strukturwandels*. Eidgenössische Hochschule für Berufsbildung EHB.

SBFI (2014). *Zweijährige berufliche Grundbildung mit eidgenössischem Berufsattest. Leitfaden.* Staatssekretariat für Bildung, Forschung und Innovation SBFI. https://www.sbfi.admin.ch/sbfi/de/home/bildung/bwb/bgb/zweijaehrige-berufliche-grundbildung.html

SBFI (2016). Evaluation der Arbeitsmarktsituation und Weiterbildungsperspektive von Absolventen und Absolventinnen mit eidgenössischem Berufsattest (EBA). Staatssekretariat für Bildung, Forschung und Innovation SBFI.

Sempert, W., & Kammermann, M. (2006). Über die Problematik der Berufsbildung im niederschwelligen Bereich. Zentrale Ergebnisse und weiterführende Gedanken aus der Evaluation der Praktischen Ausbildung (PrA). INSOS.

Stern, S., von Dach, A., & Thomas, R. (2018). *Fachkundige individuelle Begleitung in beruflichen Grundbildungen mit EBA*. Staatssekretariat für Bildung, Forschung und Innovation SBFI.

Strebel, A., Engelage, S., & Baumeler, C. (2019). Der Beitrag der "institutional work"-Perspektive zu Educational Governance: Dezentrale institutionelle Arbeit in der Berufsbildung. In R. Langer & T. Brüsemeister (Eds.),

Handbuch Educational Governance Theorien (pp. 201-218). Springer VS. https://doi.org/10.1007/978-3-658-22237-6_10

Strahm, R. H. (2008). Die entscheidenden Neunzigerjahre. Das Ringen um Reform und Aufwertung der Berufsbildung 1995 bis 2005. In T. Bauder (Ed.). *75 Jahre eidgenössisches Berufsbildungsgesetz: politische, pädagogische, ökonomische Perspektiven* (pp. 311–50). hep.

Trede, I., & Dauner Gardiol, I. (2018). *Integrationsfähigkeit der beruflichen Grundbildung.* OBS EHB Trend im Fokus Nr. 2. Eidgenössisches Hochschulinstitut für Berufsbildung EHB.

Biographical Notes

Dr Sonja Engelage is a senior researcher at the Swiss Federal University for Vocational Education and Training SFUVET. As an educational sociologist, she is interested in the governance of VET and the interaction of VET actors as part of the VET partnership.

Dr Alexandra Strebel is an education consultant at SFUVET. She advises professional associations on their occupational development processes. Her research interests are the governance of vocational education and training and the role of professional associations in the VET system.

Identifying and Delineating the Specific Needs of the VET Sector in Relation to the Implementation of Universal Design for Learning

Fovet, Frederic
ffovet@tru.ca, Thompson Rivers University

Abstract

Context: The purpose of the study highlighted in this paper focused on examining instructors' persistence with Universal Design for Learning (UDL) implementation following an initial exposure to professional development (PD). This project was carried out in Ireland as it is the only jurisdiction which currently offers a national UDL PD program, the UDL Digital Badge. During the unfolding of the study, it became quickly apparent that VET/ further education sector instructors discussed a distinct reality in relation to implementation and expressed differing needs than their colleagues in traditional higher education institutions. This paper presents the analysis of the portion of data related specially to the VET/ further education sector.

Approach: The theoretical approach to this project was the ecological paradigm as it fully accounts for the complexity of the process of institutional UDL implementation and of the large range of implicated stakeholders. The methodological process adopted was phenomenological and focuses on the lived experiences of the instructors interviewed; 40 participants were selected, approximately half of them from the VET/ further education sector. Inductive coding was used to extract key themes. Thematic analysis was then used as a process to create a lattice structure to connect and contrast these themes and generate findings.

Findings: Findings highlight that (i) the perceptions of this sector about UDL differs from that of higher education, (ii) the specific needs of the VET sectors in relation to UDL implementation have mostly been ignored to date, and (iii) looking ahead, strategic planning for future UDL growth in this sector must respond to the idiosyncrasies of this sector.

Conclusion: Implications suggest that it has been misleading to treat the VET sector and traditional higher education programs as one unidimensional context when examining and planning UDL integration and that future scholarship and research will have to acknowledge this dichotomy.

Keywords

UDL, inclusion, instructors

1 Objectives and Context

The aim of this paper is to begin addressing a gap in the scholarship and field practices related to the implementation of Universal Design for Learning (UDL) within the further education, vocational education, and trades sectors (FE/VET/TS). UDL has gained in popularity and visibility as a framework to support the inclusion of diverse learners both in the K-12 and post-secondary sectors. In the tertiary sector, interest is strong, but the process of change and

strategic implementation is challenging. Research is growing and emerging literature is helpful and promising, but the overarching research project, within which this paper sits and which was supported by a Canadian SSHRC Partnership Engage Grant, indicates a dichotomy between higher education on the one hand, and the further education (FET), vocational education and training (VET), and trades sector (TS) on the other - in terms of practical challenges, pertinent resources, specificity of know-how, and culture.

This overarching project highlighted in this session was a large qualitative study carried out within Ireland with the support of a SSHRC Partnership Engage Grant, looking at the variables that support or hinder instructor's individual journeys with UDL after initial exposure to professional development (PD) on the framework. Ireland is a unique setting where a national UDL PD component is offered broadly, known as the AHEAD UDL Digital Badge (AHEAD, 2024), and thousands on faculty members have received this opportunity for initial exposure to UDL. Other institution specific equivalents are also available on a handful of campuses but mirror the intentions of the digital badge. One of the key findings of this study was that the further education sector (FET) has specific expectations and requirements with regards to UDL adoption, and that these sector specific needs are not currently being met. This paper homes in on this dichotomy, analyses it in detail, and draws on the findings to formulate implications and recommendations.

2 Literature Review

The inclusion of diverse learners in the post-secondary sector is an increasing priority globally and developing frameworks that support this process has been seen an urgent strategic priority within many jurisdictions (Hromalik et al., 2021; Zhang et al., 2024). Universal Design for Learning (UDL) has shown specific promise in shifting institutions and practitioners away from deficit model practices and administrative processes for retrofitting that are unsustainable (Hromalik et al., 2021; Kirsch, 2024). Traditional medical model and diagnostic approaches to inclusion in the tertiary sector are also shown to perpetuate stigmatization, create heavy bureaucratic delays in service provision, and disempower instructors by providing the illusion that inclusion is managed outside the classroom (Arsyad Subu et al., 2025; Owens et al., 2024; Zhou, 2023).

UDL on the other hand translates the social model of disability into classroom practices, thereby ensuring that the focus falls on the educator and the learning environment, not on the profile of the learner (Fovet, 2014). The social model indeed sees disability as a social construct rather than as an individual characteristic; this perspective argues that disability is essentially a lack of fit between individual embodiments and the design of experiences, spaces, or products that are not inclusive in nature or format (Barnes & Mercer, 2004). The social model encourages educators to reflect on their role as designer and to embrace a process of inclusive reflection as they tackle these tasks; UDL supports this reflection within the classroom (Lynch, 2024).

The benefits of UDL adoption for diverse learners is increasingly evidenced in the literature (Levey, 2023), but the process of implementation remains challenging in terms of management of change (Fovet, 2021). The process of UDL adoption and integration has not been as linear, predictable, or seamless as originally hoped. There are several institutional factors that can hinder the spread of UDL within campuses (Fovet, 2020). There may also be individual variables that negatively impact instructors' journey and persistence with UDL (Hills et al., 2022). The overarching study within which this paper is framed was designed to investigate and analyse such variables and their impact.

It became rapidly apparent within this research project that the FE/VET/TS professionals had a significantly divergent experience and trajectory with UDL. This is unsurprising, and it is fair to say that, in relation to teaching and learning, these sectors are too often assumed to function as the more traditional field of higher education, and to be facing similar realities (Cai

& Kosaka, 2024; Compen et al., 2024). Vocational education in fact faces very specific challenges and these differ significantly from the contemporary preoccupations of traditional higher education (Jones, 2024; Mason, 2020). For one, learner diversity is much more immediately tangible in vocational education (Teräs, 2018; Zhou et al., 2025); instructors also have a very different professional trajectory and training (Tyler et al., 2024; Wahab et al., 2024). It must be noted there has thus far been very little research or scholarship focusing on UDL specifically within the field of vocational education (Whitelaw & Fovet, 2024).

3 Theoretical Stance

The overarching project, from which this paper has been generated, examines the complexity of UDL implementation in the tertiary sector in Ireland, through the ecological paradigm, as applied to organizational and strategic structures and processes. Bronfenbrenner's theoretical lens (El Zaatari & Maalouf, 2022; Renn & Smith, 2023) has been used effectively to acknowledge the complexity of processes of change in complex, multilayered, and multidisciplinary organizations (Crawford, 2020; Wang et al., 2024). It is particularly pertinent to tertiary education as a sector, as the perspective, needs, expectations, and motivations of stakeholders vary widely and do not often coincide (Furman & Gruenewald, 2004; Kinchin, 2023).

It can be argued that early conceptual models developed around the phenomenon of UDL implementation have been reductionist and overly linear in nature. The reality of initiatives over the last decade in the tertiary sector has made apparent their limitations. An ecological paradigm fully acknowledges and maps out the complexity and relative unpredictability of UDL initiatives in a context that surprisingly otherwise presumes ease and continued roll out (Fovet, 2021).

4 Methodological Process

The overarching research project in question was carried out among 40 tertiary instructors in Ireland, with approximately half of the participants recruited from the FET/VET/TS sector. Ireland is a unique setting where thousands on faculty members have received opportunities for initial PD on UDL through either the AHEAD UDL Digital Badge or institution specific equivalents. AHEAD is an NGO responsible, among other things, for the development of UDL within Ireland (AHEAD, 2023).

The methodological approach adopted in the project situates itself in the phenomenological tradition (Guneyli & Lane, 2024). It is pressing to acknowledge that professionals in the field are grounding their decision making in relation to UDL, their perception of the process of change, and their motivational disposition towards the UDL framework, in the meaning making which they generate in situ, often with little access to academic scholarship of theoretical resources (Kirsch, 2024).

Semi-directive interviews were carried out virtually using video-conferencing software (DeJonckheere & Vaughn, 2019). Recordings of the interviews were transcribed; twelve of these transcripts were manually coded through a process of inductive coding, looking to the data for the generations of categories, rather than to the literature (Veers & Gillam, 2022). These emerging codes were then used to categorize the data through all interview transcripts. A process of thematic analysis then followed in an effort to create articulated lateral connections between these codes, and to conceptualize an analytical understanding of the relationships, connections, and tensions that exist between these thematic categories (Kogen, 2024). For the purpose of this paper, only the thematic elements that specifically relate to FE/VET/ TS have been highlighted. The lateral tension that also emerged, during the thematic analysis, between higher education narratives and experiences within the vocational education sector, is also showcased in this paper.

5 Findings

The key themes, emerging from the overarching study, that relate specifically to the FE/VET/ TS sector are as follows. The first three themes can be seen as factors that have a detrimental impact on instructors' journey with UDL. The next three factors, on the other hand, are specific to the vocational education sector and can be seen as facilitators that actually support UDL initiatives.

Workload Issues and Precarity of Employment

While all participant described challenges in relation to fitting UDL implementation work within their stretched workload and expressed concerns in relation to the lack of validation they received from their institution for this work, the perspectives of instructors from the vocational education sector were exacerbated. These educators often discussed precarious work conditions and a degree of precarity that limited the amount of time they could dedicate to UDL and inclusive redesign work. Contracts were often described as covering solely teaching hours, meaning that these professionals had to dedicate their own personal time to PD, rather than remunerated hours. This fragility is highly tangible in the sector where PD is not usually covered within contracted hours, and terms are renewed annually; it has a considerable impact on the sector's ability to keep up with UDL adoption.

Hesitation and Ambivalence in Relation to Degree of Mastery of UDL as a Framework

Together with the precarity that surrounds work conditions and undermines intentions in relation to PD, participants from the field of FE/ VET/ TS described a certain ambivalence when it came to their UDL implementation efforts. For lack of support and access to effective PD, some of the participants in vocational education described a lack of confidence with the implementation of the UDL framework. Some were unsure as to whether their redesign actually fully fitted within the UDL principles; others described some hesitancy as to how UDL overlapped and merged with other teaching philosophies they had been introduced to. Most participants described feeling a certain haziness when it came to effectively quantifying the success of their UDL redesign process. Many explained that it was challenging to assess efforts with UDL integration when one had to move on rapidly to new courses, or the challenges of a new semester.

Lack of Support Material Specifically Pertinent to Vocational Learning Spaces

Many of the environments and spaces where vocational education takes place are unique and entirely different than traditional classroom settings commonly encountered in higher education. These spaces may include service provision, environments, trade shops, construction sites, outside spaces, community environments, etc. UDL implementation in these spaces will look very different than in a conventional lecture hall. Participants were generally concerned by the lack of resources and support material available to guide their implementation of UDL in these unique learning spaces. They felt it was often left up to them to innovate and translate UDL guidelines into these unconventional spaces, a process which was described as overly onerous. A factor which exacerbates this challenge is that instructors in vocational education describe precarious work conditions and a lack of time and stability; this in turn means that few of these educators have the opportunity to document their initiatives, publish records of these efforts, or create resources that mirror their journey. It leaves the field waiting for support resources that few professionals feel equipped to produce.

Relevance of Rural and Remote Contexts

Many of the experiences collected from vocational education professionals were contextualized within rural and remote communities. In this sense, they differentiated themselves from the narratives emanating from the stories shared by the higher education instructors which were generally characteristic of large urban centres, anonymity, and rare opportunities to engage with learners beyond the lecture hall. Most FE/ VET/ TS professionals interviewed had tight connections with community and often knew their learners outside of formal classroom contexts. They also often knew the families, and networks of these students and understood the complexities of their daily lives. This tight connection with the communities within which the learners live, appear to set the stage for a greater willingness to engage with inclusive practices; it contextualizes the UDL intentions of these professionals within a wider engagement with community and a broader appreciation of its struggles.

Reliance on Community

The notion of community, for most vocational education instructors interviewed went further than simply the relationship with learners and the local community. When these professionals talked about community, they also described tight collegiate links within their institutions, a feeling of working on a scale that allows for authentic working relationship, and an understanding that a commitment to inclusive education must necessarily be collective. This is an area where FE/ VTE/ TS can lead innovation in UDL implementation by showcasing how important collegiate support and mentoring are in the equation.

Connection to Lived Experiences of Diverse Learners

All the vocational education instructors interviewed discussed a close connection to at least one learner facing significant challenges in their access to learning. In some cases, they were talking about their own experiences as younger learners; at times they discussed a partner, spouse, or a child. Often too they discussed a learner in the community with whom they had dialogued extensively. This is an important dimension when it comes to resilience with the UDL model, as it seems to suggest that instructors who have had the opportunity for such close connections to the lived experiences of diverse learners are more likely to persist long-term with their implementation efforts. Vocational education instructors in closely knit rural communities had the most frequent experiences of this kind.

Tension Between Tertiary Sectors

The lateral tension between higher education narratives and experiences from the vocational education sector, that emerges from the thematic analysis can be framed as follows. Essentially the lived experiences of instructors in both sectors vary greatly, and it is therefore understandable that their perceptions of UDL should differ also. The ways instructors view their career development, and their promotion prospects are also considerably divergent, from a phenomenological perspective, and this will have an impact on the way they see, approach, and tackle any desired growth with teaching and learning – including UDL. The student-educator relationship is framed entirely differently in vocational education, and this creates unique conditions for the unfolding of UDL initiatives. Finally, notions of community, affiliation, and peer mentoring are also uniquely different in FE/ VET/ TS institutional contexts, and this shapes UDL efforts in a distinct manner.

6 Implications

The sector targeted by this project is known under a range of terminology globally, depending on the jurisdiction targeted; it is alternatively referred to as further education, vocational education and training, or trades education (Cedefop, 2017; Moodie, 2002). The characteristics of this sector, however, are distinct and consistent, irrespective of national idiosyncrasies: programs are short, focused on professional competencies; learning is applied; competencies taught closely target employment priorities; students are extremely diverse; leadership and administrative processes diverge from those of higher education. All of these characteristics mean that the sector has a very distinct approach to the inclusion of diverse learners (Jobir, 2024; Kristl & Jeznik, 2024). It also means that, as a sector, it will navigate the progressive shift to UDL in a very different way than traditional higher education. Management of change, towards social model practices, will be addressed in a unique way by vocational education. Developing effective, targeted, pertinent UDL training, resources, and processes of implementation in this sector requires a fine-tuned understanding of its characteristics; the findings of project highlight a distinct gap in scholarship and best practices.

Outcomes include specific recommendations that flow from the findings and that can guide the development of resources, professional development, and leadership guidelines specific to the VET sector. These recommendations include: (i) developing research projects and scholarship that acknowledges the unique nature of vocational education as a sector, (ii) developing PD tools that target the specific needs of professionals within this field, (iii) designing conceptual frameworks for management of change within the implementation of UDL that reflect the idiosyncrasies of FE/VET/TS institutional contexts, and (iv) creating professional venues and forums where vocational education professionals have a space to discuss their specific challenges with inclusive education and UDL implementation.

References

AHEAD (2024) CPD - the Digital Badge for Universal Design in Teaching & Learning. Home. https://www.ahead.ie/udl-digital-badge

ADCET. (2023). Universal Design for Learning (UDL) in Tertiary Education. Home. https://www.adcet.edu.au/our-work/udl-elearning#:~:text=Australia's%20first%20free%20online%20training,is%20no%20'average'%20learner

Arsyad Subu, M., Mottershead, R., Mahmoud Sallam, A., Maria Dias, J., Kavumpurath, J., Refaat Ahmed, F., Hesham Hijazi, H., Sara Abraham, M., Mohamed Al Marzouqi, A., Seshan, V., Mohammed Elabed, S., Rajeh Saifan, A., Azizur Rahman, S., & Al Yateem, N. (2025). Experiences of Students with Disabilities Enrolling in Higher Education: A Qualitative Study in the United Arab Emirates. *F1000 Research, 14* . https://doi.org/10.12688/f1000research.158481.1

Barnes, C., & Mercer, G. (2004). Theorising and Researching Disability from a Social Model Perspective. In C. Barnes & G. Mercer (Eds.), *Implementing the Social Model of Disability: Theory and Research* (pp. 1-17). The Disability Press.

Cai, J., & Kosaka, M. (2024). Conceptualizing Technical and Vocational Education and Training as a Service Through Service-Dominant Logic. *Sage Open, 14*(2). https://doi.org/10.1177/21582440241240847

Cedefop. (2017). The changing nature and role of vocational education and training in Europe. *Volume 1, Conceptions of Vocational Education and Training: an Analytical Framework.* Publications Office. https://data.europa.eu/doi/10.2801/532605.

Compen, B., Verstegen, D., Maussen, I., Hülsman, C., & Dolmans, D. (2024). Good practices for differentiated instruction in vocational education: the combined perspectives of educational researchers and teachers. *International Journal of Inclusive Education*, 1–18. https://doi.org/10.1080/13603116.2024.2305652

Crawford, M. (2020). Ecological systems theory: Exploring the development of the theoretical framework as conceived by Bronfenbrenner. *Journal of Public Health Issues and Practice, 4*(2),170. https://gexi-nonline.com/archive/journal-of-public-health-issues-and-practices/JPHIP-170

DeJonckheere, M., & Vaughn, L. M. (2019). Semi-structured interviewing in primary care research: a balance of relationship and rigour. *Family Medicine and Community Health, 7*(2), e000057. https://doi.org/10.1136/fmch-2018-000057

El Zaatari, W., & Maalouf, I. (2022). How the Bronfenbrenner Bio-ecological System Theory explains the development of students' sense of belonging to school? *Sage Open, 12*(4). https://doi.org/10.1177/21582440221134089

Fovet, F. (2014) Social model as catalyst for innovation in design and pedagogical change. *Widening Participation through Curriculum Open University 2014 Conference Proceedings*, 135-139. https://islandscholar.ca/islandora/object/ir%3A21093

Fovet, F. (2020) Universal Design for Learning as a Tool for Inclusion in the Higher Education Classroom: Tips for the Next Decade of Implementation. *Education Journal. 9*(6), 163-172. http://www.sciencepublishinggroup.com/journal/paperinfo?journalid=196&doi=10.11648/j.edu.20200906.13

Fovet, F. (2021). Developing an ecological approach to the strategic implementation of UDL in higher education. *Journal of Education and Learning, 10*(4). https://doi.org/10.5539/jel.v10n4p27

Furman, G. C., & Gruenewald, D. A. (2004). Expanding the landscape of social justice: A critical ecological analysis. *Educational Administration Quarterly, 40*(1), 47-76. https://doi.org/10.1177/0013161X03259142

Guneyli, V.B., & Lane, J. (2024). Siloed in Their Thoughts: A phenomenological study of higher education leaders' perceptions of internationalization in changing times. *Journal of Comparative & International Higher Education, 16*(1). https://www.ojed.org/jcihe/article/view/3189

Hills, M., Overend, A., & Hildebrandt, S. (2022). Faculty Perspectives on UDL: Exploring Bridges and Barriers for Broader Adoption in Higher Education. *The Canadian Journal for the Scholarship of Teaching and Learning, 13*(1). https://doi.org/10.5206/cjsotlrcacea.2022.1.13588

Hromalik, C. D., Myhill, W. N., Ohrazda, C. A., Carr, N. R., & Zumbuhl, S. A. (2021). Increasing Universal Design for Learning knowledge and application at a community college: The Universal Design for Learning Academy. *International Journal of Inclusive Education, 28*(3), 247–262. https://doi.org/10.1080/13603116.2021.1931719

Jobir, T. M. (2024). The Implementation of Inclusive Education in TVET Institutions: A Systematic Review. *International Journal of Vocational Education and Training Research, 10*(2), 70-78. https://doi.org/10.11648/j.ijvetr.20241002.15

Jones, G.A. (2024) The evolution of vocational education colleges and institutes in Canada: An analysis of trends and challenges. *Vocation Technology Education, 1*(4). doi:10.54844/vte.2024.0762

Kinchin, I. M. (2023). Five moves towards an ecological university. *Teaching in Higher Education, 28*(5), 918–932. https://doi.org/10.1080/13562517.2023.2197108

Kirsch, B. A. (2024). Understanding Universal Design for Learning implementation: A hermeneutic phenomenological study of the experiences of higher education faculty and instructional designers [Doctoral Dissertation, Old Dominion University]. ODU Digital Commons. https://doi.org/10.25777/t4yn-yy86

Kogen, L. (2024). Qualitative Thematic Analysis of Transcripts in Social Change Research: Reflections on Common Misconceptions and Recommendations for Reporting Results. *International Journal of Qualitative Methods, 23*. https://doi.org/10.1177/16094069231225919

Kristl, N., & Jeznik, K. (2024). Measuring Inclusion in Vocational Education and Training through the Prism of Justice of Education. *International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE), 12*(1), 103–117. https://doi.org/10.23947/2334-8496-2024-12-1-103-117

Levey, S. (2023). Universal Design for Learning. *Journal of Education, 203*(2), 479-487. https://doi.org/10.1177/00220574211031954

Lynch, M. (2024). Embracing Diversity: Navigating Universal Design for Learning in Higher Education (HE) for First-Year Undergraduate Students. *All Ireland Journal of Higher Education, 16*(2). https://doi.org/10.62707/aishej.v16i2.835

Mason, G. (2020). Higher education, initial vocational education and training and continuing education and training: where should the balance lie? *Journal of Education and Work, 33*(7–8), 468–490. https://doi.org/10.1080/13639080.2020.1755428

Moodie, G. (2002). Identifying vocational education and training. *Journal of Vocational Education & Training, 54*(2), 249–266. https://doi.org/10.1080/13636820200200197

Owenz, M., Spencer, B., & Aydemir-Doke, D. (2024). "Institutional betrayal": the return to normal and college students with disabilities in the USA. *Disability & Society*, 1–25. https://doi.org/10.1080/09687599.2024.2400989

Renn, K. A., & Smith, B. R. G. (2023). Ecological models in higher education research: Overview and synthesis. *New Directions for Higher Education, 2023*(204), 11–22. https://doi.org/10.1002/he.20491

Teräs, M. (2018). Cultural Diversity and Vocational Education and Training. In: McGrath, S., Mulder, M., Papier, J., Suart, R. (Eds) *Handbook of Vocational Education and Training*. Springer. https://doi.org/10.1007/978-3-319-49789-1_61-1

Tyler, M., Dymock, D., & Le, A. H. (2024). Retaining teachers and trainers in vocational education and training (VET): motivating career-changers to remain as VET educators. *Research in Post-Compulsory Education, 29*(2), 281–301. https://doi.org/10.1080/13596748.2024.2330782

Veers, D., & Gillam, L. (2022) Inductive content analysis: A guide for beginning qualitative researchers. *Focus on Health Professional Education: A Multi-Professional Journal, 23*(1), 111-127. https://doi.org/10.11157/fohpe.v23i1.544

Wahab, N. A., Ali, D. F., & Ahmad, A. R. (2024). Professional Development for Novice TVET Teachers: A Systematic Review. *International Journal of Academic Research in Progressive Education and Development, 13*(4), 2669–2692. http://dx.doi.org/10.6007/IJARPED/v13-i4/23654

Wang, Q., Zhang, W., & Ma, L. (2024). Applying information ecological theory to analyse the green supply chain management system in universities. *Expert Systems, 41*(5), e13219. https://doi.org/10.1111/exsy.13219

Whitelaw, H., & Fovet, F. (2024) Incorporation of Virtual Tour Guides Into Tourism Class as an Online Engagement and Retention Strategy. In F. Fovet (Ed.) *Cases on Effective Universal Design for Learning Implementation Across Schools.* IGI Global, 2024, (pp. 107-129). https://doi.org/10.4018/978-1-6684-4750-5.ch005

Zhang, L., Carter, R. A., & Hoekstra, N. J. (2024). A critical analysis of universal design for learning in the U.S. federal education law. *Policy Futures in Education, 22*(4), 469-474. https://doi.org/10.1177/14782103231179530

Zhou, Z. (2023) Disabilities in Higher Education: Beyond 'Accommodation'. *Journal of Disability Studies in Education, 3*(2), 191-216. https://doi.org/10.1163/25888803-bja10021

Zhou, J., Chen, S., & Gong, Y. (2025) Exploring gender differences in vocational education and training through the lens of neuroscience. *Acta Psychologica, 254*. https://doi.org/10.1016/j.actpsy.2025.104743

Biographical Notes

Dr Frederic Fovet is an Assistant Professor in the School of Education at Thompson Rivers University. His research portfolio focuses on inclusion, in both the K-12 and post-secondary sectors. He has a specific interest in Universal Design for Learning, more particularly in relation to the process of institutional implementation.

Understanding the Transfer of Learning in Apprentices: Individual Characteristics, Motivational Beliefs, and Training Quality

Garcia de Olalla Gutierrez, Arturo
a.garcia-de-olalla@uib.cat, University of the Balearic Islands

Wenger, Matilde
matilde.wenger@hefp.swiss, Swiss Federal University for Vocational Education and Training SFUVET

Sauli, Florinda
florinda.sauli@supsi.ch, University of Applied Sciences and Arts of Southern Switzerland (SUPSI)

Berger, Jean-Louis
jean-louis.berger@unifr.ch, University of Fribourg

Abstract

Context: Transfer of learning refers to the process of applying knowledge learned in previous situations, usually the knowledge and methods acquired in school, to different contexts, such as in the workplace (Bransford & Schwartz, 1999; Marton, 2006). This process is especially relevant in vocational education and training, as learning occurs across different environments, from the educational context to the workplace. The objective of this research is to identify and analyze whether individual characteristics, motivational beliefs, and perceived training quality predict the transfer of learning among vocational apprentices in the Swiss educational context. Approach: A total of 840 dual VET apprentices participated in the study, representing four vocational fields: administration, retail, hairdressing and beauty, and construction. Participants completed a questionnaire assessing their learning transfer, their motivational beliefs (autonomous motivation, controlled motivation, default motivation, perceived academic competence, and workplace self-efficacy), and their perceived training quality. To address the research questions, multiple hierarchical regression analyses were conducted in three steps to predict learning transfer.

Findings: Our result suggests that several factors relate to the transfer of learning in the workplace. Model 1 highlights that first-year apprentices experience a higher level of learning transfer compared to those from more advanced stages, while apprentices in administration and retail report lower transfer levels. Model 2 emphasizes the significant role of motivation (both autonomous and controlled), academic competence, and self-efficacy in predicting learning transfer. Notably, higher motivation and a stronger sense of competence and self-efficacy in the workplace are linked to greater learning transfer. Finally, Model 3 shows that a positive training context—characterized by treating apprentices as adults at school and demonstrating good teaching practices—further enhances learning transfer in the workplace. Conclusions: Our results support previous research that highlights the various elements involved in the transfer of

learning. Therefore, our findings contribute with new data to the international literature by identifying several factors that significantly relate to the transfer of learning process for VET apprentices.

Keywords

learning transfer, vocational education, motivation, training.

1   Introduction

The transfer of learning refers to the process of applying knowledge learned in previous situations, usually the knowledge and methods acquired in school, to different contexts, such as in the workplace (Bransford & Schwartz, 1999; Marton, 2006). This process is especially relevant in vocational education and training (VET), as learning occurs across different environments, from the educational context to the workplace (Mulder et al., 2015). To better understand the process of transfer of learning, it is necessary to adopt an approach that integrates individual and contextual factors (Baldwin & Ford, 1988; Sitzmann & Weinhardt, 2015). In the VET context, various research studies have noted that the transfer of learning involves multiple actors, requiring cooperation between vocational school teachers and workplace supervisors or in-company trainers during apprentices' VET (Kilbrink & Bjurulf, 2013).

Previous literature has identified various factors that influence the processes of transfer of learning. Systematic reviews on this topic consistently highlight the fundamental role of both individual learner factors and contextual or situational factors in the work environment (Blume et al., 2010; Burke & Hutchins, 2007; Grossman & Salas, 2011; Sitzmann & Weinhardt, 2015). Furthermore, it has not been determined that individual variables exert a greater influence than situational ones, or vice versa (Blume et al., 2010). Given this, the following research question arises: To what extent do individual characteristics, motivational beliefs, and perceived training quality predict the transfer of learning in VET apprentices?

1.1 Prior Research on Predictors of Learning Transfer

On the one hand, individual factors such as cognitive ability (Blume et al., 2010; Grossman & Salas, 2011), learning goal orientation (Blume et al., 2010; Burke & Hutchins, 2007), autonomy (Burke & Hutchins, 2007; Sitzmann & Weinhardt, 2015), self-efficacy (Blume et al., 2010; Grossman & Salas, 2011), motivation to learn (Blume et al., 2010; Grossman & Salas, 2011), and conscientiousness (Blume et al., 2010; Sitzmann & Weinhardt, 2015) are facilitators of transfer of learning. On the other hand, contextual or situational factors such as a transfer climate -those situations that either inhibit or help to facilitate the transfer of what has been learned in training into the job situation (Rouiller & Goldstein, 1993)- (Blume et al., 2010; Burke & Hutchins, 2007; Grossman & Salas, 2011), supervisor and peer support (Blume et al., 2010; Burke & Hutchins, 2007; Sitzmann & Weinhardt, 2015), and opportunity to perform (Blume et al., 2010; Burke & Hutchins, 2007; Grossman & Salas, 2011) are also facilitators of transfer of learning.

Grossman & Salas (2011) indicate that transfer is facilitated when apprentices perceive clear links between training and required job performance and consider the outcomes valuable. Additionally, apprentices need opportunities to apply new competencies for successful transfer to the workplace (Grossman & Salas, 2011). Towler et al. (2014) indicate that, even when transfer of learning occurs within a personalized model, it is still influenced by the workplace context. Therefore, it is essential for managers and leaders to prioritize training and ensure that apprentices perceive its value.

It is important to note that few studies have examined the transfer of learning over time (Blume et al., 2017). Axtell et al. (1997) analyzed the factors influencing this process and found

that, after one month, the apprentices' perceptions of the relevance and usefulness of the course, along with the apprentices' motivation to transfer skills, are the main initial predictors. Moreover, these factors play an indirect role in long-term transfer. Subsequently, Chiaburu et al. (2010) evaluated learning transfer three months after the training and found that supervisor and organizational support are crucial for enhancing self-efficacy and motivation to transfer. Additionally, they observed a direct relationship between self-efficacy, motivation to transfer, and training transfer.

VET, in particular, requires a more integrated view, where teachers and in-company trainers must understand the differences and contradictions between what is learned in school and in the workplace, in order to facilitate the connections between the two (Sappa & Aprea, 2014). As a result of the lack of understanding regarding how knowledge and skills learned in vocational schools are transferred to the workplace, the knowledge and skills acquired in the educational context are often underutilized in the workplace (Poortman et al., 2014). Thus, the objective of this research is to identify and analyze whether individual characteristics, motivational beliefs, and perceived training quality predict the transfer of learning in vocational students.

1.2 The Swiss dual VET Model and Transfer of Learning

In Switzerland, initial vocational education and training (IVET) is the most common pathway pursued after compulsory schooling (Federal Statistical Office, 2022). This IVET program is primarily implemented through dual modality, combining two main training locations: the company and the vocational school (Gurtner et al., 2018). At the international level, Swiss IVET exhibits a set of characteristics that make it a reference model, including a low youth unemployment rate, the specificity of the skills acquired by apprentices, and strong collaboration between companies and vocational schools (Berger et al., 2018; Organisation for Economic Cooperation and Development, 2020).

However, the literature indicates that apprentices report significantly different levels of motivation and commitment depending on whether this occurs in a school context or in the workplace (Gurtner et al., 2012; Krapp & Lewalter, 2001). In the context of dual VET in Switzerland, Negrini et al. (2016) identified a significant relationship between apprentices' perceptions of training quality in the training company and the premature termination of dual VET contracts. Specifically, in companies where in-company trainers provide high-quality training, the risk of premature termination is lower. In contrast, companies with trainers offering lower-quality training may experience a higher incidence of premature terminations, or none at all. Subsequently, Wenger et al. (2021) emphasize that apprentices' perceptions of their roles in the workplace are crucial factors playing a role in their sense of self-efficacy, engagement, and satisfaction. Berger et al. (2023) found that the connections between theory and practice are key factors for commitment, both in the company and at school.

2 Method

2.1 Participants

A total of 840 dual VET apprentices from the French-speaking region of Switzerland participated in the study. They were distributed across four vocational fields: administration (39%), retail (25%), hairdressing and beauty (13%), and construction (23%).

The study population was 54.76% female and 37.14% in the first year of training (n = 312) at the time of the study, 28.88% in the second year of training (n = 251), and 32.98% in the third and final year of training (n = 277). In terms of the training company's size, 237 apprentices were enrolled in companies with 10 or fewer employees, 228 in companies with 10 to 49 employees, 182 in companies with 50 to 249 employees, and 193 in companies with more than

250 employees. Data collection was realized during school time, in close collaboration with school heads.

2.2 Instruments

A survey, consisting of the following instruments written in French, was completed by the participants. With the exception of the Learning Transfer Perception Scale, which used a five-point Likert scale, all the instruments used a six-point Likert scale (1= does not suit me at all to; 6 = totally suits me).

In addition to the below-mentioned scales, the following information was reported by the participants: gender, vocational field (administration, retail, hairdressing and beauty or construction), training year (1st, 2nd, or 3rd), and the number of employees in their training company (10 employees or less, 10 to 49 employees, 50 to 249 employees or more than 250 employees).

Learning Transfer Perception Scale

This scale is based on prior work by Devos (2005). The perception of learning transfer was measured by ten items ($\alpha = .94$) with a 5-point Likert scale, ranging from 1 (totally disagree) to 5 (totally agree). Three items directly question the presence of transfer (e.g.: "I have applied what I've learned in this training course in my vocational activity"), six items indirectly target the impact of transfer (e.g. "Thanks to the training I received, I'm more efficient"), and one question relates to the personal development ("The training contributed to my personal development").

Motivational beliefs

Wenger et al. (2022) have developed a scale to measure three types of motivation for choosing an apprenticeship, based on the self-determination theory (Deci & Ryan, 2000; Ryan & Deci, 2017). The first type is called autonomous motivation, which means that the person is choosing the apprenticeship because they are genuinely interested in the occupation. The second type is called controlled motivation, which means that the person is choosing the apprenticeship because of external factors, such as salary or working conditions. The third type is called default motivation, which means that the person is choosing the apprenticeship because they don't have other training opportunities.

Autonomous motivation. Autonomous motivation was measured using three items: "This vocational field interests me," "I like the tasks to be carried out in this occupation" and "I enjoy doing this job." ($\alpha = .91$).

Control motivation. Controlled motivation was measured by five items: "The working conditions are good (working hours, vacations, etc.)", "this allows me to already earn a small salary.", "this vocational field is valued by my family", "I will earn a good salary after the diploma" and "this vocational field is valued by my friends" ($\alpha = .63$).

Default motivation. The choice of training by default of another option was measured by four items: "My first training option was not accessible", "I had few other career options", "I could not achieve the career of my dreams" and "I had no other way out or alternative" ($\alpha = .82$).

Perceived academic competence. Perceived academic competence was measured using eight items taken from Galand and Philippot (2002). This feeling pertains to the student's self-evaluation of their abilities to achieve a certain outcome, particularly when compared to peers in the same class (e.g., "If I am given enough time, I am capable of doing well in all the courses"; $\alpha = .77$).

Workplace Self-efficacy beliefs. The feeling of personal efficacy in the occupational context was measured using the seven items of the Occupational Self-efficacy Beliefs Questionnaire – short version (Schyns & von Collani, 2002; French translation by Rigotti et al., 2008). This scale assesses the extent to which people feel they can cope with job demands (e.g., "If an unexpected situation arises at my job, I always know how to behave"; α = .78).

Perceived training quality. To measure perceptions about the quality of training we used 3 aspects of the IQAD (Quality inventory in dual learning (Inventaire de la Qualité en Apprentissage Dual) (Berger et al., 2022): Being considered as an adult at school (5 items, e.g., "At school, I feel treated like a responsible adult"; α = .69); Relationships in the company (7 items, e.g., "My work colleagues are nice to me"; α = .83); and Teaching practices (6 items, e.g., "My teacher shows me that he or she likes teaching"; α = .86).

2.3 Data Collection Procedure

Following authorization by the relevant state authorities, data were collected via an online questionnaire from vocational schools located in the French-speaking part of Switzerland. In line with ethical principles of research, participation was voluntary, and anonymity was guaranteed.

2.4 Data Analysis Procedure

To address the research questions, multiple hierarchical regression analyses were conducted in three steps to predict learning transfer. The first step involved introducing a set of individual characteristics (gender, company size, training year, and the vocational field) as potential predictors of learning transfer. In the second stage, motivational beliefs (i.e., autonomous motivation, controlled motivation, default motivation, perceived academic competence, and workplace self-efficacy) were added as predictors. Finally, in the third step, three aspects related to the perceived quality of training were also introduced: being treated as an adult at school, workplace relationships, and teaching practices. To include non-continuous or non-dichotomous variables as predictors, vocational field, training year, and number of employees in the training company were recoded as dummy variables following the guidelines of Cohen et al. (2003).

3   Results

The means of all scale scores and their standard deviations are presented in Table 1.

The zero-order bivariate correlations between learning transfer and the dimensions of academic competence, self-efficacy in the workplace, and motivational aspects are presented in Table 2. This section shows the correlations for the variables included in the multiple regression analyses.

All correlations are statistically significant and highly consistent. The only negative correlation we found is between default motivation and learning transfer.

Table 3 presents the results of the hierarchical regression in three steps, which aim to explain the transfer of learning from school to the workplace during training in the company.

Overall, the results indicate an increase in the explained variance during the progression of the three models. Model 1, including only individual characteristics, accounts for a modest portion of the variance in learning transfer within the training company ($R^2 = 0.103$). Model 2, which includes the five dimensions of motivational beliefs (academic competence, self-efficacy in the workplace and three types of motivation for choosing an apprenticeship), offers a significantly better explanation of this variance ($\Delta R^2 = 0.096$; $R^2 = 0.199$). Finally, in Model 3, aspects of the perceived training quality are introduced, leading to a significant increase in the model's explanatory power ($\Delta R^2 = 0.165$; $R^2 = 0.363$).

Table 1

Descriptive Statistics

Dimension	M	SD
Learning transfer	3.02	0.95
Motivational beliefs		
Autonomous motivation	4.79	1.18
Control motivation	3.97	1.14
Default motivation	2.98	1.53
Perceived academic competence	4.15	0.93
Workplace Self-efficacy beliefs	4.51	0.76
Perceived training quality		
Being considered an adult (at school)	3.70	1.22
Relations and management in the company	5.06	0.87
Teaching practices	4.30	1.03

Note. n = 840. Learning transfer used a 5-point Likert scale, while the rest of the dimensions used a six-point Likert scale.

Table 2

Correlations Between Individual Characteristics, Motivational Aspects, Perceived Training Quality, and Learning Transfer

Dimensions	Learning transfer
Individual characteristics	
Gender (male)	.074
Companies with 10 or fewer employees	.118
First-year of training	.097
Third year of training	-.089
Hair dressing and beauty	.153
Administration	-.257
Retail	-.021
Motivational beliefs	
Autonomous motivation	.278
Control motivation	.203
Default motivation	-.120
Academic competence	.221
Self-efficacy in the workplace	.224
Perceived training quality	
Being considered an adult (at school)	.525
Relations and management in the company	.108
Teaching practices	.390

Note. n = 840; $r \geq |.07|$, $p < .05$, $r \geq |.09|$, $p < .01$; $r \geq |.12|$, $p < .001$.

Model 1 indicates that first-year students and the vocational field (Administration and Retail) significantly explain the learning transfer in the company, thus, first-year apprentices report a higher level of learning transfer in the company, while apprentices from Administration and Retail report a reduced level of learning transfer. The results of Model 2 indicate that autonomous motivation, controlled motivation, the sense of academic competence, and self-efficacy in the workplace significantly contribute to explaining learning transfer in the company. In other words, higher levels of autonomous motivation, controlled motivation, academic competence, and self-efficacy in the workplace are associated with a greater sense of learning transfer in the company. Finally, the results of Model 3 indicate that the perceived training context provides additional information to explain learning transfer in the company: trainees who feel

they are treated as adults and perceive good teaching practices report greater learning transfer in the company.

Table 3
Hierarchical Regression Analysis

Predictor	Model 1	Model 2	Model 3
	β	β	β
Individual characteristics			
Gender (male)	-.015	-.025	-.007
Companies with 10 or fewer employees	.036	.055	.064
First-year	.087*	.071	.052
Third year	-.059	-.029	-.036
Hair dressing and beauty	.010	.017	-.025
Administration	-.324***	-.267***	-.131**
Retail	-.157***	-.076	-.026
Motivational beliefs			
Autonomous motivation		.133**	.106**
Control motivation		.132***	.083*
Default motivation		-.016	.013
Academic competence		.130***	.073*
Self-efficacy in the workplace		.084*	.060
Perceived training quality			
Being considered an adult (at school)			.386***
Relations and management in the company			-.015
Teaching practices			.109**
R²	.103	.199	.363
F Variation	13.67***	19.72***	71.00***

Note. n = 840; * $p < .05$; ** $p < .01$; *** $p < .001$. All VIF coefficients are below 3, and the Durbin-Watson is 1.90.

4 Discussion

The objective of this research is to identify and analyze whether individual characteristics, motivational beliefs, and perceived training quality predict the transfer of learning in vocational students. Previous studies have found that motivation to learn (Blume et al., 2010; Grossman & Salas, 2011), self-efficacy (Blume et al., 2010; Grossman & Salas, 2011), autonomy (Burke & Hutchins, 2007; Sitzmann & Weinhardt, 2015), and supervisor and peer support (Blume et al., 2010; Burke & Hutchins, 2007; Sitzmann & Weinhardt, 2015) are key facilitators of learning transfer.

Studies such as those by Axtell et al. (1997) and Chiaburu et al. (2010) have highlighted the crucial role of motivation in sustaining learning transfer over time. This research presents a novel approach by examining different types of motivation (autonomous, controlled, and default), revealing that not all motivations relate to learning transfer in the same way. Autonomous motivation emerges as the most significant predictor, while default motivation does not predict learning transfer. Contrary to our expectations, we found that controlled motivation was a positive predictor of learning transfer. Future research should continue to explore the role of different types of motivation, analyzing, for instance, whether the positive effects of autonomous and controlled motivation remain consistent over time.

Our findings suggest that academic competence is a crucial predictor of learning transfer. This result supports previous research, which has demonstrated that goal orientation (Blume et al., 2010; Burke & Hutchins, 2007) and cognitive ability (Blume et al., 2010; Grossman & Salas, 2011)—both characteristics associated with academic competence—are linked to learning transfer. Furthermore, our results are in line with studies identifying self-efficacy as a predictor of learning transfer (Blume et al., 2010; Grossman & Salas, 2011).

Consistent with previous research, a positive training context—characterized by treating apprentices as adults and demonstrating exemplary teaching practices—further enhances learning transfer in the workplace. This underscores the crucial role of the work environment and supervisor support in facilitating learning transfer (Blume et al., 2010; Burke & Hutchins, 2007; Sitzmann & Weinhardt, 2015; Towler et al., 2014).

This study offers important implications for VET. First, it highlights the significant role of autonomous motivation as a key predictor of learning transfer. This suggests that educational institutions and companies should focus on promoting autonomy among apprentices through pedagogical approaches that foster self-directed learning. Moreover, academic competence and self-efficacy emerge as crucial factors in learning transfer. Training programs should not only focus on developing technical skills but also strengthen self-efficacy through achievable goals and continuous feedback. Finally, the training context in the workplace also serves as a key facilitator of learning transfer. Organizations should invest in creating learning environments that encourage active engagement and motivation, which in turn will enhance the transfer of learning to professional practice.

References

Axtell, C. M., Maitlis, S., & Yearta, S. K. (1997). Predicting immediate and longer-term transfer of training. *Personnel Review, 26*(3), 201–213. http://dx.doi.org/10.1108/00483489710161413

Baldwin, T. T., & Ford, J. K. (1988). Transfer of training: A review and directions for future research. *Personnel Psychology, 41*, 63–105. https://doi.org/10.1111/j.1744-6570.1988.tb00632.x

Bransford, J. D., & Schwartz, D. L. (1999). Rethinking Transfer: A Simple Proposal with Multiple Implications. *Review of Research in Education, 24*(1), 61-100. https://doi.org/10.3102/0091732X024001061

Berger, J. L., Lamamra, N., & Bonoli, L. (2018). Des enjeux de la formation professionnelle en Suisse: quelques éléments de contexte. In L. Bonoli, J.-L. Berger & N. Lamamra (Eds.), *Enjeux de la formation professionnelle. Le « modèle » suisse sous la loupe* (pp. 19–29). Seismo (Collection Recherche en formation professionnelle). https://www.seismoverlag.ch/site/assets/files/11046/oa_9782883517226.pdf

Berger, J.-L., Wenger, M., & Sauli, F. (2022). *Inventaire Qualité de l'Apprentissage Dual (IQAD)*. https://www.iqad.ch

Berger, J.-L., Wenger, M., & Sauli, F. (2023). Engagement en formation professionnelle initiale duale et perceptions de la qualité de la formation. *Didactique, 4*(2), 33-64. https://doi.org/10.37571/2023.0203

Blume, B. D., Ford, J. K., Baldwin, T. T., & Huang, J. L. (2010). Transfer of training: A meta-analytic review. *Journal of Management, 36*, 1065–1105. https://doi.org/10.1177/0149206309352880

Blume, B. D., Ford, J. K., Surface E. A., & Olenick, J. (2017). A dynamic model of training transfer. *Human Resource Management Review, 29*(2), 270–283. https://doi.org/10.1016/j.hrmr.2017.11.004

Burke, L. A., & Hutchins, H. M. (2007). Training transfer: An integrative literature review. *Human Resource Development Review, 6*, 263–296. https://doi.org/10.1177/1534484307303035

Chiaburu, D., van Dam, K., & Hutchins, H. M. (2010). Social support in the workplace and training effectiveness: A longitudinal analysis. *International Journal of Selection and Assessment, 18*(2), 187-200. https://doi.org/10.1111/j.1468-2389.2010.00500.x

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression / correlation analysis for the behavioral sciences* (3rd ed.). Lawrence Erlbaum.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Devos, C. (2005). Les influences des variables individuelles, de l'environnement, et de la formation sur le transfert des acquis de formation [Bachelor's thesis. Université Catholique de Louvain].

Federal Statistical Office. (2022). *Degré secondaire II: choix de formation.* https://www.bfs.admin.ch/bfs/fr/home/statistiques/education-science/indicateurs-formation/indicators/choix-formation-secii.html

Galand, B., & Philippot, P. (2002). Style motivationnel des élèves du secondaire: développement d'un instrument de mesure et relations avec d'autres variables pédagogiques. *Canadian Journal of Behavioural Science / Revue canadienne des sciences du comportement, 34*(4), 261–275. https://doi.org/10.1037/h0087179

Grossman, R., & Salas, E. (2011). The transfer of training: What really matters. *International Journal of Training and Development, 15*, 103–120. https://doi.org/10.1111/j.1468-2419.2011.00373.x

Gurtner, J. L., Furlan, N., & Cattaneo, A. (2018). L'articulation des connaissances n'est pas la tâche des seul·e·s

apprenti·e·s. In C. Baumeler, A. Barabasch, I. Caprani, & J. Schweri, (Eds.), *Enjeux de la formation professionnelle. Le "modèle" suisse sous la loupe* (pp. 253-266). Seismo. https://www.seismoverlag.ch/site/assets/files/11046/oa_9782883517226.pdf

Gurtner, J.L., A. Gulfi, A., Genoud, P. A., de Rocha Trindade, B., & Schumacher, J. (2012). Learning in multiple contexts: Are there intra-, cross- and transcontextual effects on the learner's motivation and help seeking?. *European Journal of Psychology of Education, 27*(2), 213–225. https://doi.org/10.1007/s10212-011-0083-4

Kilbrink, N., & Bjurulf, V. (2013). Transfer of knowledge in technical vocational education: A narrative study in Swedish upper secondary school. *International journal of technology and design education, 23*(3), 519-535. http://dx.doi.org/10.1007/s10798-012-9201-0

Krapp, A., & Lewalter, D. (2001). Development of interests and interest-based motivational orientations. A longitudinal study in vocational school and work settings. In S. Volet, & S. Järvelä (Eds.), *Motivation in learning contexts: theoretical and methodological implications* (pp. 209-232). Elsevier

Marton, F. (2006). Sameness and Difference in Transfer. *Journal of the Learning Sciences, 15*(4), 499–535. https://doi.org/10.1207/s15327809jls1504_3

Mulder, R. H., Messmann, G., & König, C. (2015). Vocational education and training: researching the relationship between school and work. *European Journal of Education, 50*(4), 497-512. https://doi.org/10.1111/ejed.12147

Negrini, L., Forsblom, L., Gurtner, J. L., & Schumann, S. (2016). Is there a relationship between training quality and premature contract terminations in VET?. *Vocations and Learning, 9*(3), 361–378. http://dx.doi.org/10.1007/s12186-016-9158-3

Organisation for Economic Cooperation and Development. (2020). *Caractéristiques de la filière professionnelle du deuxième cycle de l'enseignement secondaire*. OECD Publishing. https://doi.org/10.1787/86bda228-fr.

Poortman, C. L., Reenalda, M., Nijhof, W. J., & Nieuwenhuis, L. F. M. (2014). Workplace Learning in Dual Higher Professional Education. *Vocations and learning, 7*(2), 167-190. https://doi.org/10.1007/s12186-014-9111-2

Rigotti, T., Schyns, B., & Mohr, G. (2008). A short version of the Occupational Self-Efficacy Scale: Structural and construct validity across five countries. *Journal of Career Assessment, 16*(2), 238–255. https://doi.org/10.1177/1069072707305763

Rouiller, J. Z., & Goldstein, I. L. (1993). The relationship between organizational transfer climate and positive transfer of training. *Human Resources Development Quarterly, 4*https://psycnet.apa.org/doi/10.1002/hrdq.3920040408

Ryan, R. M., & Deci, E. L. (2017). Self-determination theory: Basic psychological needs in motivation, development and wellness. Guilford Press.

Sappa, V., & Aprea, C. (2014). Conceptions of Connectivity: How Swiss Teachers, Trainers and Apprentices Perceive Vocational Learning and Teaching Across Different Learning Sites. *Vocations and Learning, 7*, 263–287. https://doi.org/10.1007/s12186-014-9115-y

Schyns, B., & von Collani, G. (2002). A new occupational self-efficacy scale and its relation to personality constructs and organisational variables. *European Journal of Work and Organizational Psychology, 11*, 219-241. https://doi.org/10.1080/13594320244000148

Sitzmann, T., & Weinhardt, J. M. (2015). Training engagement theory: A multilevel perspective on the effectiveness of work-related training. *Journal of Management, 44*(2). https://doi.org/10.1177/0149206315574596

Towler, A., Watson, A., & Surface, E. A. (2014). Signaling the importance of training. *Journal of Managerial Psychology, 29*, 829–849. http://dx.doi.org/10.1108/JMP-03-2012-0092

Wenger, M., Sauli, F., & Berger, J. L. (2021). Les tensions de rôle chez les apprenti·e·s pour caractériser la qualité perçue de la formation professionnelle en alternance et ses conséquences. *L'orientation scolaire et professionnelle, 50*(3), 417–447. https://doi.org/10.4000/osp.14485

Wenger, M., Sauli, F., & Berger, J.-L. (2022). Profils d'apprenti·e·s reflétant des tensions de rôle en formation professionnelle en alternance en Suisse. *Psychologie du Travail et des Organisations, 28*(1), 73-86. https://doi.org/10.1016/j.pto.2021.10.004

Biographical Notes

Arturo Garcia de Olalla Gutierrez is a predoctoral researcher and a member of the Department of Applied Pedagogy and Educational Psychology at the University of the Balearic Islands, Spain, by the Ministry of Science and Innovation of the Government of Spain (PID2019-108342RB-I00). He is currently working on his doctoral thesis.

Matilde Wenger is senior researcher at the SFUVET. Her topics of interest are dual VET quality; dual apprentices' role stess; emotion management, burn-out and job satisfaction in VET

teachers and apprentices; in-company trainers's challanges and needs. Her research areas are based on social psychology, educational sciences and sociology. She favours mixed methods and works with both quantitative and qualitative approaches.

Florinda Sauli is a scientific collaborator at the University of Applied Sciences and Arts of Southern Switzerland (SUPSI). Her fields of interest are quality of teaching and learning and the transfer of knowledge from educational settings to the workplace.

Jean-Louis Berger is a full professor at the University of Fribourg, Switzerland. He specializes in educational psychology. His expertise lies in teaching, training, and learning in childhood and adolescence. His research focuses on self-regulation, metacognition, learning strategies, and motivation for learning and teaching. His work aims to understand how to support cognitive and motivational learning processes.

The Neighbourhood Training Centre: A Case Study on the Intersection of Education Policies and Non-school Agents

García-Goncet, Daniel

dggoncet@unizar.es, University of Zaragoza

Romeo Ortiz, Elena

eromeo@cpifpmovera.es, Department of Education, Culture and Sports. Government of Aragon

Abstract

Context: Various public policies emphasize VET's capacity to address exclusionary situations and promote development. Among other factors, the inclusive potential of VET could also be associated with the presence and engagement of a broad variety of agents in the delivery of VET. In Spain, the involvement of non-traditional educational agents, such as Local Administrations or grassroots social movements, has been particularly significant in the implementation of initiatives, programs, and devices addressed to students facing educational exclusion. Approach: This study aims to deepen the understanding of the role play by non-traditional school agents within the Spanish VET context. To fulfil our objectives, we decided to adopt a qualitative framework. Specifically, we opted for a single case study conformed by a VET training centre which was set up by a grassroots movement. Findings: Findings demonstrate that the inclusive capacity of VET provided by these traditionally school-based agents is primarily linked to a conception of VET associated with social transformation. Conclusions: The findings indicate that the inclusive potential of Vocational Training is linked to its ability to diverge from certain characteristic forms of the educational system.

Keywords

inclusive education, school failure, inclusive VET, community schools, critical ethnography

1 The Right to Education and VET

The origins of the contemporary education system can be traced back to the context of the French Revolution and the ideals of the Enlightenment (Condorcet, 2001 [1792]). In that context, the innovation that it was the national education systems, and its transformative potential, were soon reduced to the current system of state-run education (Puelles, 2013). As result, the transition from the concept of a national education system to the contemporary state-run system contributed to the establishment of dual and exclusionary educational systems (Puelles, 2013). Moreover, from a detailed examination of historical evidence is clear that education systems were not originally designed to accommodate the entire student body (Viñao, 2011). Consequently, it is remarkable that the right to education was materialised on education systems which were clearly elitist and strongly oriented towards the development of their selective function (Viñao, 2006). The effects of these essential characteristics of education systems have been

expressed through phenomena such as school failure, school drop-out or early school leaving, which have become major social problems in most countries (García-Cid et al., 2025). Besides, these essential attributes of education systems have been reflected in the neglect of the varied cultures associated with students from popular and working-class backgrounds, as well as other minorities. As result, school institutions have been identified as symbolically violent (Bourdieu, 1989) by the very nature, which is reinforce by its hierarchical grading system and exclusivist effect on society. So, thinking in a significative part of the students, we can conclude that the right to education cannot be easily achieved within education systems.

These characteristics of the education systems are relevant, particularly since such systems represent "a very rare cross-cultural consensus" (Gimeno, 1999, 12). In contrast, Vocational Education and Training (VET) systems exhibit considerable diversity when compared to education systems. In this regard, VET systems are distinctly situated within their specific contexts, and their developmental trajectories reflect more evidently the unique characteristics of their local environments (Brunet & Moral, 2017; Pereira et al., 2016). Moreover, VET systems need to be locally rooted (Billett, 2025). As result, VET systems have traditionally exhibited a greater openness to the involvement of diverse of agents, including agents without experience within the education systems (García-Goncet, 2023). Nevertheless, currently, VET systems are in a process of convergence at international level, especially in Europe (Luzón & Torres, 2013; Psifidou, 2014; Zaunstöck et al., 2021).

Considering the intricate and ambiguous circumstances surrounding the implementation of the right to education within the education systems, VET have been pointed out as an alternative which can assume a rights-based approaches to education (Zancajo & Valiente, 2019). In Spain, different local initiatives related with VET systems have been a key element to promote the right to education among those students who could not enjoy this right during their compulsory education (Bernárdez-Gómez et al., 2021; García-Goncet, 2022; Pruaño et al., 2019). Students who lived educational exclusion (Tarabini, 2018) have found opportunities in these local initiatives to avoid various social problems as well as a way to reengagement in education. In fact, various global and international agendas related to educational public policies have been emphasizing vocational education and training (VET) as a suitable pathway for fostering social cohesion and inclusion for several decades (CEDEFOP, 2020; UNESCO-UNEVOC, 2024; OECD, 2024). The unique position of VET within the social framework supports these assertions, as nearly any public policy associated with VET extends beyond the educational sphere and has a direct impact on the economy or employment. Recent research findings also align with this perspective (López et al., 2023; Tūtlys et al., 2025).

Therefore, VET is generally considered as a suitable alternative for individuals from sectors of society that are in more vulnerable situations (European Agency for Development in Special Needs Education [EADSNE], 2013; Gonzálvez & Marhuenda-Fluixà, 2021; Psifidou & Grm, 2022). This perspective reinforces the idea of VET as a privileged tool with sufficient potential to address issues of social exclusion (Martín-Gutiérrez, 2020). However, this understanding of VET is not a recent development; for decades, it has been recognized as a primary pathway for economic and social advancement (López et al., 2023; Lopez-Fogues, 2016; Nilsson, 2010). In fact, the novelty may lie in a redefinition of general education which suggests a certain form of vocationalism, where "[t]he broadest conception of vocationalism is the view that schools are primarily devoted to preparing students for different occupations" (Grubb, 1985, 526).

2   VET and Non-traditional School Agents

VET is formally defined as "education and training which aims to equip people with knowledge, know-how, skills and/or competences required in particular occupations or more broadly on the labour market" (CEDEFOP, 2014). However, VET is also pointed as one of the

most effective mechanisms to promote social equity through equipping citizens to participate in continuously changing labour market that characterise our contemporary society (UNESCO, 2015). We will focus on this double objective and, particularly, on how VET can make a difference when education systems have missed the opportunity to equip pupils with the right knowledge, skills and values to ensure their social participation during compulsory education.

In this paper we reflect on VET as an alternative strategy to overcome educational exclusion (Escudero, 2020; Tarabini, 2018). As it was mentioned, we will take into account the different characteristics between regular education systems and VET systems and, principally, the openness of VET to the participation of different agents as crucial distinctive. As result, the involvement of this diverse range of agents is also reflected in the existence of various types of VET centres. Therefore, it could be argued that VET's connections to local contexts, together with the active participation of a wider range of social agents, could play an important role in increasing VET's capacity to democratise the school curriculum and improve the accessibility of the right to education for all students, specially, those with working class and popular backgrounds, as well as other minorities. Thus, it could be interesting to deepen the characterisation of these social actors who are active in VET systems and are really engaged in overcoming educational exclusion, as they promoted different initiatives, programmes, and even VET centres, but –at the same time– they do not play any relevant or official role within the education system. In this sense, these agents play an intense educational role, but they are not traditional school agents. Who are these non-traditional school actors? Why are they involved in educational problems such as school failure, school drop-out or early school leaving? What do they purpose? How do they experience the current changing context of VET and education?

To think about this, the concept of *field* can be useful. The concept of field, as articulated by Bourdieu (1989, 2007), offers a framework for understanding dynamic and plural networks among agents, both externally (among different fields within the same social space) and internally (among the agents operating within the field). These networks of relationships also encompass competition and conflict, enabling us to conceptualize the dynamics of the field as processes of continual modification of preexisting relationships, while remaining intertwined with the reproduction of power and domination relations within the field (Martín Criado, 2010). According to this, recognise the participation of non-traditional school agents in school field is relevant, as well as to explore their special contribution to, on one hand, overcome the educational exclusion and, on the other hand, to ensure the right to education of those students who finalised their compulsory education without the required competences.

3 Purpose

In this paper we focus on VET programs and devices developed by non-traditional scholar agents within the Spanish education system to fight against educational exclusion (García-Goncet, 2018; García-Montero, 2022). That is, programs and devices in which different set of educational, social and political agents are involved with. In most of the cases, in Spain, the initiative of Local Administrations and grassroots social movements have significantly contributed to the development of these programs and devices since the late seventies, despite the absence of any educational responsibilities assigned to these agents (García-Goncet, 2023). Exactly for that reason, these two agents can be identified as non-traditional school agents in the context of the Spanish education system: none of them have got any formal educational responsibilities within the education system but, at the same, they have been working to overcome some of the most relevant educational problems, such as the educational exclusion related to school failure or early school leaving.

Thinking in terms of the capacity of VET to include all students or, at least, a broader spectrum of pupils than the rest of the education system, the active participation of these non-

traditional school agents is relevant. So, the involvement of non-traditional agents in the educational field raises important questions regarding their capacities to reinforce an inclusive VET: how can these non-traditional agents play this role in favour of inclusion? Which characteristic do they allow them to implement a more inclusive education and VET? How do they manage to overcome educational exclusion? Moreover, other questions could be: why do non-traditional agents engage within the school field? How do they seek to achieve their goals through the participation in the school field? In view of that, this contribution presents some results from an ongoing research process focuses on the participation of these non-school agents in the Spanish school field. At the moment, our aim is to explore the how the participation of non-traditional agents can increase the inclusive potential of VET in order to fight against educational exclusion. Particularly, our primary objectives are twofold. First, we aim to achieve a deeper understanding of the motivations that drive grassroots social movements to intervene in the Spanish school field and how their vision influences the promotion of more inclusive VET. Secondly, we will try to identify how their vision is implemented in VET centres.

4   Methods and Research Scenario

To fulfil our objectives, we decided to adopt a qualitative framework (Flick, 2009). Specifically, we opted for a single case study (Stake, 1999; Yin, 2018) as the most effective means to explore the motivations and experience of non-traditional school agents in the Spanish context. The case is conformed by a VET training centre which was set up by a non-traditional school agent: a grassroots movement. The grassroots movement was a neighbourhood association. In the early 1980s, following the inaugural elections for the newly established City councils post-dictatorship, the neighbourhood association successfully negotiated with the Local Administration to develop a new educational initiative addresses to youngsters who found problems during their academic trajectories within compulsory education and were dropping out. Through this cooperation, in 1986, the neighbourhood association and the City council launched a new training offer. As in other cases as in other cases in Spain (Alberich, 2007), this initiative provided local youth with the opportunity to pursue further education, specifically in plumbing. Initially, approximately 15 young men began their plumbing training. The plumbing training program was enriched with a range of arts workshops and other academic subjects. The training program lacked official accreditation, as well as the VET centre had no affiliation with the educational system.

Nowadays, the VET centre accommodates around 120 students each academic year, with approximately two-thirds of the student body being male, as the majority of female students tend to enrol in programs related to the hospitality industry. Additional training programs include courses in welding, logistics management, and cooling systems. Moreover, the VET centre has carried on relevant modifications in the recent years in order to profit the new opportunities opened by the new Education Law, as now basic VET is a new way to achieve the diploma of compulsory education. So, lately, all the training programs are officially recognised by the Education authorities and the VET centre became a regular education centre.

The VET centre is located in a working-class neighbourhood of one of the biggest cities in Spain. That is, in the area where the grassroots movement emerged during Franco´s dictatorship, advocating for freedom and improved living conditions in the neighbourhood. Data have been collected by developing a critical ethnography (Beach y Vigo-Arrazola, 2021) during four years, from academic year 2019-2020 to 2022-2023. As result, data recollection included participant observation, field diary, formal and informal interviews, as well as analysis of official and institutional publications.

The analysis was carried following a deductive-inductive process (Gibbs, 2012), inspired by the grounded theory. The analytical categories emerged during the process, leading to the transformation of the initial categories identified in the review of the academic literature (Cohen et

al., 2002). Finally, the results are presented around the following analytical categories: *A transformative mission*, *Beyond the schooling* (Taller Vrs Aula, Prof militantes, saber práctico Vrs credencial), and *Facing new challenges* (atractivo de la profesión y la adultez, world of labour y credencialismo).

5 Results

5.1 A Transformative Mission

As we concentrate on non-traditional educational agents who do not possess an explicit and formal mandate to engage in the development of educational services, it becomes particularly relevant to consider the motivations that drive these agents to participate in initiatives aimed at combating educational exclusion. In this context, one individual from the neighbourhood association involved in the implementation of the case study shared insights regarding the overarching perspective from which they approached the issue:

> Well, you may wonder what a Neighbourhood Association is doing setting up these cultural services, because there are the academies or... Here, we are not trying to replace any academy, nor we have tried, from the Association, to provide technical knowledge that can be obtained elsewhere (...) What we are trying to do here is to provide a service or to try to help cover the needs of the people in the neighbourhood, and there is no doubt that, maybe not so much today, but certainly 40 years ago it was very strong (...) the lack of knowledge, of culture, I would say that it made them and still makes them very vulnerable to any kind of manipulation, of exploitation (...) So it is clear what the Association is trying to do. (AUMA, 39: 00)

The presented testimony fragment illustrates the tensions related to the involvement of the neighbourhood association in the provision of VET services. On one hand, they did not intend to disrupt the existing VET offerings provided by traditional educational agents. On the other hand, they set an ambitious goal that went beyond mere professional qualification: they aimed to initiate a cultural project that would foster critical thinking among participants, thereby mitigating the risks of "manipulation" and "exploitation." Consequently, the mission of the neighbourhood association encompassed providing vocational training that transcended a mere focus on technical aspects. In fact, another participant involved in the launch of the original initiative indicated that

> The training program did not solely focus on plumbing training. The initial educator had a keen interest in photography, which led him to establish a small photography workshop for the students. Additionally, he was passionate about ceramics, prompting the students to engage in ceramic creation. Cultural visits to the city and excursions into nature were also organized. Thus, the approach extended beyond vocational training, fostering student engagement through a variety of activities. (ET1TS, 8:42)

As evidenced in the statement, from its very beginning, the case study positioned its proposal beyond a strictly professional understanding of VET. The objectives aim not only to go beyond the attainment of purely technical competencies, but also to ensure that the educational program remains flexible enough to consider and incorporate the interests of all participants involved in the experience. Throughout our observation period, we noted numerous instances in which teachers took into account the perspectives of the students. Consequently, we can deduce that this aspect is a defining characteristic of the case. This feature is distinctly recognized by the students themselves as a hallmark of the Vocational Education and Training (VET) center. One of the students remarked to us

The teachers really value everyone's input. They ask you questions like, "Hey, how would you approach this?" They genuinely care about what the students think. Plus, they let you make mistakes. They'll say, "If you want to try it that way, go for it, but it might not work out." At least you get to see for yourself how it goes. In high school, it's different; they just ignore you and let you mess up if you want. (ETNB, 36:17)

5.2 Beyond the Schooling

From its inception, the VET centre adopted a profoundly educational and transformative approach to its mission. In alignment with this mission, the implementation of the training program was sufficiently open to listen to and accommodate the potential interests of all participants. This was further supported by an organization of spaces and timetables that distinctly diverged from the traditional school structure found in most VET centres. This observation was noted in one of our initial assessments:

As I ascended and observed the students engaged in culinary tasks, the distinct class groups were not easily identifiable, nor was it apparent whether they were in their first or second year. The instructors had organized the students based on the specific tasks to be performed, resulting in a distribution of students throughout the kitchen at their assigned stations. A similar scenario was observed among those training in the restaurant and bar service specialty. However, during my discussion with the coordinator, he explained that the aim is to replicate the typical organization found in a restaurant establishment. In this framework, second-year students generally take on roles that involve some level of supervision over their peers, primarily first-year students. These distinctions were highlighted by the different colors of the aprons worn by the students. The roles of coordination and supervision rotate among all students, providing them with opportunities to practice and develop various competencies. Interestingly, in the conversation I observed today, the instructor advised the student on how to address their peers in the capacity of a maître or head of the dining room, thus assuming responsibility for the restaurant's organization: "You need to tell them what to do and how it is expected to be done, but with respect". (Field notes, 29/10/2019)

The structure of the VET center is not solely a strategy aimed at enhancing the effectiveness of training in terms of professional skill acquisition. It is certainly acknowledged that such an organization contributes to students feeling more competent when acceding to a job. Nevertheless, there is another significant reason for choosing this organizational model for the VET center and its educational program. This perspective was shared by one of the individuals involved in the design and development of the community initiative,

To simply replicate what already existing practices is unnecessary for our existence. This is not a school or a place for those who have fallen behind. Instead, it offers a unique alternative that was originally designed to connect with the world of labour and steer clear of street life. I believe that makes a significant difference. It's an educational center like any other, but with its own distinct features. (ET1TS 1:11)

Beyond the effectiveness of a potential organisational model of the VET centre in terms of professional skill acquisition, our case study primarily examines its structure as a means to bridge the gap between education system and the world of labour. Consequently, the VET centre was designed to closely replicate the work environments in which its students are expected to participate in the near future. This replication of authentic work contexts also served to differentiate the centre from traditional organisational model in education. The necessity to move

away from conventional organisational model in education is evident, as such scholastic organisational model had failed to demonstrate its relevance in ensuring the right to education for the students of the studied VET centre. Ultimately, the emphasis on the world of labour reflects the backgrounds of many individuals who initiated and have supported the VET centre through the local community association. In our research, we sought to identify the key promoters of the VET centre, discovering that they were primarily local residents, most of whom were manual labourers. In the words of Ventura (2010).

> It was always the story of manual labourers, who today might be labelled as uneducated and uncultured. Who were their leaders? What actions did they take? I was searching for the intellectuals, the scientists, and the prominent figures from the bourgeois class, but I couldn't find them. They simply weren't there. Everyone—without exception—was a worker. (Ventura, 2010, 8)

However, as we outlined when presenting the research context, the training provided by the VET centre has gradually gained official recognition over time. Furthermore, the VET centre has recently been acknowledged as a regular educational institution by the educational authority. This development suggests that traditional school organizational logics may be gaining power within the VET centre. During our observation period, we noted the presence of tensions arising from the misalignment between the VET centre's organizational structure, which try to emulate the world of labour, and the organizational demands imposed by education authorities. Nevertheless, both the management team and the majority of the teaching staff remained committed to resisting the adoption of a conventional organizational model within the VET centre.

5.3 Facing New Challenges

While the changes related to the official recognition of the educational offerings at the VET centre and the new status of the centre, as an official educational institution, present significant challenges, they are not the only ones. In addition to the tensions that the VET centre may experience due to its new position within the educational system, our research has revealed a substantial challenge that remains unaddressed: the diminishing importance of the world of labour market among the current student population.

> While I was completing the enrollment application with a young boy who was considering training at the VET centre for the upcoming academic year, I inquired about him about his father's profession. This question is part of the application form, as the information is utilized to prioritize assistance for those youths who are in more vulnerable situations. When we reached this question, the young man struggled to identify his father's profession. He asked me what "profession" meant and what I was referring to. I explained that it related to his father's job or occupation. After a moment of silent, he finally replied, "I don't know. He worked for a few months as a stock clerk in a supermarket. However, he is unemployed now. Is that it?" (Field notes, 19/05/2022)

The scene we have recreated suggests that, at least for some of the youth who engage with the VET centre, there are challenges in aligning youth perceptions of the world of labour with the framework established by the VET centre. This issue is significant. Over the past four decades, the emphasis on the world of labour has not only been a defining characteristic of the VET centre but has also been identified as a key factor contributing to the success of its students compared to educational institutions. In summary, the VET centre has been understood to offer training that is perceived as appealing to the participating youth. The trades or professions they pursue serve to distance them from the school environment while drawing them closer to the realities of the world of labour. Furthermore, this world of labour is viewed as a pathway to

adulthood. However, the scene we have presented begins to challenge this entire rationale. One of the longest-serving teachers at the VET centre shared similar concerns with us

> Over the past 15 years, the profile of students has changed significantly compared to the past. Each successive year has seen a more defined set of characteristics among our students, leading to a decline in the number of "normalized" students who were either disinterested in studying or had substantial curricular delays, particularly in the final cycle of primary education. Currently, we are encountering a high percentage of immigrant students, whether first or second generation. These individuals are often the children of immigrants who were brought to Spain after their parents had settled. The integration of these young people is challenging, as they frequently experience significant dislocation. Additionally, we have students from ethnic minorities who exhibit high absenteeism and lack motivation for personal effort, as well as those facing serious "socio-personal" difficulties, showing little interest in learning a trade; they often do not differentiate between various vocational programs. Notably, during the selection interviews conducted in May, a considerable number of students are unaware of the trades or professions being taught in our VET centre.

The testimony of this educator highlights a significant shift in the profile of students entering the VET centre. This change reinforces the challenge we previously illustrated through the reenactment of the earlier scene, which involved a student completing the application form: "they often do not differentiate between vocational programs" and "a considerable number of students are unaware of the trades or professions being taught in our VET centre." In essence, students appear to have lost interest in professions, leading to a decline in the appeal of the training programs associated with these trades. Consequently, the relevance of the world of labour, which serves as a central element in the design, organizational model, and practices of the VET centre, could be deeply questioned. The decline of the world of labour would represent a significant transformation for this non-traditional school agent.

6 Discussion

This study begins with the repeated references to the potential of VET in fostering inclusion. Specifically, we focused on how various public policies emphasize VET's capacity to address exclusionary situations and promote development. Considering the challenges faced by educational systems in ensuring the right to education for all students, VET has demonstrated a greater ability to listen and respond to those students who have experienced educational exclusion, providing appropriate solutions. Among other aspects, we highlighted how the inclusive potential of VET systems may be linked to the participation of a broader range of agents compared to the education system. In other words, the inclusive potential of VET could also be associated with the presence and engagement of non-traditional educational agents in the delivery of VET. In Spain, the involvement of these non-traditional agents has been particularly significant in the implementation of initiatives, programs, and devices addressed to students facing educational exclusion. In this context, our aim was to deepen the understanding of these non-traditional educational agents within the Spanish context. Specifically, we sought to gain a more profound insight into the motivations driving grassroots social movements to engage in the Spanish educational field and how their perspectives on VET influence the advancement of a more inclusive VET system. Additionally, we aimed to identify how this vision of VET is realized within vocational training institutions.

The findings have demonstrated the relevance of educational centres and how they can play an important role to ensure the right to education (Tarabini, 2018). In this sense, our case study has similarities with the research developed around community schools (Heers et al., 2014,

2016). Findings show that the inclusive capacity of VET provided by these non-traditionally school-based agents is primarily linked to a conception of VET associated with social transformation. In the context of our case study, their understanding of VET aligns with the principles of critical pedagogies and popular education (Apple y Beane, 1997). These approaches aim to integrate technical skills with cultural promotion and critical awareness, as Paulo Freire proposed (Freire, 1984; Lucio-Villegas, 2015b). Furthermore, the VET practices of these agents are not solely educational in a traditional sense; they extend beyond mere school-based or strictly technical training perspectives, working with a sense of cultural intervention (Lucio-Villegas, 2015a). The recognition of the world of labour as an alternative to the formal education system highlights this shift, which is a way to introduce the world and life of part of the population who face more difficulties to enjoy the right to education and don´t easily recognise themselves within regular education system (Simmons et al., 2014). Nevertheless, recent changes in the labour market and the perceptions of the young people hold about it may pose significant threats to the inclusive potential of these VET initiatives that have emerged from grassroots social movements.

References

Alberich Nistal, T. (2007). Asociaciones y Movimientos Sociales en España: Cuatro Décadas de Cambios. *Revista de Estudios de Juventud, 76*, 71-89.

Apple, M. W. y Beane, J. A. (1997). *Escuelas Democráticas*. Morata.

Beach, D. y Vigo-Arrazola, B. (2021). Critical ethnographies of education and for social and educational transformation: A meta-ethnography. *Qualitative Inquiry, 26*(7), 677-688. https://doi.org/10.1177/1077800420935916

Bernárdez-Gómez, A., González Barea, E.M. & Rodríguez Entrena, M.J. (2021). Educational reengagement programs and measures in the region of Murcia. An approach to their understanding. *International Journal of Sociology of Education, 10*(3), 246-270. http://doi.org/10.17583/rise.7516

Billett, S. (2011). Vocational Education. Purpose, traditions and Prospects. Springer.

Billett, S. (2025). Responsiveness at the Local Level: Building VET Systems to Advance Communities. *International Journal of Training and Development*. https://doi.org/10.1111/IJTD.12351

Bourdieu, P. (1989). Social space and symbolic power. *Sociological Theory, 7*(1), 14–25

Bourdieu, P. (2007). *El sentido práctico*. Siglo XXI.

Brunet, I., & Moral, D. (2017). La formación profesional en la Unión Europea. Nuevas claves para su interpretación. *Revista Internacional de Organizaciones, 17*, 65–97. https://doi.org/10.17345/rio17.65-97

CEDEFOP (2014). *Terminology of European education and training policy*. Publications office of the European Union. https://www.cedefop.europa.eu/files/4117_en.pdf

CEDEFOP (2020). *Rumbo al futuro*. Unión Europea: Servicio de Publicaciones.

CEDEFOP (2020). Vocational education and training in Europe, 1995-2035. Scenarios for European vocational education and training in the 21st century. Publications Office of the European Union.

CEDEFOP. (2023). *The future of vocational education and training in Europe*. Publications office of the European Union

Cohen, L., Manion, L. y Morrison, K. (2002). *Research Methods in Education*. Routledge.

Condorcet, J. A. N. (2001 [1792]). Cinco memorias sobre la instrucción pública y otros escritos. Morata.

de Puelles Benítez, M. (2013). Reflexiones sobre la creación (y frustración) de un sistema educativo nacional (1813-1857). *Bordón: Revista de pedagogía, 65*(4), 21-32. https://doi.org/10.13042/bordon.2013.65401

Down, B., Smyth, J., & Robinson, J. (2019). Problematising vocational education and training in schools: using student narratives to interrupt neoliberal ideology. *Critical Studies in Education, 60*(4), 443–461. https://doi.org/10.1080/17508487.2017.1289474

Escarbajal-Frutos, A., López-Barrancos, S., Navarro-Barba, J., & Ibáñez-López, F. J. (2025). La percepción del profesorado sobre la educación de calidad e inclusiva que se ofrece en Formación Profesional. *Revista Electrónica Interuniversitaria de Formación Del Profesorado, 28*(1), 109–121. https://doi.org/10.6018/reifop.631191

Escudero Muñoz, J. M. (2020). Del fracaso escolar y el abandono educativo temprano a la exclusión educativa. En García Goncet, D., Gimeno Monterde, Ch., Dieste Gracia, B. y Blasco Serrano, A. C. (Ed), *Políticas públicas frente a la exclusión educativa: educación, inclusión y territorio* (21-26). Universidad de Zaragoza.

European Agency for Development in Special Needs Education. (2013). European patterns of successful practice in Vocational Education and Training. Participation of learners with SEN/Disabilities in VET. European

Commission.

European Commission (2020). Proposal for a Council Recommendation on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience. European Commission. https://op.europa.eu/en/publication-detail/-/publication/8e89305c-bc37-11ea-811c-01aa75ed71a1/language-en

Flick, U. (2007). Introducción a la investigación cualitativa. Morata.

Freire, P. (1984). *¿Extensión o comunicación?* Siglo XXI.

García-Cid, A., Khalfaoui, A., Fernández-Villardón, A., Fresno Anabo, I., Gutiérrez-Fernández, N., Santiago-Garabieta, M., Sharipova, D., Villardón-Gallego, L., & García-Carrión, R. (2025). Addressing underachievement and early school leaving in Europe: the role of institutional factors. *Educational Review*, 1–21. https://doi.org/10.1080/00131911.2025.2459902

García-Goncet, D. (2018). La aportación de la Red Municipal de Centros Sociolaborales al ejercicio del derecho a la educación. Políticas educativas y formativas desde una perspectiva local. En Gimeno Monterde, Ch. (Ed.) *Estrategias para la formación y el empleo en la Red Municipal de Centros Sociolaborales* (39-57). Universidad de Zaragoza.

García-Goncet, D. (2022). De la reproducción a la producción de los márgenes del sistema educativo. Una aplicación del concepto bourdiano de campo. *Revista de Sociología de la Educación-RASE, 15*(2), 225-243. https://doi.org/10.7203/RASE.15.2.24146

García-Goncet, D. (2023). La lucha contra la exclusión educativa desde una experiencia surgida del territorio. Posibilidades y retos para el movimiento ciudadano. En Gajardo Espinoza, K. y Cáceres Iglesias, J. (Coord.). *Soñar grande es soñar juntas. En busca de una educación crítica e inclusiva* (1093-1114). Octaedro.

García-Montero, R. (2022). Peñascal Kooperatiba. *Educar(nos), 98*, 11-15.

Gibbs, G. R. (2012). Software and Qualitative Data Analysis. En Arthur, J., Waring, M., Coe, R. y Hedges, L. V. (Eds.). *Research Methods and Methodologies in Education* (pp. 251-258). SAGE. http://eprints.hud.ac.uk/id/eprint/12858/

Gimeno Sacristan, J. (1999). La educación obligatoria: su sentido educativo y social. Morata.

Gonzálvez, C., & Marhuenda-Fluixà, F. (2021). Programs' Efficacy to Develop Employable Skills for People With Functional Diversity: A Meta-Analysis. *International Journal for Research in Vocational Education and Training, 8*(3), 300–333. https://doi.org/10.13152/IJRVET.8.3.3

Grubb, W. N. (1985). The Convergence of Educational Systems and the Role of Vocationalism. *Comparative Education Review, 29*(4), 526–548. https://doi.org/10.1086/446547

Heers, M., van Klaveren, C., Groot, W., & Maassen van den Brink, H. (2016). Community Schools: What We Know and What We Need to Know. *Review of Educational Research, 86*(4), 1016–1051. https://doi.org/10.3102/0034654315627365

Heers, M., van Klaveren, C., Groot, W., & van den Brink, H. M. (2014). The impact of community schools on student dropout in pre-vocational education. *Economics of Education Review, 41*, 105–119. https://doi.org/10.1016/j.econedurev.2014.05.003

Jacovkis, J., Montes, A., & Rambla, X. (2022). When Arriving Is Not Enough—Constraints in Access to Education and Employment Opportunities for Migrant Youth. *Societies, 12*(3), 95. https://doi.org/10.3390/soc12030095

Lucio-Villegas Ramos, E. (2015a). Adult Education in Communities. Approaches from a Participatory Perspective. Brill

Lucio-Villegas Ramos, E. (2015b). Paulo Freire. La Educación como Instrumento para la Justicia Social. *Revista Internacional De Educación Para La Justicia Social, 4*(1). https://doi.org/10.15366/riejs2015.4.1.001

López, S. Navarro, J. y Escarbajal, A. (2023). *La Formación Profesional como palanca para la Inclusión*. Narcea.

Lopez-Fogues, A. (2016). A social justice alternative for framing post-compulsory education: A human development perspective of VET in times of economic dominance. *Journal of Vocational Education and Training, 68*(2), 161–177. https://doi.org/10.1080/13636820.2015.1129357

Luzón Trujillo, A., & Torres Sánchez, M. (2013). Las políticas de formación profesional en España y en Europa: perspectivas comparadas. Editorial Octaedro.

Martín Criado, E. (2010). *La escuela sin funciones*. Bellaterra.

Martín-Gutiérrez, A. (2020). La escuela y su entorno en la sociedad del conocimiento. Un estudio focalizado en la Formación Profesional. Octaedro

Merino, R., Martínez, J. S. y Valls, O. (2020). Efectos secundarios y motivaciones de las personas jóvenes para escoger Formación Profesional. *Papers, 105*(2), 259-277.

Nilsson, A. (2010). Vocational education and training - an engine for economic growth and a vehicle for social inclusion? *International Journal of Training and Development, 14*(4), 251–272. https://doi.org/10.1111/j.1468-2419.2010.00357.x

OECD (2012). Better Skills, Better Jobs, Better Lives. A Strategic Approach to Skills Policies. OECD Publishing. doi: 10.1787/9789264177338-en

OECD (2024). *PISA Vocational Education and Training (VET): Assessment and Analytical Framework*. OECD Publishing. https://doi.org/10.1787/b0d5aaf9-en.

Pereira, E., Kyriazopoulou, M., & Weber, H. (2016). Inclusive Vocational Education and Training (VET) – Policy and Practice. In *Implementing Inclusive Education: Issues in Bridging the Policy-Practice Gap Vol. 8* (pp. 89–107). https://doi.org/10.1108/S1479-363620160000008006

Polesel, J. (2008). Democratising the curriculum or training the children of the poor: School-based vocational training in Australia. *Journal of Education Policy, 23*(6), 615–632. https://doi.org/10.1080/02680930802054420

Pruaño, A. P., Nieto Cano, J. M., & Soto, A. T. (2019). Re-engagement in education and training of young people who leave education early: the importance of earlier prior trajectories. *Revista Española de Pedagogía, 77*(272). https://www.revistadepedagogia.org/rep/vol77/iss272/16

Psifidou, I. (2014). Evolución histórica de la formación profesional en Europa. *Historia De La Educación, 33*, 353–359. https://revistas.usal.es/tres/index.php/0212-0267/article/view/12642

Psifidou, I. and Grm, S.P. (2022). VET Teachers and Trainers' Competence in Creating Inclusion and Excellence: European Policy Agenda, Approaches and Challenges. In: Bünning, F., Spöttl, G., Stolte, H. (eds) *Technical and Vocational Teacher Education and Training in International and Development Co-Operation. Technical and Vocational Education and Training: Issues, Concerns and Prospects, vol 34*. Springer. https://doi.org/10.1007/978-981-16-6474-8_7

Riele, K. te, & Crump, S. (2002). Young people, education and hope: Bringing VET in from the margins. *International Journal of Inclusive Education, 6*(3), 251–266. https://doi.org/10.1080/13603110210124366

Rosvall, P.-Å., & Nylund, M. (2024). Civic education in VET: concepts for a professional language in VET teaching and VET teacher education. *Journal of Vocational Education & Training, 76*(3), 684–703. https://doi.org/10.1080/13636820.2022.2075436

Salvà, F., Pinya, C., Álvarez, N., & Calvo, A. (2019). Dropout prevention in Secondary VET from different learning spaces: A social discussion experience. *International Journal for Research in Vocational Education and Training, 6*(2), 153–173. https://doi.org/10.13152/IJRVET.6.2.3

Shore, C., & Wright, S. (1997). Anthropology of policy: critical perspectives on governance and power. Routledge.

Simmons, R., Thompson, R., & Russel, L. (2014). Education, Work and Social Change. Young People and Marginalization in Post-Industrial Britain. Palgrave.Stake, R. E. (1999). Investigación con estudio de casos. Morata.

Tarabini-Castellani Clemente, A. (2018). La escuela no es para ti. El rol de los centros educativos en el abandono escolar. Octaedro.

Tūtlys, V., Tikkanen, T. I., Ümarik, M., & Sloka, B. (Eds.). (2025). *Empowering At-Risk Youth in and Through Vocational Education*. Springer. https://doi.org/10.1007/978-981-96-0613-9

UNESCO (2015). Final report containing a draft text of the recommendation concerning technical and vocational education and training. UNESCO.

UNESCO-UNEVOC (2024). Elevating TVET for a just and sustainable future for all. UNESCO.

Viñao, A. (2006). Sistemas educativos, culturas y reformas: continuidades y cambios. Morata.

Viñao, A. (2011). Del Bachillerato De Elite a La Educación Secundaria para Todos. In V. Vicente y Guerrero (Ed.), *Historia de la Enseñanza Media en Aragón* (pp. 449–472). Institución Fernando El Católico (CSIC).

Yin, R. K. (2018). Case study research and applications. Design and methods. SAGE.

Zancajo, A., & Valiente, O. (2019). TVET policy reforms in Chile 2006–2018: between human capital and the right to education. *Journal of Vocational Education & Training, 71*(4), 579–599. https://doi.org/10.1080/13636820.2018.1548500

Zaunstöck, T., Marhuenda-Fluixá, F., Ros-Garrido, A., & Fischer, M. (2021). Europeanisation of VET–the Spanish Vocational Education and Training system and the influence of European education policy. *Journal of Vocational Education and Training, 73*(2), 316–335. https://doi.org/10.1080/13636820.2021.1889645

Biographical Notes

Daniel García-Goncet holds a PhD. in Education. With extensive experience as pedagogue covering different educational issues, he is an assistant lecturer at the University of Zaragoza. His research focuses on the processes of educational exclusion and inclusion, as well as the relationship between education and citizenship.

Elena Romeo Ortiz is a veterinarian with extensive experience as a VET teacher in many public institutions. Her research focuses on the advancement of inclusive vocational education training, and educational policies.

Skilled Workforce for the Hydrogen Economy: International Review of National Workforce Studies

Gessler, Michael

mgessler@uni-bremen.de, University of Bremen, Germany

Abstract

Purpose: This comparative review aims to examine the workforce qualifications and technical competencies required in the emerging global hydrogen economy. It addresses three central questions: (1) What specific technical skills are required at distinct stages—such as production, storage, transport and utilization—in the development of a hydrogen industry, based on findings from country-specific studies? (2) How adequately do existing qualifications and vocational education and training programs meet these national demands, and where are gaps evident? (3) How do national analyses and strategies differ across countries?

Approach: Insights were gathered from eight national hydrogen workforce studies covering Australia, Brazil, France, Germany, India, Namibia, South Africa, and the United Kingdom (including a focused study on Scotland). These studies were systematically reviewed to comparatively analyse the technical skill requirements along the value chain, the alignment of existing vocational education and training systems with these needs, and country-specific differences in strategic approaches.

Findings: Key skill gaps and competency needs emerge across all nations studied, particularly in the fields of digital competence, standardized training, and ongoing upskilling. International benchmarking and collaboration are highlighted as crucial for improving vocational education and training. Additionally, adaptable policies are vital to building and maintaining the skilled workforce needed to advance the global hydrogen economy.

Conclusions: The review underscores the growing importance of systematically aligned training and skill development strategies in the hydrogen sector. Standardized vocational education and regular updates to curricula, coupled with international cooperation, can help address current deficits. Ultimately, a well-trained workforce is pivotal for effectively supporting the rapid expansion of the hydrogen industry worldwide.

Keywords

hydrogen economy, skills need, qualification gaps, workforce studies

1   Introduction

The hydrogen economy is a theoretical framework that envisions hydrogen as the primary energy carrier, gradually replacing fossil fuels across various sectors. This concept emerged from collaborative research and early discussions in the late 1960s and early 1970s, including influential contributions by John Bockris and other researchers, and aims to address global

challenges such as environmental degradation, natural resource depletion, and the demands of a growing population (Bockris, 2013).

Currently, over 99% of global hydrogen production uses fossil fuels, with petroleum refining accounting for 42% of hydrogen demand. Refineries are therefore the largest single sector of hydrogen consumption. However, for a truly sustainable hydrogen economy to emerge, the focus must shift to green hydrogen, produced via electrolysis using renewable electricity. The International Energy Agency's Net Zero Emission by 2050 Scenario forecasts significant growth in hydrogen consumption across multiple sectors, including traditional industrial applications (chemical production, ammonia, methanol, and refining), emerging sectors (direct reduced iron in steelmaking, transportation, hydrogen-based fuels), and energy storage (Mokrzycki & Gawlik, 2024).

The use of hydrogen would enable revolutionary changes in reducing carbon emissions, especially in the sectors that are hard to decarbonize, such as heavy industry, transport and power generation. To make these plans a reality, a skilled workforce is needed, which is currently in short supply, especially in the production, storage and transportation sectors, whereby this need is not a local but a global commitment (IRENA, 2024).

However, countries vary significantly in terms of their readiness for workforce training and skill development (McHenry et al., 2024). This review synthesizes findings from eight national skills analyses to answer the following key questions regarding hydrogen workforce competencies: (1) What specific technical skills are required at distinct stages—such as production, storage, and transport—in the development of a hydrogen industry, based on findings from country-specific studies? (2) How adequately do existing qualifications and vocational education and training programs meet these national demands, and where are gaps evident? (3) How do national analyses and strategies differ across countries? The selection of eight country studies (Australia, Brazil, France, Germany, India, Namibia, South Africa, and the UK) is based on the availability of skills analyses, identified through searches in the curated databases Scopus and Web of Science, as well as Google Scholar to include 'grey literature' (Haddaway et al., 2015). The search terms used are listed in Table 1.

Table 1
Search Terms

first term		and	second term	
or	skill*		or	hydrogen econom*
	qualification*			hydrogen industr*
	competenc*			
	training			
	training gap*			
	professional development			
	workforce analys*			
	skill* standard*			
	vocational education			

Note. * wildcard

To be selected as a national study, the findings had to cover the national skills landscape, based on empirical data and either have been published in a prestigious indexed journal (e.g. Australia: Beasy et al. 2023) or originated from a trusted national institution (e.g. India: Skill Council for Green Jobs). The review is based on a thematic analysis (Braun & Clarke, 2021) of national workforce reports from eight country studies (see appendix), focusing on technical skills across the hydrogen value chain and examining the existing training frameworks. Key

themes were developed around required competencies, gaps in qualifications, and needs for ongoing education and cross-national standards.

A recently published systematic review analyzes the knowledge and skill requirements necessary to develop a qualified *engineering* workforce in the hydrogen sector. It recommends close collaboration between higher education institutions and industry to design practice-oriented educational programs (McHenry et al., 2024). An analysis covering a broader scope, including vocational education and training as well as country-specific studies, is still lacking.

Although this review draws on eight national workforce studies, we have highlighted in the reflection certain countries (Australia, Brazil, India) more extensively than others. This is due to the richness of their data, and each represents a distinct archetype of hydrogen skills development

2 Technical Skills in the Hydrogen Economy Value Chain

Production

Most green hydrogen production, especially via electrolysis, necessitates a wide range of advanced technical skills—including precise operational expertise, stringent maintenance protocols, and a deep understanding of critical engineering principles such as electrical engineering, fluid mechanics, and metrology—to effectively scale up and sustain reliable production capabilities. The following exemplary challenges are mentioned:

- **Hydrogen Production Expertise:** Basic skills for operating and maintaining electrolyzers are essential. Alongside advances in electrolyzer technology itself, the French Hydrogen Skills White Paper underscores the critical role of production expertise in scaling up the hydrogen sector. As projects become increasingly complex, the design, construction, and operation of hydrogen production facilities demand advanced technical skills-particularly in areas such as electrical engineering, fluid mechanics, and metrology. This emphasis arises from a shortfall in conventional technical curricula, which often do not address these specialized production competencies. To overcome this gap, the report advocates for the development of dedicated training modules in close collaboration with industry experts and academic institutions. By broadening these targeted qualifications, France could than secure the operational expertise needed to support its burgeoning hydrogen production capabilities and drive sustainable industry growth (France Hydrogène, 2022).
- **Renewable Integration and Advanced Production Synergies:** The UK Energy Institute's Landscape Review of Skills Needed for an Emerging Hydrogen-Based Economy (2024) underscores the importance of integrating renewable energy sources with advanced hydrogen production processes. This emphasis arises from the critical need to optimize process efficiency and cost-effectiveness by harnessing renewable inputs—such as wind and solar—to drive the production cycle. The report highlights that these synergies require specialized knowledge in process simulation, dynamic systems control, and renewable energy integration—areas not typically addressed in conventional technical training. In order to bridge this skills gap, the review advocates for the development of targeted training programmes and micro-credential initiatives, collaboratively designed by industry experts and academic institutions (Energy Institute, 2024).
- **Process Engineering Skills and Targeted Training Modules:** The Indian SAREP Hydrogen Skills Report (2024) underscores the critical importance of process engineering expertise for workers involved in hydrogen production, particularly in optimizing electrolyser operations and integrating variable renewable energy sources. This emphasis arises from the technical challenges of detailed process modeling, simulation, and real-time operational control—skills that are not typically covered in traditional technical curricula. In order to

address this gap, the report advocates for the development of focused training modules and micro-credential programmes, collaboratively designed by industry experts and academic institutions (SAREP, 2024).

Storage and Transportation

In contrast to other fuels, hydrogen storage and transportation face unique technical challenges due to its low volumetric energy density (despite its high gravimetric energy density), high diffusivity, and the need for specialized high-pressure and cryogenic storage systems that demand rigorous engineering solutions and stringent safety standards.

- **Hydrogen Storage Expertise and Targeted Credential Programs:** The Namibian PtX Skills Report (2023) underscores that advanced hydrogen storage solutions are pivotal for the secure and efficient management of green hydrogen. This emphasis arises from the technical challenges inherent to high-pressure storage systems and ensuring material integrity under dynamic conditions, issues that conventional training rarely address. To bridge this expertise gap, the report advocates for the development of specialized training modules and micro-credential programmes—designed in close collaboration with industry experts and academic institutions—that focus exclusively on modern storage technologies, including composite and cryogenic systems (RENAC & NUST, 2023)
- **Transport Regulations and Competence Standards:** The Brazilian hydrogen sector, as highlighted by the SENAI (2023) report, underscores the critical importance of clear regulatory frameworks and advanced professional expertise to ensure the safe and efficient transport of hydrogen. Because operations often involve high-pressure systems and complex logistics, existing technical training programs may be insufficient to meet these demands. To address this gap, the report advocates for targeted training and certification programs, co-designed by industry experts and educational institutions. By expanding these specialized qualifications, Brazil can establish a reliable hydrogen supply chain, foster trust in emerging technologies, and lay the groundwork for a sustainable hydrogen economy (SENAI, 2023).
- **Small-bore Tubing Skills and Targeted Micro-credentials:** The Australian Hydrogen Skills Roadmap underscores the importance of small-bore tubing expertise for workers involved in hydrogen systems, particularly where pressurised hydrogen lines and fittings require meticulous handling and installation. This emphasis arises from the specialised nature of small-bore tubing, including proper bending, leak detection, and high-pressure testing—skills not commonly covered in general technical curricula. In order to address this gap, the roadmap advocates for focused micro-credential programmes, collaboratively developed by subject matter experts and educational institutions. By expanding these specialised qualifications, Australia can ensure that its workforce is equipped to manage the advanced storage and distribution technologies that underpin the nation's emerging hydrogen economy (Swinburne University of Technology, 2022).

Utilization (e.g. Steel Industry, Transportation and Logistics)

In sectors such as steel production, transportation and logistics, chemical processing, and heat supply, integrating hydrogen effectively requires targeted skills in process control, safety management, and system optimization.

- **Hydrogen Utilization in Key Sectors - France:** The French white paper details targeted skills shortfalls that hinder the effective integration of hydrogen across vital industrial sectors. In the steel industry, a key gap exists in the specialized training required to manage

hydrogen's role as a reducing agent at high temperatures, especially regarding the precise control of reaction kinetics, safety protocols in handling pressurized hydrogen, and the integration of hydrogen-compatible process controls. In the mobility and logistics sector, workers are not sufficiently trained in the design, installation, and maintenance of dedicated hydrogen refuelling infrastructure; this includes gaps in leak detection, system integrity monitoring, and handling emergency procedures that are unique to hydrogen-powered transport. Within the chemical industry, the deficiencies pertain to the specialized process control skills necessary for hydrogen-utilizing reactions, where operators must be adept at managing reaction environments and implementing rigorous safety measures for hydrogen storage and transport. Finally, in the area of heat supply, existing curricula typically do not cover the challenges of adapting conventional thermal systems to hydrogen combustion or the engineering adaptations required to ensure efficient and safe energy transfer (France Hydrogène, 2022).

- **Hydrogen Utilization in Key Sectors - Germany:** An analysis of utilization-related skill gaps in the hydrogen economy shows that each sector faces unique deficiencies critical to decarbonization. In the steel industry, Schad-Dankwart (2023) reports that despite dual-vocational training covering basic skills, additional modules in safety and process-specific plant planning are needed to transition from coal- to hydrogen-based reduction. In the chemical and refinery sector, Felkl (2023) demonstrates that decarbonization requires advanced process control competencies and updated safety protocols to effectively integrate renewable energy while minimizing CO_2 emissions. In the heat supply sector, Hiller (2023) identifies uncertainties in converting gas networks to pure hydrogen systems, highlighting the need for basic hydrogen awareness and interdisciplinary training that combines electrotechnical expertise with hydrogen system management. Finally, Schneider (2023) reveals that the transportation sector urgently requires specialized certification for maintaining high-pressure gas systems and high-voltage components, along with comprehensive leak detection and emergency response training. Collectively, these studies underscore the necessity for targeted micro-credential programs and tailored vocational curricula that address each sector's specific technical and safety requirements.

3   Analysis of National Standards and Training Programs

National standards for hydrogen training vary widely, often reflecting each country's economic priorities and industrial infrastructure.

Australia

The report from Australia highlights the need for micro-credentials and sector-specific training measures in its hydrogen economy studies. The national strategy combines short-term courses with more comprehensive curricula to ensure workers can rapidly adapt to emerging requirements. A key focus is the intersection of gas and electrical technology, given that traditional gas-related professions must be expanded to include competencies in high-voltage and fuel cell systems. In addition, safety considerations—such as the handling of high-pressure hydrogen and specialized tasks like small-bore tubing—are deemed urgent qualifications and are often developed within dedicated "hydrogen hubs," where universities and industry collaborate closely (Beasy et al., 2023; Swinburne University of Technology, 2022).

Brazil

The report from Brazil emphasizes international collaborations and the expansion of existing occupational profiles, allowing the workforce to build on current qualifications while adding hydrogen-specific expertise. Findings underscore the importance of safety across the entire

hydrogen value chain, from production to storage and distribution. A comprehensive national framework addresses various educational levels, ranging from postgraduate programs in plant design to vocational training for technicians. This tiered approach facilitates the integration of new standards and relies heavily on transnational knowledge partnerships (SENAI, 2023).

France

The report from France relies on specialized study programs and a strong partnership between industry and higher education to systematically integrate hydrogen technologies. Engineering curricula increasingly feature new modules covering fuel cell operations, safety procedures, and quality assurance, ensuring that future graduates are well-prepared for the demands of the hydrogen sector. Of particular note are fluid mechanics and quality management, which align with the high competitiveness standards of the European market. Through an incremental approach, existing energy- and technology-oriented programs are being expanded rather than replaced with entirely new occupational categories (France Hydrogène, 2022).

Germany

The report from Germany focuses on modular extensions of established vocational training programs instead of creating entirely new professions. National initiatives such as "H2Pro" advocate incorporating hydrogen-related competencies—particularly in process, cryogenic, and safety engineering—into existing educational pathways. Given the growing importance of digitization, automated process control and data analytics have also become central topics in German hydrogen training. By coordinating efforts among vocational education institutions, chambers of commerce, and industry stakeholders, curricula can be updated flexibly to keep pace with rapid technological developments (Zinke, 2022).

India

India introduces mandatory certification for hydrogen-related occupations while placing a strong emphasis on inclusiveness in workforce development. Public Sector Undertakings (PSUs) are instrumental in advancing this initiative by supporting certification of key technical roles, including plant and process engineers as well as specialists in electrolyzer technology. Importantly, India promotes the increased participation of women in training programs, aligning with the country's objective to build a diverse workforce capable of meeting substantial growth in the hydrogen sector. Concurrently, collaborations between major industrial actors and research institutions aim to develop national curricula and support the broader hydrogen policy agenda (SAREP, 2024).

Namibia

Namibia relies on international agencies such as the Renewables Academy (RENAC) in Namibia and GIZ to establish targeted Power-to-X (PtX) and hydrogen training programs. A primary objective is strengthening technical and vocational education (TVET), given the scarcity of specialized personnel for electrolysis and safe hydrogen handling. With abundant solar and wind resources, Namibia possesses significant potential to become a leader in green hydrogen production, yet workforce readiness remains limited. Consequently, current initiatives focus on training local instructors and developing modular, practice-oriented course offerings that can be scaled up quickly (RENAC & NUST, 2023).

Table 2

Reviewed Country Studies

Country	Publication	Analysis prepared by	Key Professions	Training Gaps	Qualification Approaches
Australia	Beasy et al. (2023) Swinburne University of Technology (2022)	Researchers from Swinburne University of Technology & University of Tasmania	Electrolysis and Storage Technicians	Shortage of technical training programs	Collaboration with industry, regional training hubs
Brazil	SENAI (2023)	GIZ, Integration, GOPA, IIT * and further institutions	e.g. System Maintenance Technicians, Multidisciplinary Engineers **	Shortage of training centers	International partnerships and training programs
France	France Hydrogène. (2022)	France Hydrogène is a French Hydrogen and Fuel Cell Association	Engineers, Fluid Mechanics Experts	Safety and quality management training	Specialized courses and industry collaborations
Germany	Zinke (2022)	Federal Institute for Vocational Education and Training (BIBB)	Hydrogen Systems Technicians, Engineers	Additional qualifications required within existing profiles	Modular further training and chamber programs, no need to update curricula in IVET
India	SAREP (2024)	Skill Council for Green Jobs / South Asia Regional Energy Partnership	Maintenance Technicians, Process Engineers	High need for new programs	International collaborations and new (degree) programs
Namibia	RENAC & NUST (2023)	Renewables Academy AG & Namibia University of Science and Technology	Infrastructure and Maintenance Technicians	Lack of TVET programs	Empower TVET education, partnerships with international agencies
South Africa	CSIR (2024)	Council for Scientific and Industrial Research	Chemical and Process Engineers	Lack of technical specialists	Empower national education and international cooperation
United Kingdom	Energy Institute, (2023)	The Energy Institute (EI) is a not-for-profit organisation with 20,000 members worldwide, including individuals and companies	Electrolysis Technicians, Engineers	Demand for technical expertise	National and international partnerships
	Weit et al. (2023)	ClimateXChange, UK/Scotland			

Note. * German Corporation for International Cooperation (GIZ), Integration Consulting Group, GOPA Worldwide Consultants, Institut für Innovation und Technik (IIT) ** mechanical, electrical, chemical, and materials engineers

South Africa

South Africa requires more specialized experts in hydrogen technology and fosters both national and international partnerships toward that end. The Council for Scientific and Industrial Research (CSIR) identifies particular gaps in process engineering, safety expertise, and knowledge of high-pressure systems. While the country already possesses fundamental technical education structures, substantial modernization of curricula is essential to meet the expanding needs of production, storage, and transportation in the hydrogen sector. Government

bodies and private enterprises collaborate closely to ensure that hydrogen initiatives are integrated into broader energy and industrial strategies (CSIR, 2024).

United Kingdom (Including Scotland)

The United Kingdom integrates hydrogen-related modules into established vocational and academic programs, with Scotland's regional "hydrogen hubs" standing out as a key example. Universities and energy companies collaborate within these hubs to provide hands-on instruction for technicians and engineers, focusing on electrolyzer and high-pressure storage skills. In pipeline and cryotechnological applications, conventional expertise from the oil and gas industry is partially transferable, but hydrogen's unique properties call for new safety standards and customized teaching content. Energy institutes underscore the need for uniform certifications, facilitating trust in hydrogen storage and transport while also positioning the UK for international market opportunities (Energy Institute, 2023; Weit et al., 2023).

4 Qualifications and Needs

Existing Qualifications and Key Gaps

Across the eight countries reviewed, hydrogen-specific modules are generally lacking in both technical-vocational and academic pathways (e.g. Zinke, 2022; RENAC & NUST, 2023). Namibia and South Africa, for instance, possess basic engineering programs but have yet to incorporate substantial training on electrolysis or high-pressure storage (CSIR, 2024; RENAC & NUST, 2023). Meanwhile, industrialized nations such as Germany and Australia demonstrate more explicit efforts to integrate hydrogen knowledge through modular upskilling or micro-credentials (Beasy et al., 2023; Swinburne University of Technology, 2022; Zinke, 2022). France has introduced hydrogen topics into engineering curricula via industry partnerships, although fuel cell training and other advanced competencies remain incomplete (France Hydrogène, 2022). India stands out with mandatory certification programs—overseen by public-sector undertakings—aimed at uniformly raising the baseline of hydrogen-related expertise nationwide (SAREP, 2024). Brazil prioritizes augmenting existing occupational profiles with additional hydrogen competences rather than creating entirely new professions (SENAI, 2023).

Pathways for Professional Development

Safety Protocols and Compliance: The handling of high-pressure hydrogen—including cryogenic conditions and small-bore tubing—emerges as a universal safety concern (Swinburne University of Technology, 2022; SENAI, 2023). In the UK, compliance-oriented training is deemed critical for sustaining public trust and supporting an eventual export market (Weir et al., 2023; Energy Institute, 2023). Brazil similarly underscores safety across the entire hydrogen value chain—from production to transport—given the need to streamline regulatory requirements in line with global standards (SENAI, 2023).

Digital Competencies: Growing digital skill requirements—such as process automation, monitoring, and data analytics—are prevalent worldwide (Zinke, 2022; France Hydrogène, 2022). Australia's Hydrogen Skills Roadmap highlights "panel and instrumentation skills" as a pressing need (Swinburne University of Technology, 2022), while Germany's approach integrates Industry 4.0 principles into existing apprenticeship frameworks (Zinke, 2022). In developing contexts (e.g., Namibia, South Africa), international collaborations help train local instructors in digital topics, addressing skills gaps that could impede large-scale hydrogen adoption (RENAC & NUST, 2023; CSIR, 2024).

Ongoing Upskilling: Most country reports emphasize short-course or workshop-based training to address rapid technological changes in the hydrogen sector (Beasy et al., 2023;

France Hydrogène, 2022). Australia exemplifies this approach with micro-credentials bridging immediate skill deficits (Swinburne University of Technology, 2022). India, by contrast, institutionalizes upskilling through mandatory periodic certification, ensuring that professionals revisit safety, technological, and regulatory competencies (SAREP, 2024). Even in countries with well-established frameworks like Germany or Brazil, continuous professional development is viewed as crucial to maintaining alignment with evolving hydrogen technologies (SENAI, 2023; Zinke, 2022).

In sum, there is a shared imperative across developed and emerging economies to strengthen hydrogen workforce qualifications, integrate robust safety training, and embrace digital competencies. Whether through India's top-down certification mandates or Australia's flexible micro-credentials, ongoing upskilling remains essential to keep pace with rapid technological and regulatory transformations. At the same time, international collaboration—involving agencies like GIZ, RENAC, and diverse industry partners—is increasingly recognized as a catalyst for disseminating best practices and unifying standards. Such convergence points to a global workforce strategy that combines localized institutional structures with harmonized, cross-border solutions for a thriving hydrogen economy.

5   Reflections and Limitations

We focus now on Australia, Brazil, and India because their national reports offered especially detailed data and each represents a distinct archetype of hydrogen skills development—Australia's dual-track micro-credentials, Brazil's adaptation of existing occupations, and India's mandatory certification approach.

A notable insight from the Australian Hydrogen Skills Roadmap is the tension between short-term and long-term workforce needs. With an industry "still in its infancy," Australia emphasizes immediate micro-credentials to "fill skills gaps as ... regulations and standards catch up" while also developing more comprehensive training frameworks (Swinburne University of Technology, 2022, p. 51–52). This dual-track approach may be instructive for other nascent hydrogen economies.

India's approach likewise combines short- and long-term strategies. According to the "Skill Gap Assessment Across Green Hydrogen Sector in India," immediate interventions include "mandatory certification for government tenders and PLI schemes," while longer-term efforts involve integrating "hydrogen-related subjects into existing curriculum" (SAREP, 2024, p. 124–125). India identifies five priority job roles—Green Hydrogen Plant Technician, Process Engineer, Electrolyser Technology Specialist, Operations & Maintenance Head/Manager, and Hydrogen System Integration Specialist—and proposes corresponding curricula (SAREP, 2024, p. 109–123). Public sector undertakings (PSUs) serve as "frontrunners for training initiatives," reflecting the importance of established institutions in knowledge transfer (SAREP, 2024, p. 125). Another distinctive aspect is inclusivity, with specific targets for women's participation and infrastructure adaptations (SAREP, 2024, p. 126). International collaboration is also highlighted, echoing findings from Namibia, South Africa, and other regions (RENAC & NUST, 2023; CSIR, 2024).

Brazil's strategy, presented in "Mercado de Hidrogênio Verde e Power-to-X: Demanda por Capacitações Profissionais" (SENAI, 2023), emphasizes safety competencies across the hydrogen value chain. Rather than creating entirely new occupations, it proposes adding relevant competencies to existing professions. The report contends that "the transition ... does not imply launching the current professional into obsolescence," instead requiring "additional competencies to those of the current economy" (SENAI, 2023, p. 15–16). Brazil's approach also underscores international partnerships with countries already offering advanced hydrogen education.

A comparative perspective shows how each country balances near-term skill needs with long-term workforce development. Australia's micro-credentials, India's mandatory certification, and Brazil's emphasis on adapting existing roles all demonstrate context-specific solutions while converging on the imperative of safety and global collaboration. Overall, these diverse strategies underscore the value of iterative, flexible training models that address current gaps and anticipate future industry demands in the pivotal hydrogen sector.

The variability in the depth and focus of reports presents limitations to:

- Inconsistency across Data sources: The national reports are quite diverse; most provide a detailed technical analysis, whereas others utilize general overviews. This is bound to affect comparability of the findings across the countries.
- Dependence on Sources: In this review, most of the secondary data has been used, which limits the insight into skill applications, and sources that are widely available might not have detailed information regarding a specific context.
- Dynamic Workforce Needs: With hydrogen technologies constantly evolving, workforce needs are expected to change accordingly, especially as hydrogen-specific infrastructure is being set up in more and more countries. This evolution is particularly evident in the varying technology readiness levels (TRLs) documented across the hydrogen value chain. Rey et al. (2023) identify significant TRL disparities between mature production technologies like alkaline water electrolysis and emerging technologies in storage and end-use applications. These disparities create methodological challenges for workforce studies, as skill requirements for technologies at lower TRLs are inherently more speculative and subject to rapid change as technologies evolve. Future workforce studies would benefit from more explicitly addressing these technology maturity differences, potentially incorporating scenario-based approaches that anticipate skill requirement changes as technologies advance through TRL stages (Rey et al., 2023, p. 12-15).
- Challenges in Practical Implementation: While recommendations are actionable, there could be obstacles to implementing them on the ground, especially in resource-limiting regions. This may warrant further research on the feasibility of such programs across various economies.

The future studies should target therefore the collection of primary data from industry experts to capture more intimate findings about the present level of workforce skills and specific gaps in training. Comparative case studies can draw models for skill development, especially for countries which are at the beginning of hydrogen sector growth. At the same time, a longitudinal study can inform how well newly designed programs work and their adaptability with long-term impacts of the hydrogen workforce initiatives.

References

Beasy, K., Emery, S., Pryor, K., & Vo, T. A. (2023). Skilling the green hydrogen economy: A case study from Australia. *International Journal of Hydrogen Energy, 48,* 19811-19820. https://doi.org/10.1016/j.ijhydene.2023.02.061

Bockris, J.O.M. (2013). The hydrogen economy: Its history. *International Journal of Hydrogen Energy, 38*, 2579–2588. https://doi.org/10.1016/j.ijhydene.2012.12.026

Braun, V., & Clarke, V. (2021). *Thematic Analysis: A Practical Guide.* SAGE.

Council for Scientific and Industrial Research (CSIR). (2024). *Identification of skills needed for the hydrogen economy: Research report*. South Africa, Pretoria: Department of Higher Education and Training.

Energy Institute (2023). Research report: Landscape review of skills needed for an emerging hydrogen based economy. Energy Institute.

Felkl, T. (2023). Sektoranalyse der Chemie- und Raffinerieindustrie: Eine Untersuchung im Rahmen des Projekts

"H2PRO: Wasserstoff – Ein Zukunftsthema der beruflichen Bildung im Kontext der Energiewende". Bundesinstitut für Berufsbildung. https://res.bibb.de/vet-repository_781297

France Hydrogène. (2022). Skills and professions of the hydrogen sector: White Paper. France Hydrogène.

German Federal Ministry of Economic Affairs and Energy (BMWi). (2020). *The national hydrogen strategy*. Germany, Berlin: BMWi.

Haddaway, N.R., Collins, A.M., Coughlin, D, & Kirk, S (2015). *The role of google scholar in evidence reviews and its applicability to grey literature searching. PLoS ONE, 10*(9), e0138237. https://doi.org/10.1371/journal.pone.0138237

Hiller, B. (2023). Wasserstoff für die Wärmeversorgung: Erste Bestandsaufnahme zu wasserstoffbasierten Anwendungsfeldern und Anforderungen in der Fachkräftequalifizierung. Bundesinstitut für Berufsbildung. https://res.bibb.de/vet-repository_781324

International Renewable Energy Agency (IRENA). (2024). *Green hydrogen strategy. A guide to design.* International Renewable Energy Agency.

McHenry, R., Krishnan, S., & Tuck, L. (2024). Knowledge, skills, and attributes needed for developing a hydrogen engineering workforce: A systematic review of literature on hydrogen engineering education. *International Journal of Hydrogen Energy, 72*(1), 380–387. https://doi.org/10.1016/j.ijhydene.2024.05.380

Mokrzycki, E., & Gawlik, L. (2024). The development of a green hydrogen economy: Review. *Energies, 17*(13), 3165. https://doi.org/10.3390/en17133165

Renewables Academy AG & Namibia University of Science and Technology (RENAC & NUST). (2023). *Enhancing employability: Skills needs and gap analysis in Namibia's PtX sector.* NamGIZ.

Rey, J., Segura, F., & Andújar, J.M. (2023). Green hydrogen: Resources consumption, technological maturity, and regulatory Framework. *Energies, 16*(17), 6222. https://doi.org/10.3390/en16176222

Schad-Dankwart, I. (2023). Sektoranalyse: Wasserstoff in der Stahlindustrie – Eine erste Bestandsaufnahme zu technologischen Veränderungen und neuen Anforderungen in der Fachkräftequalifizierung. Bundesinstitut für Berufsbildung. https://res.bibb.de/vet-repository_781673

Schneider, M. (2023). Sektoranalyse: Wasserstoff im Verkehrssektor – Eine erste Bestandsaufnahme zu technologischen Veränderungen und neuen Anforderungen in der Fachkräftequalifizierung. Bundesinstitut für Berufsbildung. https://res.bibb.de/vet-repository_781261

Servico Nacional de Aprendizagem Industrial (SENAI). (2023). Mercado de Hidrogênio Verde e Power-to-X: Demanda por Capacitações Profissionais. SENAI.

South Asia Regional Energy Partnership (SAREP). (2024). *Skill gap assessment across the green hydrogen sector in India*. India: Skill Council for Green Jobs & USAID. https://sscgj.in/wp-content/uploads/2024/06/GH2-Skill-Gap-report_MSDE.pdf

Swinburne University of Technology. (2022). *Hydrogen skills roadmap: An analysis of the skills and training needs to support a future hydrogen economy.* Victorian Hydrogen Hub. https://www.swinburne.edu.au/research/platforms-initiatives/victorian-hydrogen-hub/

Weir, I., Beinarovica, J., Nelson, K. Fagura, J., & Morrison, Mark. (2023). *Mapping the current and forecasted hydrogen skills landscape.* http://dx.doi.org/10.7488/era/3369

Zinke, G. (2022). Sektoranalyse: Erzeugung, Speicherung und Transport von Wasserstoff. Germany: Bundesinstitut für Berufsbildung (Federal Institute for Vocational Education and Training).

Biographical Notes

Michael Gessler, Dr phil., Dr h.c., is Full Professor of Technical and Vocational Education and Training (TVET) at the Institute Technology and Education (Institut Technik und Bildung, ITB), University of Bremen, Germany. His research focus is on innovations and transfer of innovations in TVET.

Publication announcement

An extended article will shortly be published in the International Journal for Research in Vocational Education and Training (IJRVET).

Beyond Stem: A Methodological Approach to Measuring Gender Gap in University Education in Technology Across Six Latin American Countries

Giménez, Milagros
gimenezgunia@gmail.com, Independent Researcher

Guitart, Violeta
violetaguitart@gmail.com, Independent Researcher

Abstract

Context: Technological skills are increasingly essential for future labor markets, particularly in developing countries facing distributional conflicts and external constraints. These skills enhance productivity, provide access to high salaries, and, in the case of software-related fields, enable the export of services at an individual level. The inclusion of women and people of diverse gender identities in the technology sector is not only beneficial to their employment and income prospects, but also essential to ensuring that technological progress addresses the needs of often overlooked populations. Higher education in technology is central to enabling women to become technology developers.

Approach: This study proposes a novel methodological approach to classify technology-intensive higher education fields beyond the broad UNESCO CINE STEM classification, which lacks granularity for the technology sector. We define two distinct categories: Careers Related to Programming and Careers Related to Technological Development, based on the desired competencies of graduates and their potential occupational roles. From a labor market perspective, we identify Information Technology (IT) occupations requiring a mix of technology design and programming skills to better analyze gender participation trends.

Findings: Despite the expansion of higher education in Latin America, our findings reveal a persistent and widespread gender gap in technology education across six Latin American countries (Argentina, Uruguay, Chile, Colombia, Peru y Mexico). While women represent a majority of university enrollments in the region, their participation in technological fields remains disproportionately low. Women represent less than 30% of enrollment in programming and technology development programs, with rates as low as 11% in Chile for programming-focused disciplines. Programming degrees exhibit the lowest female participation, with no country surpassing 23%. Although the absolute number of women enrolled in these fields has increased between 2018 and 2022, their relative share remains stable compared to male students, indicating that overall enrollment growth is not translating into greater gender inclusion.

Conclusion: The findings underscore the importance of applying rigorous methodologies to accurately assess both the magnitude and structural nature of the gender gap. Moreover, they highlight the urgent need for strategic policies to address this disparity in technology education. Expanding access to programming and technological development careers for women and individuals of diverse gender identities is not only essential for enhancing their employment opportunities but also fundamental to driving inclusive technological innovation.

Keywords

educational technology, university, gender.

1 Introduction

Jobs associated with science, technology, engineering and mathematics - often referred to as STEM disciplines.[1]- not only offer good job opportunities today but also have better prospects for future development. These disciplines are at the heart of the fourth industrial revolution, which is characterized by the transformation of labor markets worldwide[2]: while globally some 7 million jobs are expected to disappear due to the automation of tasks associated with technological integration, the trend is reversed for STEM jobs, with a predicted increase of 2 million. Moreover, the returns of these occupations are expected to grow as the use and development of fourth-generation technologies becomes more widespread (World Economic Forum [WEF], 2016; World Bank, 2018).

Jobs associated with science, technology, engineering and mathematics - often referred to as STEM disciplines.[3]- not only offer good job opportunities today but also have better prospects for future development. These disciplines are at the heart of the fourth industrial revolution, which is characterized by the transformation of labor markets worldwide[4]: while globally some 7 million jobs are expected to disappear due to the automation of tasks associated with technological integration, the trend is reversed for STEM jobs, with a predicted increase of 2 million. Moreover, the returns of these occupations are expected to grow as the use and development of fourth-generation technologies becomes more widespread (WEF, 2016; World Bank, 2018). Within the broader STEM landscape, programming and technology development occupations deserve particular focus as they represent the fastest-growing segment with the most significant impact on economic development. These specialized fields are experiencing unprecedented demand across sectors as digital transformation reshapes industries.

In developing countries, technological skills related to technological development are increasingly seen as essential for future labour markets. These skills are particularly valuable in environments with distributional conflicts and external sector constraints, as they increase productivity, command high salaries and, in the case of software, offer significant potential for individual export of services (Lopez & Ramos, 2018).

There are also economic advantages beyond the individual: if those working and researching in technology represent more diverse segments of the population, more ideas and solutions are expected to be generated to address a wider range of societal issues (DAWN, 2023). These advantages are already observable and could deepen in the future as technological advancement and the skills associated with STEM-such as critical thinking, problem solving, or innovation-grow in importance. The low presence of women in technology disciplines not only affects their

---

[1] An acronym for science, technology, engineering and mathematics (Science, Technology, Engineering, Mathematics).

[2] The concept of the fourth industrial revolution refers to the convergence between manufacturing production and new technological fields such as digital production, the use of sensors, nanotechnology, biotechnology and other new materials. It is also referred to as advanced manufacturing, industry 4.0 or fourth generation industry (UNIDO, 2019).

[3] An acronym for science, technology, engineering and mathematics (Science, Technology, Engineering, Mathematics).

[4] The concept of the fourth industrial revolution refers to the convergence between manufacturing production and new technological fields such as digital production, the use of sensors, nanotechnology, biotechnology and other new materials. It is also referred to as advanced manufacturing, industry 4.0 or fourth generation industry (UNIDO, 2019).

career paths but also limits diversity in the fields where solutions to present and future societal needs are developed.

In part, these inequalities are due to the low participation of women in jobs, professions and roles that are in greater demand and have more competitive salaries. Such is the case of the productive sectors of science and technology, which are intensive in research, development and innovation. According to recent estimates, in Argentina they represent approximately 10% of GDP and 20% of exports, in addition to offering 60% higher than average salaries and accounting for half of the informal sector. Women working in these areas and accessing these competitive advantages are a minority: in 2020 their participation in science and technology sectors was 28% (Szenkman et al., 2021) and, in the case of the software industry, 30% (CESSI, 2020). This phenomenon is replicated on a global and regional scale: globally, women represent 26% of those working in the technology sector (García-Holgado & García-Peñalvo, 2022). In Mexico and Chile, these percentages amount to 35% (López-Bassols et al., 2018) and in Brazil, 27% (Szenkman et al., 2021).

To expand opportunities and narrow the gender gap in technology, it is crucial to systematically measure inequalities. This study, a pioneering effort in the region, provides unprecedented comparative data on the participation of women in university programs within these strategic fields.

To measure the gender gap, we developed two analytical categories—programming-intensive university degrees and technological development fields—while also applying the STEM classification as defined by ISCED. This framework enabled a more comprehensive examination of women's university participation, encompassing enrollment trends, active students, and graduation rates across six Latin American countries over recent years.

2 Methods

This research employs a comparative-descriptive approach based on official statistics from six Latin American countries (Argentina, Uruguay, Chile, Colombia, Peru, and Mexico). We selected these countries to represent diverse higher education systems in the region, with varying balances of public and private institutions: Argentina and Uruguay maintain predominantly public systems (81% and 92% respectively), Mexico and Colombia feature mixed models (56.2% and 45.5% public), while Chile and Peru operate predominantly private systems (27.2% and 24.2% public). We analyzed differences between men and women in enrollment, active students, and graduates while applying three complementary classifications.

2.1 STEM

The international educational literature uses the International Standard Classification of Education (ISCED) as a taxonomy to delimit the scope of STEM careers. This is the standard reference framework created by the member agencies of UNESCO (United Nations Educational, Scientific and Cultural Organization) that is used to compare educational statistics internationally.

This classification categorizes the fields of education and training at the secondary and tertiary levels of any country into 11 broad fields and 29 specific fields (UNESCO, 2014, 2015). The ISCED criterion consists of grouping careers according to the predominant thematic content of their curricula, i.e., the "factual, practical and theoretical knowledge imparted during the program and recognized through the respective certification" (UNESCO, 2013). A program considered STEM if it falls within the following broad fields into ISCED classification:

- 05 (Natural sciences, mathematics and statistics)
- 06 (Information and communication technologies) - ICT

- 07 (Engineering, Manufacturing and Construction)

2.2 Programming-Intensive University Programs

Given the complexity of establishing univocally what programming careers are and the lack of international consensus in this regard, we as part of the NGO Chicas en Tecnología developed a methodology to identify them: the degrees grouped under this category are those in which the use of different programming languages is a core competency of the graduate's profile. This category was initially applied in the research "An Unequal Career" (CET, 2022) and in this report it is used for the first time to analyze the university systems of Argentina, Chile, Colombia, Mexico, Peru and Uruguay. The process to categorize involved 3 stages:

1. First, a grouping of occupations in the technology sector was carried out. To do this, we used the O*NET taxonomy, a detailed classifier that systematically describes the more than 900 occupations in the U.S. labor market, their tasks, activities, skills and knowledge involved. In the case of the programming-intensive category, occupations in the information technology (IT) sector were identified.
2. The next step was to understand which higher education programs are associated with those occupations. To do this, we used the converter between occupations and disciplines of study published by the U.S. National Center for Education Statistics and the linkage between the O*NET occupational taxonomy and the Classification of Instructional Programs (CIP). CIP is a coding system that facilitates the organization of instructional program fields of study. It uses categories of fields of specialization with three levels of granularity and is used to categorize formal academic and vocational training programs at the higher education level. By applying this converter to IT occupations, a list of careers for the programming-intensive category was obtained.
3. Finally, the list of careers pre-selected in the previous step was verified by checking the profile of the graduate and the curricular structure of each one.

Examples of programs in this category include Software Engineering, Computer Science, and Information Systems Development.

2.3 Technology Development

The technological development category was established to encompass educational programs aligned with occupational profiles that prioritize technology creation as a core objective.

The application process for this category was also based on 3 stages:

1. The O*NET taxonomy was used to group the occupations. In this case, for the technology development category, occupations requiring technology design skills[5] combined with programming were identified.
2. The next step was to understand what careers or fields of study are associated with these occupations. To do this, we used the converter between occupations and disciplines of study published by the U.S. National Center for Education Statistics itself and the linkage between the O*NET taxonomy of occupations and the Classification of Instructional Programs (CIP). By applying this converter to the occupations identified in the first step (occupations that combine technology design and programming skills), a list of recommended careers was obtained.

---

[5] Understood as the capacity to generate and adapt equipment and technology to meet user needs (O*NET, 2024).

3. Based on this set of university careers, the list of careers pre-selected in the previous step was verified by checking the profile of the graduate and the curricular structure of each one.
4. Examples include Robotics Engineering, Biomedical Engineering, and Digital Systems Design.

2.4 Sources of information

The quantitative analysis was based on publicly available databases in each country (Chile, Colombia and Mexico), data provided through access to public information (Argentina) and information provided by the statistics areas of the Ministries of Education (Peru and Uruguay). All graphs presented in this report are based on the above-mentioned databases.

Table 1
Sources of Databases For The Report

Country	Information provided by	Time period
Argentina	Request for access to public information. Data provided by the former Department of University Information of the Secretariat of University Policies of the Ministry of Education.	2012-2019 2019-2021
Chile	Public information available on the Mifuturo portal led by the Higher Education Information Service (SIES) of the Chilean Ministry of Education.	2014-2022
Colombia	Public information available in the National Higher Education Information System (SNIES) of the Ministry of National Education.	2014-2022
Mexico	Public information available in the Higher Education Statistical Yearbook of University Higher Education prepared by the Undersecretariat of Higher Education (SES) through the General Directorate of University and Intercultural Higher Education (DGESUI), under the Ministry of Public Education (SEP).	2016-2022
Peru	Information provided by the Directorate of Policies for the Development and Quality Assurance of Higher Education of the Ministry of Education of Peru.	2017-2022
Uruguay	Information provided by the Research and Statistics Division of the Ministry of Education of Uruguay	2018-2022

The set of variable classifications and therefore possible disaggregation used for the regional analysis are binary gender (female or male), degree level (undergraduate, graduate or postgraduate), type of institution (public or private) and ISCED classification.

The research timeframe, spanning at least five years in each country, enables the identification of both the most recent available data (which, in most cases, corresponds to 2022) and medium-term trends that underscore the persistence of the phenomenon under analysis: the gender gap in technology-related university programs.

2.5 Limitations

The official data used in the preparation of this report are classified by binary gender, which restricted the statistical analysis and prevented the inclusion of all gender identities. As a result, the study was constrained by a binary-centered perspective.

Although the focus of this study is the university system, it is not the only way to enter the world of technology. Analyzing other possible training paths (non-university education system and non-formal education course offerings) are extremely valuable and complementary to this research.

3   Findings

The regional landscape of the gender gap in technology-focused higher education programs reveals a consistent trend across countries: despite variations in national contexts, the gender gap in STEM disciplines is widening, with the most pronounced disparities observed in programming and technological development careers.

3.1 General trends in higher education in Latin America

University systems in the surveyed countries have undergone significant growth over the past decade. During the period analyzed, total enrollment increased substantially across all countries. In Argentina, university enrollment grew by 23% between 2018 and 2021, while from 2018 to 2022, it expanded by 19% in Uruguay, 11% in Mexico, 9% in Peru, and 2% in both Chile and Colombia.

Women have been key drivers of university system expansion. In all the analyzed countries, they constitute the majority of enrolled students, with 61.3% in Argentina, 54.7% in Mexico, 55% in Colombia, 55.3% in Chile, 51.2% in Peru, and 64% in Uruguay. In every case, the increase in female enrollment has outpaced that of male students, further solidifying their numerical dominance in higher education.

Figure 1
Female Participation in Undergraduate and Postgraduate University Enrollment (2022)
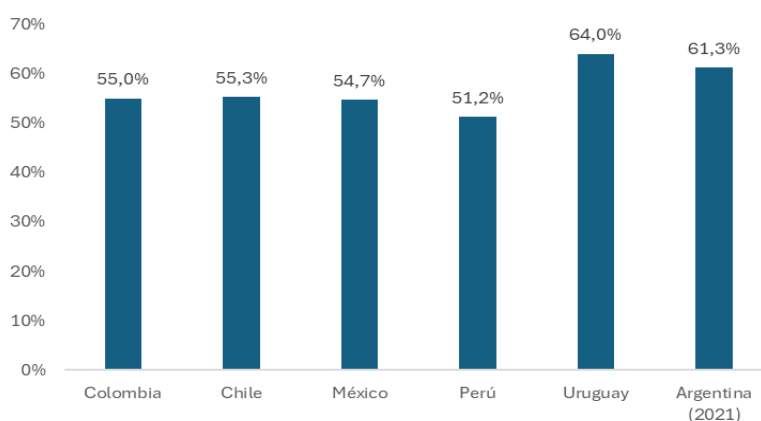
Note. Source: Own elaboration based on official statistics

The distribution of university majors remains profoundly uneven between female and male students. Although women constitute the majority in higher education, their presence in technology-related programs is disproportionately low. A consistent pattern emerges across all surveyed countries: female students are overrepresented in fields such as health and welfare, education, and social sciences, while their participation in STEM and technology disciplines is markedly lower.

Despite the significant presence of women in higher education, the gender gap in STEM and technology careers remains prevalent in both public and private university systems. This indicates that institutional differences in educational governance do not significantly impact the underrepresentation of women in technology-intensive programs, highlighting a systemic issue that transcends the public-private divide.

3.2 STEM disciplines

Although women represent the majority of total university enrollment in the six countries analyzed, their participation in STEM careers is in the minority.

The proportion of women in STEM fields exhibits a consistent regional trend, with no country achieving gender parity. Uruguay reports the highest female participation at 42.6%, followed by Argentina and Colombia, while Peru and Chile have the lowest shares at 28.9% and 29%, respectively. These disparities stand in stark contrast to overall university enrollment, where women make up more than 50% of students across all analyzed countries.

Figure 2

Female Participation in Undergraduate and Graduate University STEM Enrollment (2021-2022)
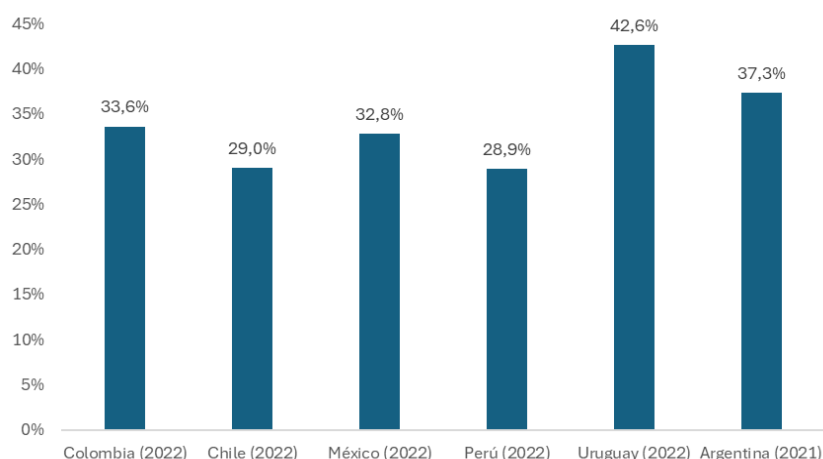
Note. Source: Own elaboration based on the official statistics.

The distribution within STEM disciplines is not homogeneous. In all the countries analyzed, women have a higher participation in the fields of natural sciences, mathematics and statistics (even exceeding 50% in several countries) than in ICT or engineering.

The temporal evolution 2018-2022 reveals an important trend in STEM education across Latin America: despite notable increases in absolute female enrollment, the percentages of female participation have remained relatively stable. This pattern indicates that growth has been proportional between genders—when female enrollment increases, male enrollment also rises at similar or even higher rates. For example, in Mexico, although female enrollment grew significantly (approximately 35,000 more students), the percentage of participation only increased marginally from 31.3% to 32.8%. This suggests that while more women are entering STEM careers in absolute terms, the relative gender composition in these disciplines remains largely unchanged, highlighting the persistent challenges in achieving gender parity.

Figure 3

Female Participation in Undergraduate and Graduate University STEM Enrollment by Broad Field (2022)
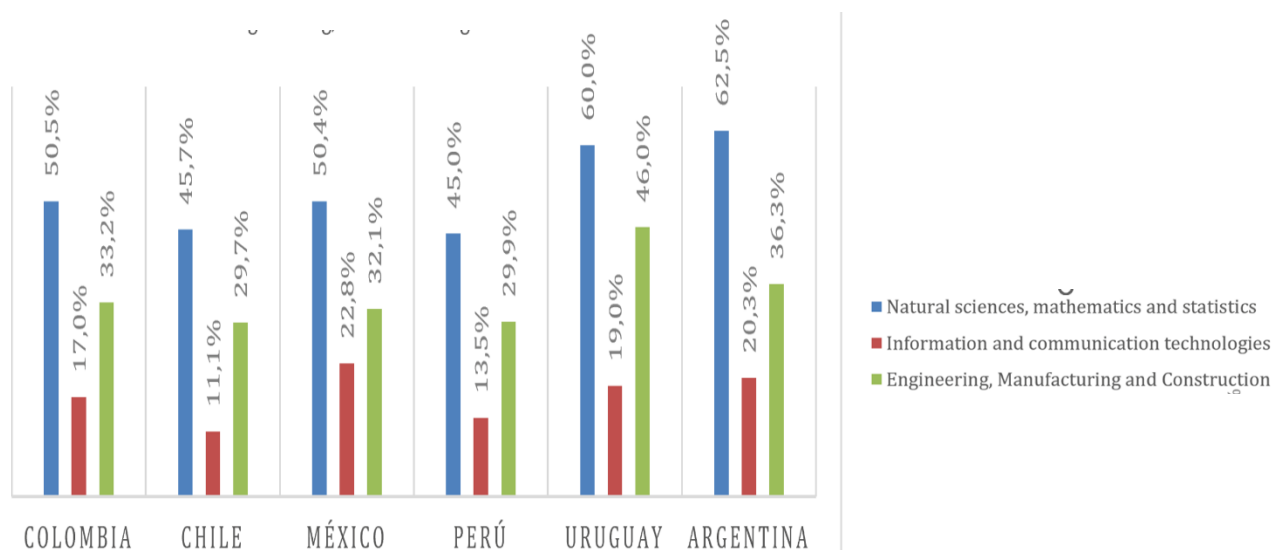
Note. Source: Own elaboration based on the official statistics. Argentina for 2021.

Figure 4

Evolution of Female Participation in Undergraduate and Graduate STEM Enrollment (2018-2022)
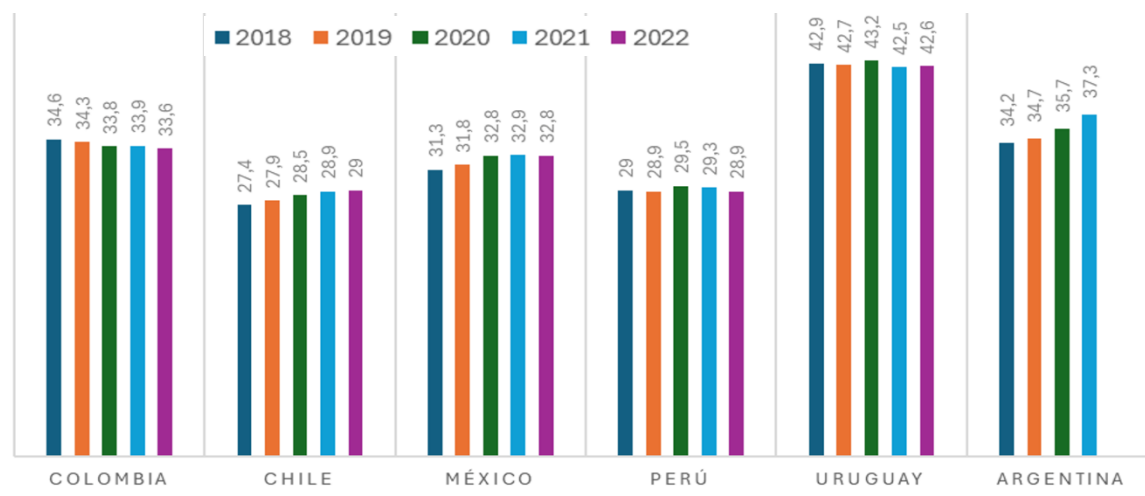
Note. Source: Own elaboration based on the official statistics.

3.3 Programming-intensive

The gender gap widens in programming-intensive education programs. Mexico and Argentina show the highest participation of women with 22.6% and 20.3% respectively, while Chile has the lowest with only 11.1%. Uruguay, despite having the highest female participation in STEM disciplines, has only 20.1% in programming careers. These numbers reveal a particularly pronounced segregation in software development, a key field for digital transformation.

Figure 5
Female Participation in Enrollment in Undergraduate and Postgraduate Programs (2022)
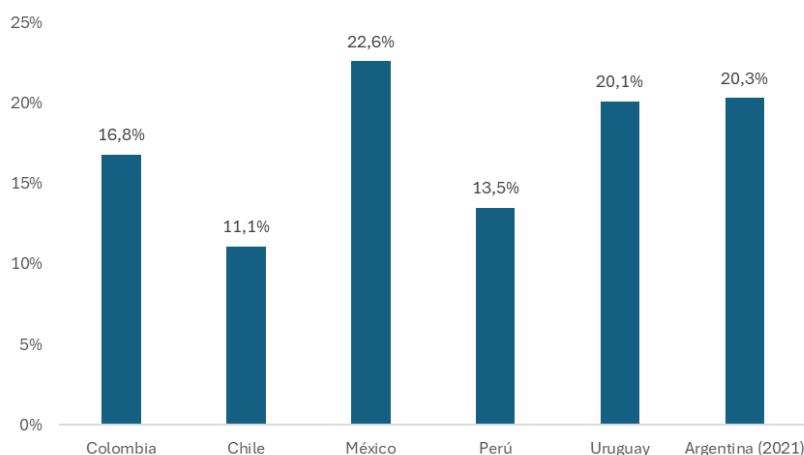
Note. Source: Own elaboration based on the official statistics.

The 2018–2022 trends in programming-related careers reveal an even greater challenge than in STEM fields overall. While in STEM, female participation typically ranges from 30–40% across most countries, in programming, the figures are significantly lower, primarily between 15–22%.

When analyzing trends, we observe that the absolute number of women enrolling in programming has increased in several countries (for instance, Mexico saw an increase from 23,245 to 30,787 students), yet the percentage of female participation has shown only marginal growth—in Mexico's case, rising from 21.6% to 22.6%. This suggests that enrollment has grown proportionally for both genders but starting from a much lower baseline of female participation compared to STEM education programs.

Uruguay, which leads in female participation in STEM with over 42%, reports female enrollment in programming at around 20%, illustrating that even in countries with greater gender equity in STEM, programming careers face unique challenges in attracting and retaining female talent. Meanwhile, Chile maintains the region's lowest participation rates, with only modest growth from 9.9% to 11.1% despite increased enrollment.

3.4 Technological Development

Applying the new category technological development, target to identify education programs which are suitable for occupations requiring technology design skills combined with programming, Mexico and Argentina lead with a female participation of 28.1% and 22.8%, respectively. They are followed by Uruguay with 21.6%, while Peru has the lowest participation with 14%. This distribution shows that, even in fields that integrate hardware, software and biotechnology/bioengineering, female participation continues to be a minority. However, it is important to note that in biotechnology and bioengineering careers, female participation is much higher (close to or above 50% in several countries).

- When analyzing the comparative trends over time in technology development-oriented programs across countries, distinct patterns of evolution emerge. Mexico exhibits the most sustained growth, both in total enrollment (with an increase of approximately 14,150 students between 2018 and 2022) and in female participation, which rose from 26.6% to 28.1%.

- Argentina also demonstrates significant growth in student enrollment (adding more than 20,800 students between 2018 and 2021), with female participation increasing from 18.3% to 22.8%.
- In contrast, Peru shows a less favorable trend, with a slight decline in female participation (from 14.6% to 14.0%), despite an increase in total enrollment of nearly 2,700 students.
- Chile and Colombia exhibit more moderate growth in both metrics. Colombia records a gradual rise in female participation, from 18.3% to 19.1%, while Chile sees an increase from 15.1% to 16.4% over the analyzed period.

Figure 6
Evolution of Female Participation in Enrollment in Undergraduate and Graduate Program-ming-Related Careers (2018- 2022).
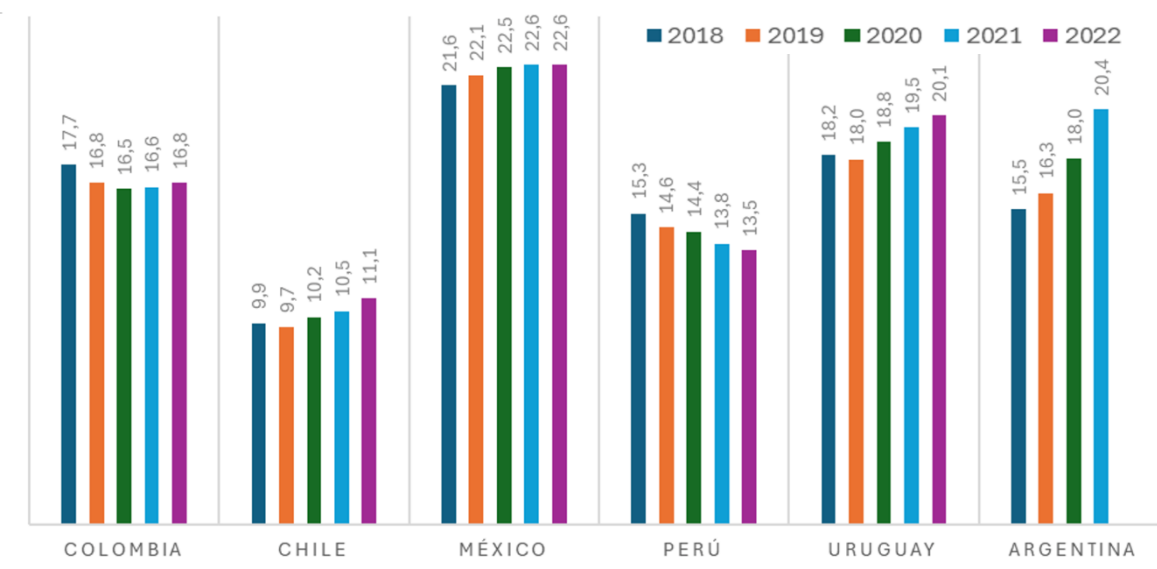
Note. Source: Own elaboration based on the official statistics.

Figure 7
Female Participation in Enrollment in Undergraduate and Graduate Technological Develop-ment Careers (2022)
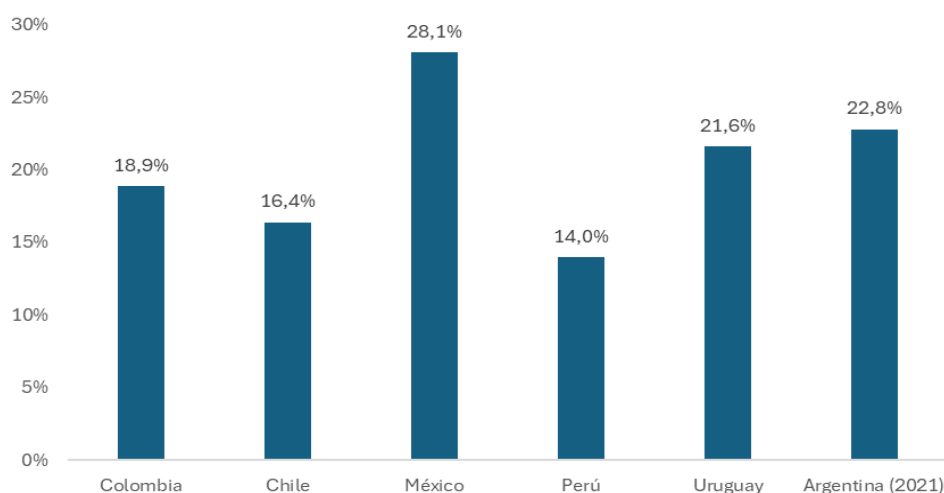
Note. Source: Own elaboration based on the official statistics.

Figure 8

Evolution of Female Participation in Enrollment in Undergraduate and Graduate Technology Development Careers (2018- 2022).
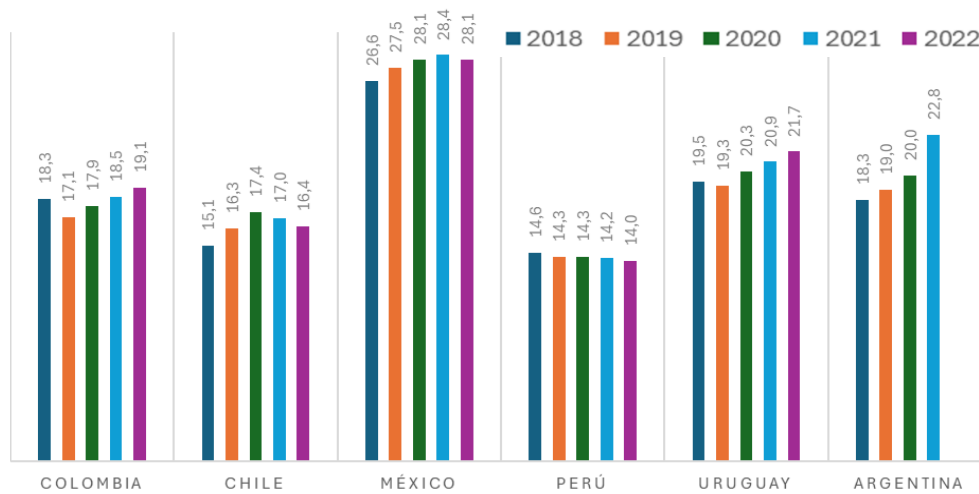
Note. Source: Own elaboration based on the official statistics.

3.5 Comparison Among the Three Categories: STEM, Programming-Intensive and Technological Development

Comparative analysis across the three categories reveals that women's participation in technology development careers consistently exceeds their representation in programming fields. Mexico demonstrates this pattern clearly with 28.1% female students in technology development versus 22.6% in programming, as does Chile (16.4% vs 11.1%). This higher participation likely stems from the inclusion of biotechnology programs, which traditionally attract more women.

Peru shows minimal variation across all categories (13.5-14.0%), maintaining the region's lowest female participation rates. Mexico leads with the highest female representation and displays a clear gradient: technology development (28.1%), programming (22.6%), and STEM-ICT (22.5%). Uruguay and Colombia follow similar patterns, though with less pronounced differences between categories.

4   Conclusions

University systems in Latin America exhibit significant gender disparities in technology-related fields. To better understand this imbalance, this study introduces an innovative methodological approach that incorporates the internationally recognized ISCED classification, used to identify STEM careers, and establishes two complementary categories: programming-intensive and technology development-oriented disciplines. This framework provides greater visibility into the depth of the gender gap across different technological fields.

The findings reveal a consistent pattern: at a general level, the outlook appears encouraging, as women constitute the majority of the total university student body, ranging from 51.2% in Peru to 64% in Uruguay. However, a sharp decline is observed when analyzing STEM careers, where female participation drops substantially. The gap is even more pronounced in technology-specific fields: in programming, female participation does not exceed 23% in any country, while in technology development, although slightly higher, it remains below 30%.

The 2018–2022 trend analysis highlights another concerning aspect: despite growth in the absolute enrollment of women across all these fields, their relative participation has remained nearly unchanged.

In this article, we propose a new methodology to identify and quantify the gender gap in technology-related higher education programs across six Latin American countries. While an in-depth examination of the root causes of gender disparities in university education falls beyond the scope of this study, the findings emphasize the importance of applying robust methodologies to accurately assess the magnitude and structural nature of this challenge. Consequently, they underscore the urgency of implementing targeted interventions to address the specific barriers that hinder women's participation in technology careers.

Figure 9

Female Participation in Undergraduate and Graduate Enrollment in ICT (STEM), Programming and Technology Development Related Careers (2021-2022)
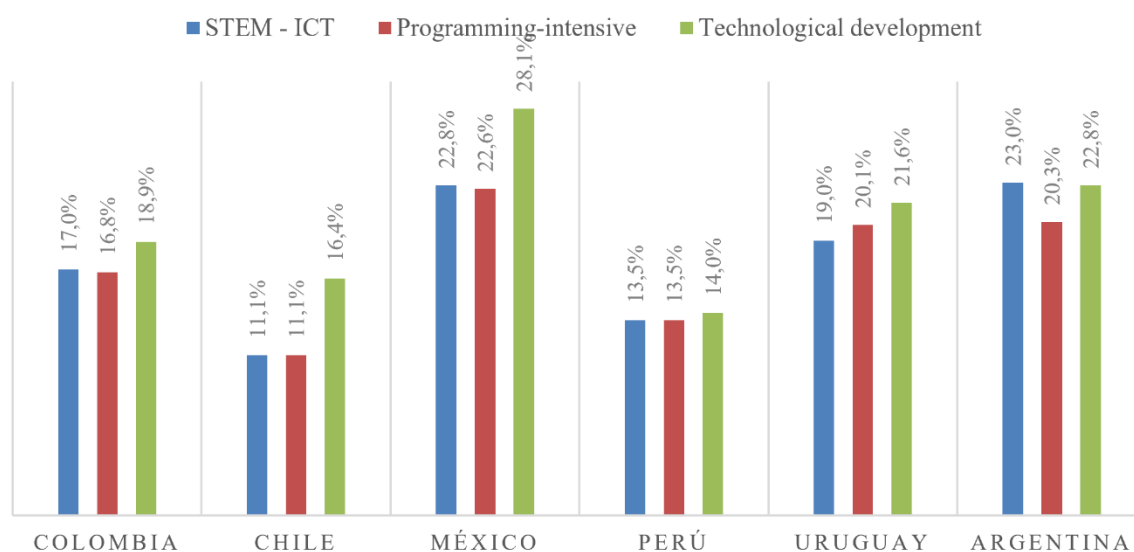
Note. Source: Own elaboration based on the official statistics. Argentina for 2021.

Acknowledgments

References

Cámara de Empresas de Software y Servicios Informáticos de Argentina (CESSI). (2020). Resultados OPSSI 2020. https://cessi.org.ar/wp-content/uploads/2022/02/20-12-02-cessi-opssi-mujeresenlaindustriait.pdf

Centro de Estudios de Tecnología (CET). (2022). An unequal career: The gender gap in Argentina's university system. CET & NCR Foundation.

DAWN. (2023). Towards feminist digital justice. DAWN Feminist. https://www.dawnfeminist.org/wp-content/uploads/2023/12/DI-on-FDJ-2023.pdf

García-Holgado, A., & García-Peñalvo, F. J. (2022). A model for bridging the gender gap in STEM in higher education institutions. In F. J. García-Peñalvo, A. García-Holgado, A. Dominguez, & J. Pascual (Eds.), Women in STEM in higher education (pp. 1–17). Springer. https://doi.org/10.1007/978-981-19-1552-9_1

Instituto Nacional de Estadística y Censos (INDEC). (2022). Statistical dossier in commemoration of the 111th International Women's Day. Dirección de Estadísticas Sectoriales & Dirección Nacional de Estadísticas Sociales y de Población. https://www.indec.gob.ar/ftp/cuadros/publicaciones/dosier_estadistico_8M_2022.pdf

López, A. (2018). Knowledge-based services: An opportunity for productive transformation in Argentina?. Universidad de Buenos Aires, Facultad de Ciencias Económicas, Instituto Interdisciplinario de Economía Política (IIEP).

López, A., & Ramos, A. (2018). El sector de software y servicios informáticos en la Argentina: evolución, competitividad y políticas públicas. Universidad Nacional de General Sarmiento / CEPAL. https://www.cepal.org/es/publicaciones/44252-sector-software-servicios-informaticos-la-argentina-evolucion-competitividad-politicas

López-Bassols, V., Grazzi, M., Guillard, C., & Salazar, M. (2018). Gender gaps in science, technology, and innovation in Latin America and the Caribbean: Results of a pilot collection and methodological proposal for measurement (Technical Note No. IDB-TN-1408). Inter-American Development Bank. https://doi.org/10.18235/0001291

Marchionni, M., Gasparini, L., & Edo, M. (2019). Brechas de género en América Latina: Un estado de situación. CAF.

O*NET Resource Center. (2024). O*NET OnLine. https://www.onetonline.org/find/stem

Szenkman, P., Lottito, E., & Alberro, S. (2021). Mujeres en ciencia y tecnología: Cómo derribar las paredes de cristal en América Latina (Documento de trabajo N°206). CIPPEC.

Trombetta, M., & Cabezón Cruz, J. (2020). Brecha salarial de género en la estructura productiva argentina (Documentos de Trabajo del CEP XXI N° 2). Centro de Estudios para la Producción XXI, Ministerio de Desarrollo Productivo de la Nación.

UNESCO Institute for Statistics. (2013). International Standard Classification of Education: ISCED 2011. UNESCO. http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf

United Nations Educational, Scientific and Cultural Organization. (2014). ISCED fields of education and training 2013 (ISCED-F 2013): Manual accompanying the International Standard Classification of Education 2011. UNESCO Institute for Statistics. https://uis.unesco.org/sites/default/files/documents/isced-fields-of-education-and-training-2013-sp.pdf

United Nations Educational, Scientific and Cultural Organization. (2015). International Standard Classification of Education: Fields of education and training 2013 (ISCED-F 2013) - Detailed field descriptions. UNESCO. Institute for Statistics. https://uis.unesco.org/sites/default/files/documents/international-standard-classification-ofeducation-fields-of-education-and-training-2013-detailed-field-descriptions-2015-en.pdf

United Nations Industrial Development Organization (UNIDO). (2019). Industrial Development Report 2020: Industrializing in the digital age. Vienna: UNIDO. https://www.unido.org/resources-publications-flagship-publications-industrial-development-report-series/industrial-development-report-2020

World Bank. (2018). Automation and Labor Market Outcomes (Policy Research Working Paper No. 8474). World Bank Group. https://documents.worldbank.org/curated/en/356581528983322638/pdf/WPS8474.pdf

World Economic Forum. (2016). The future of jobs: Employment, skills and workforce strategy for the Fourth Industrial Revolution. World Economic Forum. efaidnbmnnnibpcajpcglclefindmkaj/https://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf

World Economic Forum. (2021). The global gender gap report 2018. World Economic Forum. https://www.weforum.org/publications/the-global-gender-gap-report-2018/

Biographical Notes

Violeta Guitart is an Argentine economist (UBA: University of Buenos Aires) and is currently pursuing a Master's in Economic Development at the National University of San Martín (UNSAM). She worked as a Senior Researcher at the NGO Chicas en Tecnología.

Milagros Giménez is an Argentine economist (UBA), master's in public management, University of Birmingham (UK) and a Master's in Design and Management of Social Programs (FLACSO). Milagros served as the Head of Research at Chicas en Tecnología 2022/2024.

Why Systemic, Credible and Trustworthy Research Matters in Vocational Education: The Importance of Beginning with Practice and Being Present in the Conduct of Educational Research

Gregson, Maggie

maggie.gregson@sunderland.ac.uk, University of Sunderland

Gregson, Daniel

daniel.gregson@sunderland.ac.uk, University of Sunderland

Abstract

Context: Set in the context of vocational education and training (VET) in England, this paper draws upon data generated from a large national Practitioner Research Programme (PRP) funded by the Education and Training Foundation (ETF) from 2018-2024. Supervised and taught by the University of Sunderland, the PRP provides research training and support for VET practitioners enabling them to conduct systematic research into their educational practice in the contexts in which they work. The aim of each PRP is to identify how aspects of educational practice might be improved and to investigate how such improvements might be realised in practice in the context of each sector-practitioner's work. Shortcomings and superficialities in contemporary framings of concepts theory and practice in the VET system in England are critically examined in this paper. The neglect of other forms of knowledge with reference to concepts of savoir faire - knowing how make something or do a job well for its own sake and savoir être - knowing how to conduct yourself in a good way in a particular field of vocational practice as well as in wider social and political settings are also discussed.

Approach: Examples from research conducted in the PRP including contributions from literature, are drawn upon. The purpose of this paper is to invite critical consideration of the question of why, the empiricist-positivist hypothesis underpinning current models of educational change and improvement continues to be so widely supported and promoted by policy professionals, when the evidence to justify its usefulness in improving educational practice is so weak? Data are drawn from a sample of 12 PRP practitioner-researchers working in continuing vocational education and training (CVET) and teaching across a range of subjects and disciplines in the sector in England. These include Construction; Aerospace Engineering; Iron Trades; ICT; English Language; the National Health Service (NHS), Fine Art and Photography. This, small-scale, qualitative research study employs reflexive, systematic, thematic analysis to interrogate data derived from several sources in the study including, semi-structured interviews; critical incidents; case studies; extracts from MPhil/PhD theses as well as accounts of the experiences of VET practitioners' and their students.

Findings and Conclusion: A key finding of this study is that encouraging and supporting VET practitioners to give themselves permission to be authentic and present in conducting research into their own practice in ways which take context and lived experience seriously, is highly

impactful in improving educational practice in context. A second finding is that loosening the strength of the grip of empiricist-positivist methodologies and methods upon models of educational change and improvement, including the anonymous authority of the "sciences" is difficult but not impossible and in the end well worth the effort.

Keywords

practitioner-research, educational-improvement, inclusion, trustworthiness

1   Introduction

This paper builds upon and adds value to, a previous paper (Gregson, 2023) which draws attention to enduring and deep flaws in models of educational change and improvement which begin from the top-down and move from the outside-in. Such approaches we argue in this paper, assume all that is necessary is to simply tell VET practitioners "what to do" with reference to "blueprints" or "recipes" regarding "what works" - or more accurately- what has "worked' for practitioners working in other educational contexts The assumption is that simply telling teachers about other people's 'good", "best", "excellent practice" - what next – "perfect practice?" (Coffield & Edward, 2009), is enough to bring about real and sustainable improvements in the educational practices of vocational practitioners across the spectrum of contexts in which they work. Our contention is that this is far from the case regarding how practice changes and improves in real-time and real-world contexts.

Our purpose here is to bring pernicious superficialities surrounding current concepts of theory and practice in VET as well as assumptions surrounding "knowledge transfer", more sharply into view. A consequence of superficial conceptions of how knowledge is "transferred" from academic research into practice in VET we argue, overlooks/underestimates how different forms of knowledge interact. It is worth underscoring how the same superficial conceptions also seriously misconstrue the nature of educational practice and the processes through which educational practice improves in real-world contexts. With reference to the work of Sarason (1990), our previous paper foregrounds how education reform and models of educational change, improvement and research in education which impose a model of change from the top-down and move from the outside in, are locked into expensive and predictable failure.

Carr (1998, 2005) agrees with Sarason (1990) where he notes that models of educational change and improvement which begin from the top-down and move from the outside-in are not only naive but also fundamentally flawed on the grounds that they overlook the very nature of educational practice and the multiple forms of knowledge and ways of knowing involved in the acquisition and development of the skills, qualities of mind and character which underpin the drive and the ability to do a job well for its own sake in vocational contexts. Secondly, with reference to the work of Kemmis, it is argued that top-down approaches to educational change and improvement fundamentally underestimate the processes through which practice changes and improves in real-time, in real-world situations. Kemmis points to absurdities in thinking that,

> Despite the apparent recognition among *avant-garde* theorists that practitioners are not mindless functionaries performing in accordance with the theories of others, or the apparent recognition that practice and theory develop reflexively and together, many researchers, still proceed to study practice 'from the outside', believing that the insights won in the intellectual struggle of the postgraduate seminar at the invitational international conference will produce changes in the educational practice of teachers who attend neither. (Kemmis in Carr 1998, pp. 2-3)

Having said that, it is important to acknowledge how and why practitioner-research some-times gets a bad name (see for example, Tooley and Darby 1998; Tooley, 2001). The most strident and frequent of these criticisms are grounded in discourses which claim that practitioner-research is not as systematic, credible and trustworthy as research routinely conducted in Higher Education (HE). It is important to note here that research studies in HE are often typically framed by a positivist-empiricist epistemology and a realist ontology, coupled with deductive logic. As several of the above authors contend, sometimes criticisms of practitioner-research are deserved. However, the argument we make in this paper is that increasingly they are not. A perennial problem is that much of the work of teachers as practitioner-researchers in VET does not get completed, shared or published. Little is known about the reasons why practitioner-researchers from the schools' sector do or do not publish. Less is known about why those from the VET sector publish least of all. This paper argues that published qualitative peer-reviewed research is routinely judged against inappropriate positivist standards. Discussions of theory are often separated from discussions of practice, methodology and method and these fail to provide authentic and holistic accounts of experiences of engaging in research which aims to change and improve educational practice in VET contexts.

2 Background

VET practitioners are continually faced with several challenges regarding issues curriculum design, content, pedagogy and assessment. The first, challenge requires sector practitioners to pay attention to epistemic issues surrounding how teachers and their learners acquire and develop the different forms of knowledge and ways of knowing in VET contexts. The second, involves addressing issues surrounding the pedagogic support teachers and learners need in order to learn how to become, *(savoir faire)* and know how to be, (*savoir être)* (i.e., 'good' vocational teachers, learners, credible researchers and pivotal members of the workforce of the skilled VET professionals of the future (Méhaut in Brock *et. al.* 2011). This paper highlights the importance of policy professional's curriculum designers, researchers, teachers and learners in not underestimating the challenges of addressing issues surrounding the holistic, multi-contextual and epistemic plurality of factors involved in framing what we mean when we speak of "good work" and "good practice" and "quality" in VET contexts (Carr 1996; Sennett 2009).

3 The Research Problem and Research Questions

The works of the above authors inform the overarching research question (see below) that infuses the discussion presented in his paper. For example, Coffield (2007, 2008, 2017, 2024) points out that, despite decades of expensive, positivist-empiricist-quantitative evaluative research into educational practice which have long and stridently laid claim to being "robust", [it is worth noting that this body of work includes the British government's £156 million expenditure of taxpayer's money to date spent on the model of educational change and improvement currently employed by the Office Standards of Education (OfSTED)] there is little empirical evidence to justify the effectiveness of the "para-mechanical" hypothesis (Ryle 1949/2000, p.278) around which the cornerstones of OfSTED rest.

Coffield (2024, p.89) cautions us against regarding educational policy derived from empiricist-positivist research as some kind of "wonder drug" – a self-evident good, which on its own, will solve many (if not all) of the pressing and enduring issues we face in educational practice. Edwards (2000) is particularly persuasive in his support of this position where he argues that,

> …. research can only inform practice because it can never replace other knowledge
> which teachers bring to bear on practical problems; and that even the best research

evidence is not available as fixed, universal relationships between methods and out-comes, but as local, context-sensitive patterns which have to be interpreted by practitioners within their particular working environments. (Edwards 2000, p. 301)

3.1 Research Question 1

The focus of the overarching research question which infuses discussion throughout this paper is upon why the hypothesis of the empiricist-positivist approach underpinning current models of educational change and improvement continues to be so widely supported and promoted by policy professionals, when the evidence to justify its usefulness in improving educational practice is so weak?

3.2 Research Question 2

This raises further research questions regarding what might be done to address the conundrum of how the current widely used and heavily promoted model of educational change and improvement might respond and adapt to evidence of conceptual and practical shortcomings in the existing approach. This includes questions of who should be allowed to conduct research into the improvement of educational practice and how.

4 Research Methods

The project from which data sets in this study are drawn is the Practitioner Research Programme (PRP) funded by the Education and Training Foundation (ETF) the national body for the improvement of educational practice in the VET sector in England from 2018-2024. Research participants contributing to this small-scale, mixed-method, study consist of 12 CVET teachers pursuing their studies at MPhil/PhD level at the University of Sunderland with the support of the PRP over a total period of 6 years. Data are drawn from a number of sources including semi-structured interviews, critical incidents and case studies and extracts from MPhil/PhD theses. The data collection phase of this study took place as part of 6 x 3-day, University of Sunderland supported, Residential Research Development workshops over a 2-year period 2022-2024. Each Residential Research Development workshop is followed by a series of individual tutorials where PRP participants are provided with individual mentoring, internship and supervision.

Data analysed in the study are drawn from the above sample of 12 PRP practitioner-researchers (from a total research population of approximately 400 PRP practitioner-researchers supported by the PRP to date). Practitioners from the sample of 12 work across a range of subjects and disciplines the CVET sector in England including, Construction (Plumbing); Aerospace Engineering; Iron Trades; ICT; English Language; Fine Art and Photography as well as vocational training professionals from the National Health Service (NHS). Data are also derived from a recently completed PhD thesis exploring accounts of the experiences of VET tutors as they engaged in their research at MPhil/PhD level This, small-scale, qualitative research study employs the six-step approach to reflexive thematic analysis advocated by Braun and Clarke, (2006) and Nowell et al (2017). These are put to work to ensure that data are analysed in systematic, trustworthy, accessible and credible ways. Actual examples of PRP participants' accounts of their experience of engaging in research in VET contexts are also provided.

Guided by the work of Braun and Clarke, (2006) and Nowell et al. (2017) who recommend the adoption of a six-step data analysis process, all the semi-structured 45-minute interviews were conducted, recorded and transcribed on Zoom. Playback of each interview required careful observation and active listening. This involved the use of a Data Analysis Notebook/Codebook where aspects of the data that appeared to be meaningful to participants which were also linked to the research questions were noted. This provided opportunities to recall gestures and

intonations that may not have been able to document in interview notes alone. In the process of data analysis in the interests of rigour, balance, triangulation and transparency, Multiple Coders (MCs) then read through each of the 12 transcripts independently, identifying and noting interesting or meaningful categories of data by circling key words and phrases and making notes in the margins of each document. Notes that we made individually at this stage sequentially informed the interpretation and construal of the final thematic framework underpinning this study. Each transcript was then independently preliminarily coded by each of the MCs. Following this, the Coders arranged a series of meetings to compare and discuss the categories each of us had identified in each transcript. This helped to make sense of the categories of data identified and enabled open discussion of any ambiguities, problems in interpreting meaning. It also helped us to begin to notice early commonalities, recurring phrases, metaphors, discrepancies and broad/emerging patterns etc., across data in the 12 interview transcripts.

Problems in the Para-Mechanical Model of Educational Change and Improvement: Issues of Lived Experience, Trustworthiness and Presence in Qualitative Educational Research in VET

Learning how to become, *(savoir faire)* and knowing how to be, (*savoir être),* a teacher or a learner in vocational education are, and have always been, steeped and cultivated in vital, vivid and "lived through" experiences of vocational learning in practice - for both teachers and learners alike. As discussed above, this involves not only a recognition of the importance of the acquisition and development of different forms of knowledge and ways of knowing but also, the strengthening of the capacities of vocational teachers and their learners in engaging in problem-finding, problem-solving and critique in relation to the ongoing improvement of vocational practice (Sennett, 2009). In other words, the capacity to conduct research into vocational practice in order to improve vocational practice is pivotal to "good practice", "good work" and "quality" in VET. Dewey (1916, 1933, 1934, 2025) and Stenhouse (1979) concur where they argue that *using* educational research means *doing* educational research. In support of this claim, Kemmis (in Carr 1998, pp. 2-3) notes that taking an idea from educational theory or academic educational research and making it good in practice, *is* a form of inquiry and therefore a legitimate form of educational research. The issue here is not the question of whether vocational teachers and their learners are consumers *or* producers of educational research. In practice they are *both*. A central contention of this paper is therefore that, in an inclusive and egalitarian system of VET worthy of the name, vocational teachers and their learners need to be encouraged and enabled to learn how to become, (*savoir faire)* and know how to be, (*savoir être)* vocational researchers in their own right capable of successfully engaging in individual, collaborative and collective problem-finding, problem-solving and critique in the contexts in which they work. From this perspective, vocational teachers are of necessity required to conduct systematic enquiry into improvements in their own practice, in order to bring about lasting improvements in the quality of VET in context now and in the future. That is why, Stenhouse (1975, p.145) argues that "It is not enough that the work of teachers be studied, they need to study it themselves."

Theory: The Grip of the Shadowy, Yet Persistent, Empiricist-Positivist Inheritance of British Educational Research

As discussed above, although there has been a significant level of public investment in Vocational Education and Training (VET) in England, the return on this financial outlay has not always yielded discernible value for public money in terms of actual improvements in the form of raised levels of achievement for learners. In short, this paper argues that the "para-mechanical model", which has dominated research in education in England for so long, assumes

that teachers just need to be told what to do by external "experts" who presume to know better and that this is all that is needed in order to successfully "transfer" theoretical/academic knowledge into practice. As also previously discussed this is not only naive but also not nearly enough to secure real and sustainable change and improvement in vocational educational practice. The power and influence of the "para-mechanical model", in England (and elsewhere) is formidable in that in England studies in educational research have tended to rely upon research conducted from the outside-in, largely dominated by a view of the social world grounded in a linear, technocratic, input-output model of causality. Consequently, educational improvement is currently widely construed in England as being powered by a complex set of "para-mechanical" (Ryle 1949/2000, p.278), policy levers and drivers, putatively assumed to be capable of driving educational practice forward. Hamilton (1998, p. 78) traces the problem back to long-term preoccupations with the "shadowy yet persistent, empiricist and positivist inheritance of British educational research", which simultaneously fractures the concept of practice while relegating human lived experience to a position of irrelevance.

As already noted, the most frequent criticisms of practitioner-research In England tend to be levelled by empiricist and positivist researchers (in British contexts see for example, Tooley & Darby 1998; Tooley 2001), who claim that practitioner-research is second-rate in that it is not as systematic, credible and trustworthy as research routinely conducted by professional researchers in Higher Education (HE). A consequence of this is that research studies in HE in England are still widely regarded as being more important and worthy of being taken seriously when they are framed by a positivist epistemology, a realist ontology and guided by deductive logic. Gregson and Gregson (2018, 2023), Gregson and Spedding (2020) point out that for some educational researchers, the lure and status of 'pure' research and research concerned with theory development is strong, particularly in situations where the theoretical is routinely elevated above the practical. In these contexts, grappling with issues of policy implementation and the tensions and challenges involved in putting good ideas from educational research into good educational practice often hold little or no attraction. Ironically, many if not most, educational researchers come to research through the practitioner route. Indeed, significant numbers of researchers in Higher Education (HE) and those involved in the provision of HE in Colleges of Further Education (FE) continue to work in departments which have their origins in teacher training and still see the initial and continuing professional development of teachers as being important not only to the profession but also to society more broadly. However, the inferiority complex, deep fissures and troubling insecurities that surround vocational teachers and that they must overcome in believing in themselves as researchers, academics and scholars can be difficult and sometimes impossible to shake off, even for more experienced and confident teachers. For beginning teacher-researchers in vocational education these pressures and insecurities can even prevent them from seeing themselves as legitimate researchers in education at all. Not surprisingly, much of the work of teachers as practitioner-researchers in VET does not get completed, shared or published. Little is known about the reasons why practitioner-researchers working in compulsory education do or do not publish. Even less is known about why those from the VET sector publish less than those in any other sector of education.

While in theory, the same research standards exist for research of a quantitative and a qualitative nature and also (at least in theory) apply equally to research conducted by professional academic researchers and practitioner-researchers, published qualitative research is routinely judged against inappropriate positivist standards as being inferior or in some way second-rate (see for example, Tooley and Darby 1998; Tooly 2001). The problem here is not so much a problem of the quality of the research itself but the extent to which different peer-reviewers are able to recognise, admit and accept the value of a plurality of ontological, epistemological and methodological perspectives in educational research. In the worst cases, discussions of theory are often separated from discussions of practice, methodology and method and as such fail to

provide authentic and holistic accounts of the lived experiences (not only of the researcher but also the experiences of "the researched") of engaging in research endeavours in VET contexts. In addition, it is now reluctantly but increasingly acknowledged that articles published in peer-reviewed journals in the field of educational research are scarcely read and reach few outsides of the academy. It is also not difficult to find many examples of large-scale and expensive studies conducted from an empiricist-realist-positivist-quantitative peer-reviewed, perspective which have had little or no discernible impact upon practice in VET and other sectors of education and sit unread on the shelves of academic libraries and remote research databases despite have been awarded significant levels of research funding.

This paper reports and explores the "lived through" experiences and the research journeys of 12 CVET practitioners who at the beginning of the PRP felt that they were not capable of engaging in credible, impactful and trustworthy educational research, academic writing and scholarship. It offers practical illustrative examples of how many of these practitioner-researchers from the VET sector were enabled to subsequently progress to successful study and post-graduate research degree and graduation at MPhil and PhD level.

5   Findings

An key finding of this study is that providing research training that supports teachers in the VET sector to loosen the grip of fragmented concepts of practice and a top-down model of educational change and improvement upon their thinking, in a landscape of educational research dominated by what Gadamer (1975 cited in Greene 1995, p.55) describes as the "idolatry of the scientific method ... [a] ... peculiar falsehood of modern consciousness", is not an easy task. Encouraging VET practitioners to give themselves permission to be authentic and present in their own research not in technical-rational but in pragmatic ways which admit the importance of "lived through" experience and take contexts in which practitioners work seriously, takes time. In other words, the grip of the technical-rational, para-mechanical contemporary worldview of educational practice and the processes involved in its improvement is strong and difficult to loosen (but as also seen in further extracts participant responses/theses) not impossible to shake off). For example, Ketheric (pseudonym) notes,

> I think I was under the impression that we would have to take a more numerical approach to the data…I was coming in kind of new to the whole thing, so I'd had a little look at some research papers or in terms of, theory side of stuff from what a colleague had kind of given me … saying, you know, you should have a look at this... I'd got the impression that what, what would generally get through into, a research project or an action research project was something that had a statistical element to it… So very much a quantitative sort of approach… numbers-driven. (Ketheric, Photography Lecturer in Semi-Rural FE College)

Halsin (pseudonym) remembers,

> So, I suppose my initial contact with educational research would have been doing my PGCE… I kind of suppose my view of educational research … it was written in a language which made it quite difficult to access. I remember I was working with some colleagues who were doing a PGCE and we sort of talked about the gap between what it's like in the classroom and then some of the lofty ideas that were bandied around by some of the textbooks…So I supposed my initial contact with educational research … it was quite dry … and it wasn't very accessible. It didn't feel like it was tangible. (Halsin, Film and Media Lecturer, large, rural FE College)

A further finding of this study is that encouraging VET participants to begin with their own "lived through" experiences of educational practice in the contexts of their work in the early stages of their research training, enabled them to "see" and express experiences of educational practice in ways which they had been unable to do before. This enabled VET practitioners who engaged in the PRP to think and write about their experiences of teaching, learning, assessment and research in scholarly ways with increased confidence in themselves as researchers and scholars. For example, Enver (pseudonym) recalls:

"I was really worried about the academic writing side of things, in terms of, as I said, I was confident in my ability to write, but what does it mean to write as an academic? I was trying to write in a style that didn't really fit with who I am. It didn't really suit me very well because I think I was trying to tick certain academic boxes and [Name of tutor] … sort of stripped it back and said, "Listen, think about what you're doing and think about the language you're using … Think about the language you want to use. And that led to a conversation about Punk music and [Name of tutor] said, "Well write about that".

> I was thinking, well I can't write … you know… I can't write about Punk music in my thesis and [then Name of tutor said] ... "Why not … you know, tell the stories… researching is about telling stories… so tell your story. And that was a real light bulb moment and everything changed really, because I went away and wrote about Punk music and I made the connection of how that fits in with the theme of my research … looked at Punk music in a certain way…[and that] could be thought of as similar to the traditional way of writing … not a lesser form of knowledge or [an inferior) language … how [informal and formal] language overlap. That was a key moment for me. And I've not looked back from that. I'm writing this thesis now as me … not me trying to be an academic. (Enver, Plumbing Lecturer, Large Inner-City FE College)

Many PRP participants in the study expressed feelings of anxiety and a sense of "Imposter Syndrome" at the start of their research. This was sense of being somehow in deficit as a researcher was often coupled with perception that credible and trustworthy educational research must be numerical, statistical and was [most notably] seldom for people "like them". Instead, they tended to regard participation in educational research as being firmly rooted in the landscape and possession of a privileged elite. This finding draws attention to the high levels of exclusion, apprehension and anxiety coupled with deep feelings of being 'imposters' in the field of educational research felt VET practitioners at the outset of their research including the idea "real" research requires quantification and the application of statistical techniques in the pursuit of objective knowledge and the pursuit of certainty and "the truth". This was often accompanied by the secondary assumption that all research phenomena can and should be reduced to what is measurable and/or expressed in formal propositional language. The deeper problem here, as Eisner (2002, p.178) reminds us, is that much of what needs to be understood in educational research needs a narrative more than it needs a number. For example, Karlach (pseudonym) and Elminster (pseudonym) recall:

> I think I was a little bit in awe to be honest, because it was only my second encounter, with people that were so involved in educational research and, I guess I kind of felt a little bit of an imposter because it hadn't been something that I'd been particularly engaged with. (Karlach, Art Lecturer, Large FE College)

> What I liked about the visual stuff … is it, sort of brought you back down to earth a bit more. It took us away from the … you know … if all I was ever presented with was academic journals and, and books and papers … as I said early on, it's intimidating … and … [makes you] feel like an imposter. But whereas you …when you move into … you know, you've got a funny clip or, or a video or some kind of visual cue or something else comes up, all of a sudden you feel like you're in a lesson again. You feel like you're being taught rather than you are being on your own … which kind of contrasts a little bit with the feeling of autonomy, but I always felt like I was able to make my own choices. (Elminster, (pseudonym) Vice Principal, Large FE College)

A further finding of this study is that purposefully attending to and meaningfully harnessing the "heightened vitality" of narrative accounts and aesthetic experience (Dewey, 1934, 2005), sparked a "wide awakeness", … an existential awareness of what it is and what it means and feels like to be a human being in the world (Greene, 1995). Data from this study suggest that this enabled a heightened sense of consciousness, ignited by aesthetic experience in education, which served to enhance cognition and expand learning mediated through engagement with the arts (Eisner, 2002) in the form of "epistemic shortcuts". For example, Wyll (pseudonym) comments,

> I love a good gif … I love a meme … they always make me chuckle. But things like the use of those … the use of the music, the games, the role-playing things, it's almost like .. it's still … the kind of thing that we would look for in good teaching practice as well. (Wyll, English Lecturer, Large FE College)

A final finding of this study is that participating in Research Galleries where examples of drafts of the writing and scholarship of research participants were exhibited, shared and constructively commented upon by both peers and tutors enabled research participants to "see" these drafts as artistic artefacts and works in progress in circumstances where (often but not exclusively literary, text-based) artistic artefacts could be simultaneously seen as works of art and acts of scholarship. Creating spaces and moments of heightened vitality through engagement in aesthetic experience and experiential learning in their research training enabled VET participants in the study to collaborate and cooperate in developing their own "research voice" and improving their levels of academic writing and scholarship. This included sharing stories and engaging with accounts experiences of research conducted by themselves and other educational researchers In addition, the provision of a range of practical examples of educational research of varying quality provided as part of their research training allowed the VET practitioners who participated in the study to give themselves permission to be authentically 'present' in their thinking, writing and talking about their own experiences of research in the past and in the present. This helped VET practitioners in the study to "see" the variety of ways in which experiences of educational research can be put into words and represented in a range of linguistic ways and through other forms of expression. For example, Elminster (pseudonym) tells us,

> I really valued the Galleries … we'd write our abstracts … and we'd have a Gallery [of [our Abstracts] … I think what was really fascinating about that is that everyone else in that room was in the same boat. So, I'm not judging myself as an academic at that point… I'm judging … I'm almost measuring … how I have interpreted something compared to how someone else under the same conditions has interpreted something … The reason that this was so beneficial is that it wasn't an intimidating process… We were really supporting each other and giving feedback … and I also felt that the feedback was quite honest … You could give some honest feedback without feeling

that you had to fluff it up because you liked someone or knew someone. (Elminster, Vice Principal, Large FE College)

6   Conclusion

The paper concludes that where you stand in relation to the nature and purpose of educational research in VET influences not only policy priorities surrounding approaches to educational change and improvement but also in determining what we mean when we speak of "good work" and "quality" in VET including the extent to which they inhere in practice. In other words, the positions we adopt regarding the interaction of theory and research in education, their relationship to each other, their operational significance in the improvement of practice as well as their importance contribute to what we mean when we speak of "good work" and "quality" in VET. Whether we like it or not … whether we mean them to or not… the positions we adopt in relation to these issues reveal our ontological, epistemological and methodological assumptions regarding the purpose of VET; what VET is *for;* who should be responsible for the improvement of practice in VET; why and in what ways (Carr, 1998).

References

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Carr, W. (Ed.). (1989). *Quality in teaching* The Falmer Press.

Carr, W. (Ed.). (1998). For Education: Towards critical educational inquiry. Open University Press.

Carr, W. (Ed.). (2005). The Routledge-Falmer reader in philosophy of education. Routledge.

Coffield, F., & Edward, S. (2009). Rolling out 'good', 'best', 'excellent' practice: What next? Perfect practice? *British Educational Research Journal, 35*(3), 371–390.

Dewey, J. (1916). *Democracy and education*. Macmillan.

Dewey, J. (1933). *How we think*. Heath.

Dewey, J. (1934/2025). *Art as experience*. Penguin Books.

Edwards, T. (2000). All the evidence shows… reasonable expectations of educational research. *Oxford Review of Education, 24*(3/4), 299–311.

Greene, M. (1998). *Releasing imagination*. Jossey-Bass.

Gregson, M., & Gregson, D. (2018, September 9–12). Practice-focused educational research: A route to educational improvement and scholarship? Paper presented at the British Educational Research Conference, Northumbria University, Newcastle-upon-Tyne.

Gregson, M., & Spedding, T. (Eds.). (2020). Practice-focused research in further adult and vocational education: Shifting horizons of educational practice, theory and research. Palgrave Macmillan.

Gregson, D. (2023). Arts-based educational research in action in vocational education. In V. Tūtlys, L. Vaitkutė, & C. Nägele (Eds.), *Vocational education and training transformations for digital, sustainable and socially fair future: Proceedings of the 5th Crossing Boundaries Conference in Vocational Education and Training, Kaunas, 25–26 May* (pp. 173–178). European Research Network on Vocational Education and Training (VETNET), Vytautas Magnus University. https://doi.org/10.5281/zenodo.7808569

Gregson, M. (2023). If it was going to work it would have worked by now. In V. Tūtlys, L. Vaitkutė, & C. Nägele (Eds.), Vocational education and training transformations for digital, sustainable and socially fair future: Proceedings of the 5th Crossing Boundaries Conference in Vocational Education and Training, Kaunas, 25–26 May (pp. 179–185). European Research Network on Vocational Education and Training (VETNET), Vytautas Magnus University. https://doi.org/10.5281/zenodo.7808579

Hamilton, D., (1998) ' The Silence of the Shadows: Educational Research and the ESRC'. In Jean Ruddock and Donald McIntyre (Eds.) (1998) *Challenges for Educational Research,* London: Paul Chapman Publishing.

Méhaut, P. (2011). Savoir-The organizing principle of French VET. In M. Brockmann, L. Clarke, & C. Winch (Eds.), *Knowledge, skills and competence in the European labour market* (pp. 37-49). Routledge.

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods, 16*, 1–13. https://doi.org/10.1177/1609406917733847

Ryle, G. (1949/2000). *The concept of mind*. Penguin.

Sarason, S. B. (1990). The predictable failure of educational reform. Jossey-Bass.

Sennett, R. (2009). *The craftsman*. Penguin.

Stenhouse, L. (1984). An introduction to curriculum research and development (Reprint). Heinemann.

Tooley, J., & Darby, D. (1998). *Educational research: A critique*. Ofsted.

Tooley, J. (2001). The quality of educational research: A perspective from Great Britain. *Peabody Journal of Education, 76*(3–4), 122–140. https://doi.org/10.1080/0161956X.2001.9681994

Biographical Notes

Dr Maggie Gregson is Professor of Vocational Education and Director of the Centre for Excellence in Teacher Training (SUNCETT) at the University of Sunderland. Her research focuses on vocational education, practitioner research, professional learning, and assessment, including formative, summative, and multimodal approaches. She is particularly interested in how educational practice relates to theory, and how different forms of knowledge and skills develop, especially in craft and vocational contexts. Her recent work explores models of educational change and improvement, with a strong emphasis on the advancement of practice-based knowledge.

Dr Daniel Gregson, a recent PhD graduate from the University's Class of 2024, is a lecturer on the MA in Education programme. His doctoral thesis, *"What Can Education Learn from the Arts?"*, explores the role of aesthetic experience in education, particularly in relation to teaching and supporting practitioner research. His work draws on his involvement in the national Practitioner Research Programme (PRP), funded by the Education and Training Foundation (ETF), which supports vocational education teachers across England in improving their practice.

Investigating Occupations in Transition and the Implication for Vocational Education and Training

Hepplethwaite, Victoria

victoria.hepplethwaite@wits.ac.za, University of the Witwatersrand, Centre for Researching Education and Labour (Wits REAL)

Ramsarup, Presha

presha.ramsarup@wits.ac.za, University of the Witwatersrand, Centre for Researching Education and Labour (Wits REAL)

Abstract

Context: The transition of the South African energy system to renewable energy and specifically solar energy requires a shift in skills that facilitates the readiness of the current and future workforce, to ensure that the transition is just. Preparing the workforce requires reskilling, upskilling and overall skills development in the emerging sectors. This paper hence aims to contribute to the understanding of the skills and provisioning needed for the transition by investigating how occupations are changing, and what the implications are for vocational education and training.

Approach: We use an occupational analysis of electricians to understand changes in the occupation as it transitions into solar energy. We conducted an in-depth document analysis and 30 extensive semi-structured interviews with employers, employees, industry leaders, and policy representatives in the solar energy sector. Through this iterative process, we were able to showcase how the electrician occupation is transitioning in the solar energy sector. Our analysis attempts to provide a contribution, firstly, by providing a conceptual framing of how occupations in transition can be studied, and secondly by providing an empirical example of how occupations are transitioning, and the implications for Vocational Education and Training (VET).

Findings: Our findings reveal that the tasks carried out by electricians change as they transition from traditional sectors (e.g. coal generated electricity) to solar energy. This is specifically linked to aspects such as installing solar panels, inverters and batteries, switching from working with Alternating Current to Direct Current systems, and maintaining and troubleshooting solar systems. However, their core electrical knowledge still provides a strong basis for their transition, although they do require upskilling. We further find that the VET system although being well positioned to support the transitioning occupation, are constrained by various systemic factors that are limiting their current ability to support an inclusive transition.

Conclusions: We therefore put forward that the occupational analysis framework that was developed provides a relevant tool for conceptually understanding and investigating occupational change. The nature of change of the electrician occupation that was observed hence calls for a focused curricula and systemic alignment of VET, which would allow for VET to play a critical role as an anchor to support skills development for the energy transition.

Keywords

occupational change, just energy transition, technical vocational education and training, solar energy, skills

1 Introduction

Ramsarup et al. (2024a) have argued that the issue of skills within the energy transition has been reactive and is predominantly approached from what skills are needed for the implementation of renewable technology. This has resulted in a fragmented response to skilling for the energy transition (Ramsarup et al., 2024b). Alongside that the least is known about intermediate level skills and the role of Technical Vocational Education and Training (TVET) colleges within the transition. The TVET system, which has the potential to offer technical skills for the transition as well as social inclusion, remains "weak", "fragmented" and "unresourceful" (African Union, 2018; Allais, 2020). The lack of urgency with foregrounding skills and the weak TVET system hence results in a vicious cycle in which changes to technical occupations linked to transitioning systems are not entirely understood or caught on time, and the skill system remains unprepared for implementing these changes, resulting in skill supply and demand mismatches, which impede the energy transition and have negative socioeconomic impacts.

The South African energy transition is receiving extensive global attention, as a case in example of how the justice element can be actualised as systems shift. The country's energy system has been highly dependent on coal for decades, resulting in a deeply rooted mineral energy complex (Creamer, 2022). The mineral energy complex has subsequently led to persistent high levels of inequality and poverty, environmental degradation, enhanced climate change impacts, and instability of the labour market. Leading to South Africa making commitments to green the energy sector and implement a just energy transition. However, we note that critical gaps continue to persist in relation to a responsive skill formation system, especially at vocational education and training level (Wits REAL, 2024b), impacting on the actualisation of sustainable transitions.

We therefore argue in this paper that while there is a substantial amount of political discourse surrounding socio-technical transitions, these discussions tend to focus on the political, economic, and social implications of changing systems such as the energy transition. And although occupations, jobs and skills do tend to be considered, they are often seen from a technology implementation perspective and are colloquially conceived within the idea of a changing world of work. This paper hence aims to deepen the understanding of how jobs are actually changing, and what the implications of this change are for vocational education and training, and subsequently social inclusion. We focus on the rapidly emerging solar energy sector in South Africa, where we use occupations as a unit of analysis, with which we attempt to develop a deeper conceptual understanding of how occupations in this sector are transitioning.

Research Aim

The study aims to analyse occupational change within the emerging solar sector in South Africa, illuminating the changes in job tasks, responsibilities and knowledge requirements, and the implication on vocational educational training.

Research Questions

   i.   How are key occupations changing within the solar energy sector?
  ii.   How can technical vocational education and training systems support a sustainable transition of South Africa's energy sector to solar energy?

2 Occupations, Occupational Change and Vocational Education and Training

An important body of literature when considering educational preparation for work is research which looks at occupations and occupational identity formation. The notion of 'occupation' is important in understanding the idea of specialisation, which is central to educational preparation for work. Freidson (2001) argues that where occupations can exert control over division of labour, members of distinct occupations have exclusive rights to perform the tasks associated with them, inevitably overlapping to some extent with related occupations. Studies of occupational labour markets and occupational identity formation—come together in studies of vocational education, because successful vocational education and apprenticeship systems have generally been focused on education for an occupation. In other words, they develop competence and identity for a regulated occupational labour market where an occupation is a formally recognised social category, with regulations in terms of aspects such as qualifications, range of practical and theoretical knowledge required, and promotion requirements and procedures (Brockmann, 2011, drawing on Rauner, 2007).

In occupational labour markets the employment relationship is a long-term one. This makes it possible for it to be founded on broad abilities, such as an understanding of the entire work process and of the wider industry, and on an integration of manual and intellectual tasks, to be able to plan, execute, and evaluate work, and not just carry out narrowly specified tasks. The implication is that occupational labour markets are linked to strong vocational education systems.

2.1 VET Response to the Energy Transition in South Africa

The South African Vocational Education and Training (VET) system reflects an incremental energy transition seen through the introduction of some renewable energy courses, including solar. However, the response of the VET system to the transition is relatively slow, with only a few renewable energy related courses being provided by VET, and no apparent curricula changes to incorporate renewable energy in courses that are cardinal for the solar energy and other renewable energy sectors (Ramsarup et al., 2024b; SANEA, 2023). This appears to be the case in several countries, Ramsarup et al. (2024a, p.262) note that, "in a number of places, North and South, formal vocational education remains tightly linked to the same old sectors, even though there may be few new jobs being created in them". What is evident though, in the South African context, is that renewable energy provisioning and apprenticeships that link students to the world of work, are dominated by private providers (Wits REAL, 2024a).

3 Methodology

Data collection included a comprehensive desktop review, and 30 semi-structured interviews with employers, employees, industry leaders, and policy representatives in the solar energy sector. Additionally, four employer working group meetings were held. The research was in 3 phases which informed the findings as follows:

- Mapping of the solar energy value chain to surface the trajectory and key contextual issues, understanding the occupational interplay, and identification of occupations at risk, transforming or emerging. This phase provided insight into the occupational landscape of the solar sector and aided with the identification of key occupations to focus on.
- Analysis of occupational transitions, through document analysis, workplace observations and extensive interviews. This phase surfaced insight into how occupations are changing with the emergence of the solar energy sector, highlighting the core knowledge of the occupations, the changes in tasks as the occupations transitioned into solar, the new knowledge and skills required, and the current landscape for reskilling and upskilling.

- Analysis of the implications of transitioning occupations for vocational education and training within the solar energy sector.

This was part of a broader study on six occupations but this paper places detailed emphasis on one transitioning occupation, the electrician. To understand how the occupation is changing we developed an analysis framework, which examined changes within the occupation against the following six dimensions:

- Political Economy/Ecology of the Transitioning Occupation
- Scope and change in occupational tasks
- Field of knowledge required and shifts in the field of knowledge
- Materials, tools and machining and changes
- Goods and services produced and changes
- Status of occupation (core, non-core, periphery) & level / changes

In this paper we focus on the analysis of two key dimensions, the scope and change in occupational tasks and the field of knowledge required. These dimensions provide an understanding of how work is evolving and how the curricula and overall TVET system can respond to these changes.

4   Results

In this section, we discuss occupational change in the transition to renewable energy. We use an occupational change analysis framework to investigate how work is changing, by trying to show the change in tasks and knowledge required and the implication for skills and VET. We present the case of the electrician and their transition into the solar sector where they emerge as solar installers or maintain the status of electrician. We then show the implications of occupational change on the VET system. We close the section by showing that the occupational change analysis framework developed provides a clearly defined tool to understand how jobs and occupations are changing, to enable concentrated efforts in aligning VET responses.

4.1   How are Occupations Changing? Emerging Insights from the Analysis of Changes in Tasks and Knowledge Required of Electricians in the Solar Sector

This analysis focused on the transition of electricians into the solar sector as solar installers and/or electricians with a solar specialisation. The analysis of occupational tasks revealed that most electricians were able to rely on their core electrical knowledge as they moved into the solar sector. This included knowledge on connecting electrical systems to the grid, installing and maintaining electrical wiring, safety, and testing systems. However, there were some new tasks that they needed to perform which required new knowledge, such as installing solar panels, installing inverters and battery storage systems, putting installed systems online, and performing maintenance on PV systems. It should be noted that not all installers interviewed had an electrical background, but those who did have one tended to have more responsibility including inspecting installations, connecting the PV system to the grid and commissioning systems if they obtained a wireman's license.[1] The electricians indicated that it was not difficult for them to acquire the skills to perform these new tasks through short training courses and on-

---

[1]   A wireman's licence is a certificate awarded to electricians who have undergone training to conduct verification and certification of electrical construction sites, test and inspect electrical installations, and repair electrical equipment. The license further allows them to issue electrical compliance certificates (ECOC).

the-job training. However, there were differences between participants that had electrical core knowledge and those that did not, those without often received practical training on the job and could not perform certain tasks such as commissioning systems or connecting systems to the grid.

Table 1 below shows the transition of an electrician from traditional electrical systems (such as coal-generated electricity) to the solar sector as an installer or electrician. The table highlights the changes in occupational tasks in the transition into the solar sector, for example planning solar photovoltaic (PV) system configurations, installing solar panels, support structures, inverters and batteries, and activating PV systems and connecting them to the grid. The table further reflects that the electrician occupation has a strong knowledge foundation that is useful in transitioning to solar specialisations as depicted under the core knowledge column. Knowledge such as electrical installation, wiring, system commissioning and diagnosing and troubleshooting faults all give electricians a competitive advantage in the solar sector, as similar tasks are performed albeit with a specialisation in PV systems.

The findings additionally reveal that electricians who move into the solar sector need to acquire knowledge in aspects such as conversion of direct current (generated from solar panels) to alternating current (found in grid connection setups and home and industry outlets), solar panel installation, operation of inverters and batteries, and the maintenance, diagnosis and troubleshooting of PV components and systems. These emerging knowledge needs appear to require upskilling of electricians through training to enhance their existing skills. Majority of this upskilling is being provided by private training providers, the workplace and original equipment manufacturers (OEMs), with none of the respondents indicating that they got their solar training from TVET colleges.

4.2 Implications of Occupational Change on VET

The changes in tasks and knowledge required (highlighted in 4.1 above) offers a clear indication that the TVET system needs to adapt. What we find is that the response by the public TVET colleges is very slow. The Electrical Engineering curriculum which most electricians study in the TVET colleges for example have not had any adjustments to include solar or any other renewable energy components. Further, while 10 out of the 50 TVET colleges in the country now offer or are in the phase of starting to offer solar-related training, none of the participants obtained solar-related training from TVET colleges. Neither were employers aware that TVET colleges offered such training, with their interns only coming from private providers. This raises questions on the role that TVET can play in supporting reskilling and upskilling within the transition.

The slow alignment of TVET to emerging knowledge requirements for the solar and other renewable energy sectors presents a risk for entry- and mid-level occupations in the workforce due to skills mismatches. To contextualise this further from the analysis of 70 solar energy-related courses across the country, we found that the majority (51%) were offered by private providers, while TVET colleges only offered 9% (see figure 1).

Table 1

Occupational Change of Electricians in the Solar Sector

Core knowledge	Changes in occupational tasks in the transition to solar	New knowledge and skills required in the transition to solar	Current supply landscape for upskilling and re-skilling
Electric system design and load calculations	Plan PV system configurations based on customer needs and site conditions	Solar PV system design and assessment, inverter and battery storage requirements	Private training providers: Solar PV certificate First aid and working at heights
Electrical installation, wiring, and earthing	Install solar panels, support structures, inverters and batteries	Inverter configurations, battery storage integration, solar panel installation and panel orientation and tilt for enhanced energy efficiency	Solar PV green card Wireman's license TVET colleges: Certificate and diploma in electrical engineering Trade tests
Electrical wiring	Connect PV panels to the electrical system.	DC-to-AC conversion knowledge, integration of PV systems with battery storage and the grid	Wireman's license Work-based learning and on the job training: Training by OEMs regarding installation, maintenance and troubleshooting of inverters and batteries. Wiring, installation etc
Electrical system commissioning, testing and troubleshooting	Activate and test PV systems.	Diagnosing inverter and battery issues, recording and analysing performance data	
Diagnosing and fixing electrical faults	Performing routine PV system maintenance and repairs, including inverters and batteries.	Thermal imaging for fault detection, troubleshooting inverter and battery storage systems.	

We therefore argue for renewed urgency of TVET providers and related policies to address skills mismatches resulting from occupational change. Some of this urgency can be reflected through stronger industry/TVET partnerships and a more fluid curriculum. One of the participating TVET colleges indicated that one of their major challenges with solar training was that they were unable to place their students in solar companies to get practical experience, hence most of their students had no practical experience and remained unemployed. On the other hand, industry representatives complained about the general poor quality of TVET graduates, who had varying capabilities, which they raised as a reason for now shunning away from partnerships with TVET colleges.

This problem could be linked to the curricula in TVET, Winberg & Hollis-Turner (2023) note that renewable energy technology is an optional vocational subject, with only 10% of the knowledge provided being practical and the outcome levels offering very minimal technical aspects. These challenges give rise to the need to adjust TVET curricula to make it more relevant for industry, more practical to ensure that industry benefits from students that are placed there, and that more focused renewable energy courses are added into the curricula of traditional courses. For example, adding wind and solar energy components to electrical engineering to provide more opportunities for graduates and ensure alignment of skills supply and demand.

Our analysis reveals that there is an important role for TVET colleges, but attention needs to be focused at three levels to build VET capacity:

- The role of TVET as an important anchor institution for the energy transition, and how they can support and promote an expansion of public provisioning.
- The role of TVET in supporting upskilling and reskilling current workforces, and not only the provision of qualifications.

- Re-curriculating relevant curricula e.g. adding solar energy installation and battery storage system functions - to ensure knowledge shifts are captured and that there is a broad integration of sustainability education into their curricula. So that it does not become about installing solar panels only but rather have a strong sustainability ethic underpinning the work.

Figure 1
Solar Energy-Related Courses Being Provided in South Africa
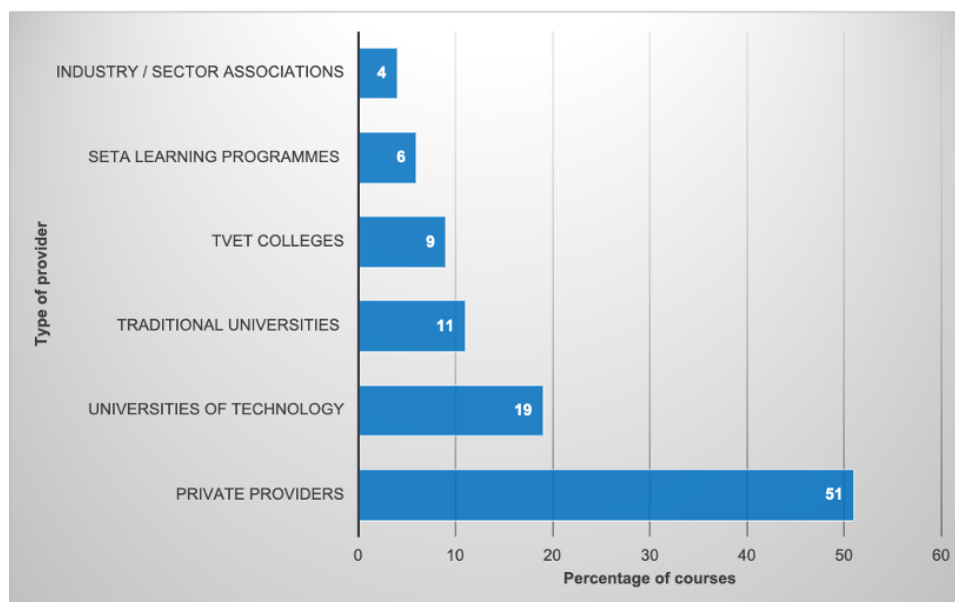
4.3 Does the Occupational Change Analysis Framework Work?

We used the occupational change analysis framework to investigate how occupations and work are changing, specifically considering the transition to solar energy. The framework provides the ability to study various elements that have an influence on occupational change including Scope and change in occupational tasks; Field of knowledge required and shifts in the field of knowledge; Materials, tools and machining and changes; Goods and services produced and changes; and status of occupation (core, non-core, periphery) and level / changes.

For this paper we employed two dimensions, the scope and change in occupational tasks and the field of knowledge required. These allowed us to track how the occupation is changing, that is, how tasks are changing, the field of knowledge required, changes in materials and tools, and changes in goods and services produced. From the analysis of these changes, we were then able to infer the implications on skills and the skills system. In addition, as shown in this paper, occupational change can be investigated and explained using either the entire framework or with some dimensions as needed to still be able to offer an understanding of how work is shifting, and how the skills system, VET in this instance, needs to adapt.

5 Conclusion and Recommendations for VET

Our results were able to show how the electrician occupation is changing as South Africa transitions to solar energy. We note that while the core knowledge of the occupation offers a strong foundation for the transition into solar energy, the occupation still requires some level of upskilling. We find that while the VET system is strategically located to offer support to the electrician occupation as the transition to solar energy takes place, it is falling short of providing inclusive skills development and upskilling opportunities for the transition to solar energy. This is because of factors such as reactive planning, limited resources and urgency. As such we put forward a set of recommendations to guide the role of VET as a supporting structure for skills

development, especially the upskilling and reskilling of workers under the fast-paced transition to solar energy and subsequently other renewable energy sectors more widely:

- **Foundations and flexibility:** There is a need for strong knowledge foundations in existing occupations as seen with the electrician, with flexibility to adapt rapidly to new demands from the just energy transition, which consider existing qualifications and curricula. This can include incorporating solar energy into the existing curricula and offering both theoretical and practical outcomes.
- **Redesign from within:** For greater relevance and flexibility in key occupations that are in transition (e.g. electricians), we propose the optimisation of learning pathways as opposed to short courses. This would enable vertical and horizontal progression and more fluid transitions between education and work.

References

African Union. (2018). Continental strategy for technical and vocational education and training. African Union. https://au.int/sites/default/files/pressreleases/35308-pr-tvet-english_-_final_2.pdf.

Allais, S. (2020). Skills for industrialisation in sub-Saharan African countries: Why is systemic reform of technical and vocational systems so persistently unsuccessful? *Journal of Vocational Education & Training*, *74*(3), 475-493. https://doi.org/10.1080/13636820.2020.1782455

Brockmann, M. (2011). Higher education qualifications: convergence and divergence in software engineering and nursing. In M. Brockmann, L. Clarke, L., & C. Winch (Eds.), *Knowledge, skills and competence in the European labour market. What's in a vocational qualification?* (pp. 120-135). Routledge.

Creamer, K. (2022). Shaping a new economic growth model for South Africa: The role of a well-managed energy transition. In N. Xaba & S. Fakir (Eds.), *A just transition to a low carbon future in South Africa* (pp. 89-116). African Books Collective. https://doi.org/10.2307/j.ctv2z6qdv5.

Freidson, E. (2001). Professionalism, the third logic: On the practice of knowledge. University of Chicago press.

Ramsarup, P., McGrath, S., & Lotz-Sisitka, H. (2024a). A landscape view of emerging sustainability responses within VET. *Journal of Vocational Education & Training*, *76*(2), 259-280.

Ramsarup, P., Hepplethwaite, V., Poulton, W. I., & Jenkin, N. (2024b). Skills for the just energy transition: Is skills research'on track'? *South African Journal of Science*, *120*(9/10). https://doi.org/10.17159/sajs.2024/17877.

Rauner, F., (2007). Vocational education and training-a European perspective. In A. Brown, S. Kirpal, & F. Rauner (Eds.), *Identities at work (*pp. 115-144). Springer.

SANEA. (2023). South African energy skills roadmap 2023. https://southafricanenergyassociation.site-ym.com/page/EnergySkillsRoadmap.

Winberg, C., & Hollis-Turner, S. (2023). TVET SI: Renewable energy technologies: How technical curricula could enable a brighter future. *Southern African Journal of Environmental Education*, *39*(1), 1-20. https://doi.org/10.4314/sajee.v39.09.

Wits REAL. (2024a). Employment and labour market analysis (ELMA) in South Africa: Focus on just transition. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. https://www.wits.ac.za/media/wits-university/faculties-and-schools/humanities/research-entities/real/documents/elma-in-southafrica.pdf

Wits REAL. (2024b). Learning pathways in the context of a just energy transition. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. https://www.wits.ac.za/media/wits-university/faculties-and-schools/humanities/research-entities/real/documents/learning-pathways-context-of-JET.pdf

Biographical Notes

Victoria is a PhD candidate and researcher at the Wits REAL centre. Her research work focuses on sustainability transitions, the Just Energy Transition (JET), inclusion systems, and learning pathways for sustainable development.

Dr Presha is the Director at the Wits REAL centre. Her research work focuses on learning pathways for sustainable development and sustainability, greening TVET, and skills for a just transition.

Perspectives on Multiple Pathways for College and Career Readiness Through High School Career Academies in the United States

Hernandez-Gantes, Victor M.
victorh@usf.edu, University of South Florida

Fletcher, Edward C.
fletcher.158@osu.edu, Ohio State University

Abstract

Context: Although there is extensive documentation on the outcomes related to student participation in career academies, there is limited literature on the premises and perspectives for adopting multiple pathways when implementing the academy model in schools in the United States (US). Thus, we sought to explore high school stakeholders' critical considerations for adopting multiple career pathways and perspectives on the perceived implications of program implementation.

Approach: We followed a qualitative case study approach to explore the perspectives of school stakeholders regarding the promotion of college and career readiness through multiple pathways using the career academy model in a high school.

Findings: The stakeholders' perspectives supported the concept of multiple pathways in alignment with the career academy model for implementation and building upon enrollment in small learning communities with all the social and learning benefits of participation. However, we also learned the challenges of offering multiple pathways in a large high school are having a shared understanding of related requirements and offering meaningful work-based learning experiences.

Conclusions: Offering multiple pathways can be a functional structural strategy for promoting college and career readiness. However, the operation of multiple pathways in large high school settings can also result in unintended implementation consequences.

Keywords

education in the United States, career and technical education, multiple pathways, equity and access, career academies

1 Introduction

Preparing high school students for college and careers in the United States (US) is a policy that has received wide support given lingering reports about issues with student transitions to further education and work (Lanford & Marco, 2017). In this regard, career academies have become widely popular for their underlying model, purposefully designed to promote college and career readiness through occupational pathways in 16 career clusters (Stern & Sterns,

2008). However, as part of the adoption process, schools and districts must agree on what college and career readiness means and choose an occupational pathway structure that aligns with their local vision (Conchas & Clark, 2002; Hernandez-Gantes, 2016).

Traditionally, high school students have the choice of an academic track for college preparation and an alternative pathway for technical education. When adopting the career academy model, it is possible to implement multiple pathways integrating both academics and career preparation (Hernandez-Gantes, 2016). That is, a school can choose to have more than one career academy, each offering a different pathway to the transition to postsecondary education (Kemple, 2008; Stern et al., 2010). In this context, although there is extensive documentation on the outcomes related to student participation in career academies, there is limited literature on the premises and perspectives for adopting multiple pathways when implementing the academy model in schools.

For comparative reference, in Europe, Vocational Education and Training (VET) pathways are diverse, including initial vocational education in schools and apprenticeships in a dual system, with variations across countries and educational levels. For example, the formal education system in Sweden offers initial VET at upper secondary level, including school-based learning, work practice, and distance learning, while Germany offers a long-standing dual system with apprenticeships along with school-based VET. Similarly, in the Netherlands both school-based and dual pathways are offered in upper secondary VET (Cedefop, 2021, 2023; Swedish National Agency for Education, 2022).

With this background, the purpose of this study was to explore the considerations and perspectives for offering multiple pathways for college and career readiness as part of the adoption and implementation of the career academy model. Specifically, the study goals were to explore stakeholders' (a) critical considerations for the adoption of multiple career pathways and (b) perspectives on the perceived implications of program implementation.

2 Conceptual Framework

We used a framework grounded in three conceptual strands bridging literature on multiple pathways for college and career readiness, implementation through career academies, and principles of school restructuring.

2.1 Multiple Pathways for College and Career Readiness

Offering multiple pathways to college and careers has emerged as a viable alternative for schools in the US. As an effort to integrate academic and technical education under multiple pathways, districts typically create theme-based schools in different locations so students can choose enrollment based on their interests. Alternatively, individual schools can offer multiple pathways associated with one or different career clusters. The common goal is for each pathway to prepare students for college and careers (EdSource, 2009; Mehan, 2007; Saunders & Chrisman, 2008; Stern, 2015).

Albeit the benefits to having multiple pathways for college and careers, it has been noted that when many options are available, some confusion and inequities arise among parents and students (Alliance for Excellent Education [AEE], 2021). In schools where multiple pathways offer choice and flexibility for students, they also elicit enrollment decisions amid a fuzzy understanding of requirements and expected outcomes (AEE, 2021). Similarly, for school staff, it creates the need for a thorough understanding of all pathways for proper advising and the multiplication of support for the varying needs of implementation (EdSource, 2009; Mehan, 2007). Thus, policy reports have recommended four essential components for the successful imple-

mentation of every pathway, including rigorous academic coursework, a technical theme bridging academic and real-world standards, work-based learning opportunities, and student support to ensure successful participation (Saunders & Chrisman, 2008).

2.2 Implementation Through Career Academies

"Small learning communities" refers to a variety of school designs with an enrollment of 600 to 900 students to boost learning engagement (Kuo, 2010). The premise is that small schools help reduce dropout rates while increasing attendance, sense of belonging, and graduation rates (Kuo, 2010; Page et al., 2002). In this regard, the career academy model bridges the premises of small learning communities, the positive elements of school culture, and an emphasis on learning in occupational contexts to enhance the schooling experience (Castellano et al., 2012; Hernandez-Gantes, 2016). Typically, career academies share three design elements, including the use of career themes, integration of academic and technical content, and student engagement in work-based learning experiences (Fletcher et al., 2018; National Academy Foundation [NAF], 2017a). Career themes often follow a corresponding designation for a career pathway, and academies can feature one or more. Implementation may also vary, with some career academies found as stand-alone schools offering multiple pathways in a cluster or as part of a comprehensive high school (NAF, 2017b).

In general, extensive research and evaluation data have shown that participation in career academies often results in positive academic and employment outcomes for students (Hernandez-Gantes et al., 2018; Kemple, 2008; Kemple & Snipes, 2000; Stern et al., 2010). However, as the concept of career academies has grown in popularity, further research is needed to gauge the implementation under multiple pathways in large, comprehensive high schools.

2.3 Principles of School Restructuring: Implications for Career Academies

Research on school restructuring provides a useful framework for understanding how schools operate from a holistic perspective (Hernández-Gantes et al., 1995; Newmann &Wehlage, 1995; Ryan, 2011). One of the conditions for successful implementation is a shared agreement on the schooling purpose (Adelman & Taylor, 2003; National Academy Coalition [NCAC], 2013; Newmann & Wehlage, 1995). This is important because one issue with the rising popularity of career academies is a default adoption of the model without a shared understanding of organizational purpose (Hernandez-Gantes & Fletcher, 2013). In turn, there must be a consensus on the nature of curriculum and instruction to support the school's purpose and ensure the buy-in of all stakeholders (NCAC, 2013). Further, schools also require organizational support for teachers and students to remain viable and relevant (Hernandez-Gantes & Blank, 2009; Hernandez-Gantes & Brendefur, 2003; NCAC, 2013). Finally, when implementing career academies, external support must be considered and may include partnering with local employers (Alfeld et al., 2013; Newmann & Wehlage, 1995; NCAC, 2013).

Based on these conceptual strands, we posited the successful implementation of multiple pathways through the career academy model requires a common agreement about the meaning of college and career readiness, a shared understanding of the premises underlying career academies, and concurrence on the vision for specific implementation features. We also posited that the perceived outcomes of student participation would play a role in the stakeholders' evaluative perspectives on implementation.

3 Method

In this study, we followed a qualitative case study design to explore the perspectives of school stakeholders regarding the promotion of college and career readiness through multiple pathways to promote and broaden the participation of students in a high school using the career

academy model (Stake, 2006). The school has a population of approximately 2,400 students enrolled in grades from ninth through twelfth. The school uses career academies and multiple pathways to promote students' college and career readiness through college visits and work-based learning activities (e.g., internships). In addition to a robust Advanced Placement (AP) program for college preparation, the school offers pathways in Advanced Manufacturing & Engineering, Biomedical Science, Sports Partners and Influencer Marketing, Software Development, Architecture and Engineering, Business Management, Marketing/Customer Relationship Management, and Apparel & Textile Production. Pathways involve a four- to six-course sequence, with most of them articulating with community college or university credit and allowing for industry certification.

3.1 Participant Selection and Instrumentation

With the assistance of a school administrator, we identified a pool of stakeholders and used a purposive sampling procedure to select participants serving in various roles within the school. Because of the local guidelines for recruiting participants, we were only able to select a small sample from each stakeholder group based on their corresponding role (Stake, 2006). For data collection, we relied on interviews which were conducted virtually using zoom due to the COVID-19 pandemic (Stake, 2006; Yin, 1994). In all, we conducted 20 semi-structure interviews with school administrators (n = 5), school board members (n = 2), technical teachers (n = 2), academic teachers (n = 4), school counselors (n = 3), parents (n = 1), staff (n = 2), and advisory board members (n = 1). Individual interviews lasted approximately 45 minutes each. Interview instruments were devised to include questions related to the school mission, culture, curriculum and instruction, internal and external supports, and strategies that promote the engagement of students in career pathways.

3.2 Data Analysis

We audio-recorded and transcribed verbatim all interviews and analyzed resulting data using thematic content analysis to capture the stakeholders' perspectives around the study goals (Boyatzis, 1998). We identified recurring themes using the following steps: (a) reading the transcripts in their entirety to seize a sense of the whole in terms of how participants talked about the academy; (b) demarcating discourse through the lens of the study goals; (c) identifying and reflecting on revelatory content gained within and across transcripts; and (d) synthesizing the themes into statements representing the shared perspectives of the participants (Wertz, 2005). Finally, we relied on analytical triangulation by engaging in the collective reading and analyses of transcripts.

4 Findings

We identified three themes related to the considerations for adopting multiple career pathways and the career academy model, as well as perspectives on the perceived results of program implementation.

4.1 "There Is Something for Everybody. Everybody Can Do Something."

As stakeholders developed a plan for the New River High School, the predominantly affluent population and related education expectations were considered to conceptualize a large, comprehensive high school focusing on the promotion of rigorous college preparation. As such, the strategic location in the community was fully leveraged, recognizing the wide availability of local resources, employers' support, and interest in promoting career-ready youth. Thus, to meet the varying needs of a large and diverse student population, the underlying theme for the

design of the high school was to have something for everyone blending rigorous academics under multiple career pathways using the academy model for implementation.

The New River High School is one of the largest schools in the district, and unlike most schools with a predominant career academy model often designed as magnet schools, it was decided to operate as a neighborhood school. As noted by some stakeholders, having a neighborhood school and multiple pathway options for everybody were desired school features. One of the parents interviewed, Ms. Garcia, summarized the local perspectives on what the school has to offer noting the high school has "a lot of programs," which gives every child at the school an opportunity to join something and to seek their path in something." In a way, she said, "there is something for everybody. Everybody can do something."

When interviewing stakeholders about the different pathways, it was evident that the availability of multiple options was highly visible and valued by everybody. Similarly, given the multiple options, all in the context of a relevant career theme, the interface of academics and CTE was also prominently identifiable by all. Given the multiple pathway options and related CTE courses, it does not appear possible for students to go through high school without finding a suitable course of study or taking at least a related class. This perspective was reinforced by other stakeholders, including Mrs. LeBlanc, the school counselor, who said that—as an example—given the popularity of the business and marketing programs, she didn't "think there are many kids that make it out of [the school] without taking a marketing class at some point." In this regard, as alluded to by the Pathways Development Coordinator, each pathway is closely associated with a career academy, which is the model that allowed the school to offer "something for everybody." While considering ways to engage a large student population in sustained and relevant learning, the career academy model provided the structure to create small learning communities held together by their unique pathway interests. The thought was to conceptualize the career academy model much like a club to make the large comprehensive school provide the structure for sharing common core courses and resources while allowing the completion of elective pathway courses in smaller groups.

To sum up, the school's approach to meeting the varying needs of a large and diverse student population was to offer multiple career pathways using the career academy model to "have something for everyone," blending rigorous academics and relevant technical preparation. The career academy model allowed the formation of smaller communities commonly viewed as clubs or honor society groups, given their elective nature, to make the concept work in a large, comprehensive high school.

4.2 Help Student Be Exposed, Prepared, and Make Informed Career Decisions

The second theme clarified the reasons and expectations for choosing multiple pathway options and the career academy model for delivery. This theme was characterized by a desire to provide students with broad exposure to multiple pathway options, the knowledge and skills to prepare them for pursuing a field of interest and making informed decisions for transitions to further education or work. Relatedly, the theme highlights the evaluative stakeholders' perspectives regarding the perceived impact and success of implementation after more than a decade and a half of implementation.

From an administrative perspective, one of the main expectations for students is to transition from an early exploratory exposure of occupations in middle school to actual college and work preparation in high school. Herein, further exposure to multiple pathways in high school provides students with specific options to choose from. Stakeholders referred to exposure in a variety of ways, from opportunities to realize what a career pathway entails in terms of work, education requirements, wage expectations, and to the different specializations within a field. Mr. Hart, the School Superintendent, summarized this perspective when he said he "can tell middle school kids are really exposed to the different pathways or opportunities that they can

look toward," so when they "get to high school, you've got specific pathways" for students to "decide if they want to go down a particular path. You have all these different various options that kids can choose from."

The Superintendent further characterized exposure as the different opportunities for students to experience what people do in careers of interest through internships, interactions with employers, and other activities designed to learn about the nature of work. These perspectives were furthered by other teachers and counselors, suggesting an understanding of the progression of development requiring college preparation as a stepping-stone for pursuing college and a career of interest. As important, the shared perspective is that the school experience should also allow students to make informed decisions about college and career pursuits. As Mrs. Holmes, an Advisory Board member remarked, the goal is for students "to make an intelligent decision about what direction they want to go in." Relatedly, while everyone typically acknowledged the role of career pathways, the undertone of the shared perspectives was often slanted toward college preparation as equivalent to career readiness.

Collectively, after a decade and a half of implementation, there is a sense of pride in the school community in terms of student outcomes. In general, we gathered routine testimonials of satisfaction with the approach to the school design, having something for everyone through multiple pathways and focusing on the promotion of college and career readiness under the academy model.

Overall, the school community offered a consensus in their appreciation for the school's approach to the operational structure using multiple career pathways to meet the different interests of the large student population. School stakeholders were also unified in their regard for the use of the career academy model to provide a club-like experience to students by sorting the student experience into small learning communities. Alternatively, the shared perspectives also reflected an appreciation for the nature of the student expectations, focusing on the promotion of college and career readiness. The common view heard time and again reflected a mix of pride and satisfaction with implementation and results based on accounts of what students get while in school and accomplish upon graduation.

4.3 Unintended Consequences

Amid the high regard for multiple pathway options, the third theme identified in our study highlights some unintended consequences resulting from implementation. First, we learned staff and students had a fuzzy understanding of the specific requirements for each option, which led to issues with mismatch in enrollment and advisement. Similarly, open choice in enrollment also resulted in issues with retention as students were not fully prepared for the rigor of the coursework in some pathways. Further, considering the number of pathways, it was difficult to secure meaningful work-based learning opportunities for participating students.

Teachers and counselors spoke about the difficulty of keeping up with the details of each pathway to advise students accordingly. For example, counselors are notoriously overwhelmed as they must fulfill different roles in the school and handle heavy student advisement loads. For them, it is difficult to keep up with the specific details of each pathway so that they can advise students accordingly. One of the counselors, Mrs. Landry, reported having a general understanding of the rigor and impact of participation but not having enough knowledge of specific pathways. The school counselor explained this take in the context of the Academy of Engineering sharing that "maybe [counselors] don't know as much as we need to know about" it. He added, he didn't know the accolades, and only that the academy "is a good program and that our students can gain college credit for it." Thus, he bemoaned, "I don't know enough" about the benefits and challenges for participation.

Similarly, we learned that another consequence of having multiple pathways was related to motivation for participation, preparation, and retention. School staff noted that many students

enrolled in different pathways to "sample" courses, participating but not fully engaging in completion because enrollment in a pathway cannot be denied based on academic record. The result is students who struggle to complete the requirements for a pathway, especially those heavy in math and science. Conversely, there are some high-performing students who sample courses in rigorous pathways such as engineering to boost their GPA. Either way, the pressure to keep steady enrollment in the multiple pathways contributes to issues with the quality of participation and retention.

Concurrently, another consequence associated with the implementation of multiple pathways is the availability of work-based learning opportunities for students. Mr. Smither, the Pathways Development Coordinator, decried the labor limitations and logistics for engaging teenage students in work-based learning opportunities. With the number of pathways in operation, it is difficult to secure work sites for all students given the lack of an industrial base in the community. In consequence, the promotion of career readiness and exploration gets reduced to, as Mr. Smither said, "to expose students as much as you can."

Notwithstanding the general satisfaction with the approach to multiple career pathways and focus on college and career preparation, the unintended consequences of implementation were evident based on consistent perspectives from the school community. Unlike implementation in a stand-alone academy where only a limited number of pathways are offered, offering multiple pathways in a large high school represents a challenging endeavor. While students can enroll in pathways in smaller communities, the participation experience is still tied to the operation of a large school with the inherent issues associated with maintaining multiple viable pathways.

5   Discussion and Conclusions

The approach to the implementation of multiple career pathways at New River High School aligned with the premises for offering multiple career pathways for students as an approach to promoting college and career readiness (EdSource, 2009; Fletcher et al., 2018; Hernandez-Gantes, 2016; Mehan, 2007). The stakeholders' perspectives for implementation also aligned with the benefits of small learning communities in support of the academy model with multiple options in a large high school (Saunders & Chrisman, 2008; Stern, 2015; Stern & Sterns, 2008). Generally, the implementation approach also concurred with the principles of successful school restructuring, as the stakeholders' evaluative perspectives were largely positive (Newmann & Whelage, 1995; Oakes & Saunders, 2008). However, the operation of multiple pathways in a large high school also pointed to unintended consequences highlighted in related research (AEE, 2021; Lanford & Maruco, 2018; Mehan, 2007).

Overall, it was evident that all school stakeholders had a shared agreement on their vision for implementation when it was created in 2008 and developed further since that time (NCAC, 2013; Newmann & Whelage, 1995). Considering the large size of the student population, available resources, and support from employers, the idea of offering multiple pathway options for college while learning technical skills in an area of interest made local sense. Concurrently, it was also evident that the delivery of multiple pathways built upon the academy model drawing from the notion of small learning communities (i.e., academies) with all the social and learning benefits of participation. In this regard, all stakeholders viewed student participation as successful, given the widespread pride, satisfaction, and perceived outcomes. Although it was reported that, in some cases, students may not pursue a college major related to their pathway, graduation rates and preparation for college were universally regarded in a robust alignment with related literature (Alfeld et al., 2013; Hernandez-Gantes, 2016; Kemple, 2008).

From the standpoint of holistic implementation, offering multiple pathways also adhered to the principles of school restructuring. The shared vision for promoting college and career

readiness through multiple pathways using the academy model fits a critical condition underlying a successful school (Hernandez-Gantes, 2016; NCAC, 2013; Newman & Whelage, 1995; Ryan, 2011). However, amid the positive perspectives on what students get from participation in a high school with multiple pathway options, we found some caveats warranting further exploration. While the literature on career academies, often based on stand-alone small schools, reports a greater alignment to school restructuring conditions, the operation of multiple pathways options in a large high school creates unique challenges (Mehan, 2007; Rattray, 2008; Saunders & Chrisman, 2008). In a stand-alone academy model, the curricular theme is restricted to one or two pathways, allowing students to share the same general interest and understanding of the nature of the career pathway, preparation requirements, and participation expectations. In contrast, in a large high school, the understanding of what each pathway entails appears to be an issue for staff, parents, and students, given the multiple options available. Relatedly, having all students sharing academic core coursework and participating in many different pathways makes it often difficult to provide targeted and informed support (EdSource, 2009; Rattray, 2008; Saunders & Chrisman, 2008).

In addition, work-based learning experiences represent a critical condition for the promotion of college and career readiness through the career academy model. Yet, offering related opportunities to ensure meaningful career exploration and preparation as part of student participation may vary greatly across schools (Hernandez-Gantes et al., 2017; Lanford & Maruco, 2018; Rogers-Chapman & Darling-Hammond, 2013). Under these conditions, the stakeholders' perspectives are generally appreciative of the academic rigor and focus on college and career readiness, but they are more reflective of a college preparation culture, not minding the caveat of limited work-based learning.

To recap, we learned that offering multiple pathways in a large high school can be a functional structure for the promotion of college and career readiness as highlighted in related literature (Mehan, 2007; Stern, 2015). However, the challenge of offering multiple pathways in a large high school is having shared communication and understanding of what each entail in terms of curricular requirements, prior preparation, and related career aspirations (EdSource, 2009: Saunders & Chrisman, 2008). Likewise, meaningful work-based learning experiences associated with each pathway may be lacking in a large school and may only enhance the focus of a college preparation culture (Lanford & Maruco, 2018; Hernandez-Gantes et al., 2017; Stone & Lewis, 2012; Symonds et al., 2011).

On a final note, our study findings were derived from a single case study in the context of a high school offering multiple career pathways operated under the academy model and unique local conditions. Thus, although the results aligned with the literature on related topics, the results derived from a small sample representing a snapshot of how multiple pathways can be implemented in schools. To be sure, further research is warranted to document the use and implementation of multiple career pathways through the career academy model under different community conditions and geographical locations in the US.

References

Adelman, H. S., & Taylor, L. (2003). School-community relations: Policy and practice. In M. Fishbaugh, G. Schroth, & T. Berkeley (Eds.), *Ensuring safe school environments: Exploring issues & seeking solutions* (pp. 107-132). Lawrence Erlbaum.

Alfeld, C., Charner, I., Johnson, L., & Watts, E. (2013). *Work-based learning opportunities for high school students*. National Research Center for Career and Technical Education. http://www.nrccte.org/sites/default/files/publication-files/nrccte_work-based_learning.pdf

Alliance for Excellent Education. (2021). Ready for what? How multiple graduation pathways do, and do not, signal readiness for college and careers. Retrieved from all4ed.org

Boyatzis, R. E. (1998). Transforming qualitative information: Thematic analysis and code
development. Sage Publications, Inc.

Castellano, M., Sundell, K., Overman, L. T., & Aliaga, O. A. (2012). Do career and technical education programs of study improve student achievement? Preliminary analyses from a rigorous longitudinal study. *International Journal of Educational Reform, 21*, 98-118.

Cedefop. (2023). V*ocational education and training in Europe – Netherlands: system description*. https://www.cedefop.europa.eu/en/tools/vet-in-europe/systems/netherlands-u3

Cedefop. (2021). Spotlight on VET – 2020 compilation: vocational education and training systems in Europe. http://data.europa.eu/10.2801/10.2801/667443

Conchas, G.Q., & Clark, P.A. (2002). Career academies and urban minority schooling: Forging optimism despite limited opportunity. *Journal of Education for Students Placed at Risk, 7*(3), 287–311.

EdSource. (2009). Multiple pathways in California: An emerging option for high school reform. Retrieved from *www.edsource.org*

Fletcher, E., Warren, N., & Hernández-Gantes, V.M. (2018). Preparing high school students for a changing world: College, career, and future ready learners. *Career and Technical Education Research, 43*(1), 77-98. https://doi.org/10.5328/cter43.1.77

Hernández-Gantes , V.M., Jenkins, S., & Fletcher, E. (2017). Promoting active and sustained school-business partnerships: An exploratory case study of an IT academy. *Journal of Research in Technical Careers, 1(*2), 26-35.

Hernández-Gantes , V.M., Keighobadi, S., & Fletcher, E.C. (2018). Building community bonds, bridges, and linkages to promote the career readiness of high school students in the United States. *Journal of Education and Work, 31*(2) 190-203. https:/doi.org/ 10.1080/13639080.2018.1434871

Hernández-Gantes, V. M. (2016). College and career readiness for all: The role of career and technical education in the US. In D. Wyse, L. Hayward, & J. Pandya (Eds.), *SAGE handbook of curriculum, pedagogy and assessment* (Vol. 2, pp. 674-689). SAGE.

Hernández-Gantes, V. M., & Brendefur, J. (2003). Developing authentic, integrated, standards-based mathematics curriculum: [More than just] an interdisciplinary collaborative approach. *Journal of Vocational Education Research, 28*(3), 259-284.

Hernández-Gantes, V. M., Phelps, L. A., Jones, J., & Holub, T. (1995). School climate in emerging career-oriented programs: Students' perspectives. *Journal of Vocational Education Research, 20*(2), 5-26.

Hernández-Gantes, V., & Blank, W. (2009). Teaching English language learners in career and technical education programs. Routledge.

Kemple, J. J. (2008). Career academies: Long-term impacts on labor market outcomes, educational attainment, and transitions to adulthood. Manpower Demonstration Research Corporation.

Kemple, J. J., & Snipes, J.C. (2000). Career academies: Impacts on students' engagement and performance in high school. Manpower Demonstration Research.

Kuo, V. (2010). Transforming American high schools: Possibilities for the next phase of high school reform. *Peabody Journal of Education, 85*(3), 398-401. doi: 10.1080/0161956X.2010.491709

Lanford, M., & Maruco, T. (2018). When job training is not enough: The cultivation of social capital in career academies. *American Educational Research Journal*, *55*(3), 617–648. https://doi.org/10.3102/0002831217746107

Mehan, H. (2007). Restructuring and reculturing schools to provide students with multiple pathways to college and career. *UCLA: 's Institute for Democracy, Education, and Access*. Retrieved from https://escholarship.org/uc/item/0w60x02k

National Academy Foundation. (2017a). *Together transforming the future*. NAF Reports. https://naf.org/wp-content/uploads/2017/10/2016-2017-Impact-Report.pdf

National Academy Foundation. (2017b). *NAF track*. NAF Reports. https://naf.org/wp-content/uploads/2017/10/NAFTrack-Updated-9-25-17-1.pdf

National Career Academy Coalition. (2013). *National standards of practice for career academies*. National Career Academy Coalition.

Newmann, F. M., & Wehlage, G. G. (1995). *Successful school restructuring: A report to the public and educators.* Center on Organization and Restructuring of Schools.

Oakes, J. & Saunders, M. (Eds.). (2008). Beyond tracking: Multiple pathways to college, career, and civic participation. Harvard Education Press.

Page, L., Layzer, C., Schimmenti, J., Bernstein, L., & Horst, L. (2002). *National evaluation of smaller learning communities: Literature review.* Abbott.

Rattray, D. (2008). Making it real: Implementing multiple pathways. In J. Oakes & M. Saunders (Eds.), *Beyond tracking: Multiple pathways to college, career, and civic participation* (pp. 175–195). Harvard Education Press.

Rogers-Chapman, M., & Darling-Hammond, L. (2013). *Preparing 21st century citizens: The role of work-based learning in Linked Learning*. Stanford Center for Opportunity Policy in Education. https://edpolicy.stanford.edu/publications/pubs/983

Ryan, A. (2011). Education for sustainable development and holistic curriculum change. A review guide. The Higher Education Academy.

Saunders, M., & Chrisman, C. A. (2008). *Multiple pathways: 21st century high schools that prepare all students for college, career and civic participation*. Education and the Public Interest Center & Education Policy Research Unit. http://epicpolicy.org/publication/multiple-pathways

Stake, R. (2006). *Multiple case study analysis*. New York: Guilford.

Stern, D. (2015). *Pathways or pipelines: Keeping high school students' future options open while developing technical skills and knowledge*. National Academy of Sciences Committee on The Supply Chain for Middle-Skill Jobs: Education, Training, and Certification Pathways. http://sites.nationalacademies.org/cs/groups/ pgasite/documents/ webpage/pga_167702.pdf

Stern, D., & Sterns, R. (2008). Evidence and challenges: Will multiple pathways improve students' outcomes? In J. Oakes & M. Saunders (Eds.), *Beyond tracking: Multiple pathways to college, career, and civic participation* (pp. 37–54). Harvard Education Press.

Stern, D., Dayton, C., & Raby, M. (2010). Career academies: A proven strategy to prepare high school students for college and careers. Career Academy Support Network.

Stone, J. R. III & Lewis, M. V. (2012). College and career ready in the 21st century: Making high school matter. Teacher's College Press.

Swedish National Agency for Education. (2022). *Vocational education and training in Europe - Sweden: system description*. https://www.cedefop.europa.eu/en/tools/vet-in-europe/systems/sweden-u2

Symonds, W.C., Schwartz, R., & Ferguson, R.F. (2011). Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century. Harvard University.

Wertz, F. (2005). Phenomenological research methods for counseling psychology. *Journal of Counseling Psychology, 52*(2), 167-177.

Yin, R. (1994). Case study research: Design and methods (2nd ed.). Sage.

Biographical Notes

Dr Victor M. Hernandez-Gantes is a Professor of Career and Workforce Education in the College of Education at the University of South Florida in Tampa, Florida, USA. His research interests focus on program structures and conditions of support as an organizational system.

Dr Edward C. Fletcher Jr. is a Professor of Workforce Development and Education in the College of Education and Human Ecology at Ohio State University in Columbus, Ohio, USA. His research interest is on student experiences, achievement, engagement and outcomes.

Key Drivers of Inclusive Digital Transformation of European Vocational Education and Training Systems

Herrero Rámila, César
cesar.herrero@ec.europa.eu , European Commission JRC

Castaño Muñoz, Jonatan
jcastanno@us.es, University of Seville

Romero Rodríguez, Soledad
sromero@us.es, University of Seville

Moreno Morilla, Celia
cmoreno8@us.es, University of Seville

Abstract

Context: Digital VET transformation must extend beyond technical skills to include human and social dimensions like socio-emotional skills, inclusion, and sustainability. Current initiatives often lack this holistic approach, focusing narrowly on digital resources and teacher training. This paper addresses this gap.

Approach: This paper synthesizes findings from DigVET (2023/2024), a study supporting the 2020 Council Recommendation on VET. Using socio-technical systems theory, the research reviewed literature, analysed European initiatives, and conducted a comparative analysis to explore how digital transformation can be successfully implemented in European VET while promoting equity.

Results: The findings reveal the need for a holistic approach combining technical and socio-emotional learning for equitable outcomes and emphasizing cross-sector collaboration. The main outcome is an eight-element framework guiding VET digitalization at different levels. The framework areas are a) Career education and guidance, b) Development of information systems, c) Ecological approach and collaborations, d) Flexible accreditation mechanisms, e) Holistic development of learning skills, f) Inclusion and sustainability, e) Pedagogical and transformative potential of digital technologies, and f) Teacher training for changing roles.

Conclusions: The eight-element framework provides a comprehensive, adaptable guide for designing, implementing, and evaluating digital transformation in VET, contributing to a more efficient and equitable education.

Keywords

vocational education and training, vet, inclusion, digital transformation, skills

1   Context

Vocational Education and Training (hereafter, VET) is a natural bridge between education and the world of work. Supporting the further development and improvement of VET implies

working towards having a better prepared workforce for the demands of the labour market (and society). Technology can enhance this further development of VET by enabling innovative teaching methods, increasing accessibility, and promoting lifelong learning. In this evolving digital landscape, VET must not only adapt to technological advancements but also address socio-emotional competences to ensure holistic workforce development.

In this context, 'digital transformation' refers to the comprehensive integration of digital technologies into VET systems, resulting in significant shifts in educational delivery, curriculum design, and skill acquisition. This transformation aims to align VET with the demands of Industry 4.0 or the fourth industrial revolution (Saurabh et al., 2018) and Society 5.0 (Deguchi et al., 2020) ensuring that learners are equipped with the necessary technical, digital, and socio-emotional skills to thrive in a changing society and labour market.

Despite the transformative potential of digital technologies in VET, significant challenges remain in fostering inclusiveness and equity. These challenges include persistent issues like high dropout rates, gender segregation, and unequal access to digital resources which hinder equitable development. Furthermore, the rapid advancement of digital technologies presents both opportunities and challenges for VET systems in Europe. While they can revolutionize educational delivery and curriculum design, ensuring their contribution to inclusive and equitable learning environments remains an important challenge.

In accordance with a proposal from the European Commission, the Council adopted the Council Recommendation on Vocational Education and Training (VET) for sustainable competitiveness, social fairness and resilience (hereafter, CR) in 2020. This recommendation delineates essential principles to ensure that VET systems are dynamic, can rapidly adapt to evolving labour market demands, and offer high-quality learning opportunities across all age demographics.

This paper synthesizes some of the main findings of DigVET (2023/2024), a study conducted to facilitate the implementation of the CR by integrating digital technologies and preparing individuals for a digital society. The study identifies components for successful implementation and offers recommendations to Member States for supporting the execution of the CR. The aims of the research study were:

- Identifying key theoretical and practical elements for a successful digital transformation in the VET sector, as documented in the literature.
- Identifying and analysing initiatives and policies designed to drive digital transformation in the VET sector.
- Conducting a comparative analysis of theoretical insights and practical initiatives to identify the enablers, challenges, and opportunities for developing and implementing effective digital transformation strategies in EU VET systems

The results presented in this paper focus specifically on answering the research question: How can digital transformation be successfully implemented in European VET while promoting equity? Based on the key drivers identified in DigVET, the paper proposes strategies to make and effective digital transformation of VET highlighting how they can reduce barriers and promote equity within VET systems.

The study is grounded in socio-technical systems theory (Pasmore et al., 2019), which views digital transformation as an interplay between technology, individuals, and organizational structures. By adopting this theoretical lens, we examine how digital technologies can transform VET systems at different levels.

2 Approach

The DigVET research followed a three-stage methodology. First, a comprehensive systematic review of both grey and academic literature was undertaken to distil theoretical insights into VET digital transformation. Second, the study selected and rigorously analysed 19 diverse European initiatives, employing a standardized template to ensure a consistent data collection process. Finally, a comparative analysis synthesized findings from the literature and practical initiatives, with expert validation achieved through a focused workshop in March 2024 (Herrero et al., 2024), ensuring that the framework reflects both theoretical insights and practical realities.

The systematic review phase involved identifying key themes and gaps in the existing literature, focusing on how digital transformation can enhance VET systems. The subsequent analysis of European initiatives provided practical insights into how these theoretical elements are being implemented on the ground, offering a strong basis for developing a comprehensive framework.

This study will be published as part of a major publication covering other related studies in 2025 in a European Commission Joint Research Centre Report, titled *Monographic. Supporting the digital transformation of Vocational Education and Training* (Herrero & López Cobo, 2025).

3 Findings

DigVET's primary outcome is an eight-element framework, derived from theory and practice (Figure 1), proposed for implementing digitalization initiatives in European VET systems. This framework integrates technical competences and socio-emotional skills, ensuring a comprehensive approach to VET modernization. Recommendations for effective implementation accompany the framework.

It is important to emphasize the holistic nature of the framework and its applicability across different socio-cultural contexts. The framework's elements can be adapted to various VET systems to promote inclusive and sustainable development.

The framework serves multiple functions: as a guide for policymakers in designing digital transformation strategies, as a tool for educators to enhance pedagogical practices, and as an evaluative measure to assess the effectiveness of digital initiatives. Each element addresses a specific and important aspect of transformation, from career guidance to teacher training, ensuring a holistic approach to modernizing VET systems.

The proposed eight-element framework offers strategic insights for enhancing the effectiveness of VET. It also provides guidance for improving inclusiveness and equity. For example, flexible accreditation mechanisms enable personalized learning paths for non-traditional learners, accommodating diverse backgrounds and reducing barriers to entry. Similarly, the framework's emphasis on holistic skill development, including socio-emotional skills, supports resilience and adaptability among marginalized groups, fostering a more inclusive learning environment. These examples serve to illustrate, but not exhaust, the framework's contributions to equity. Further examples and detailed explanations of each element are provided in the next section. The findings of the DigVET study reinforce the importance of the integrated approach proposed, revealing that while many VET systems have adopted digital tools, there is still a need for a more holistic strategy that combines technical skills with socio-emotional learning, as embodied by the eight-elements proposed.

In the next lines the eight elements will be described.

Figure 1
List of eight enablers for the VET digital transformation
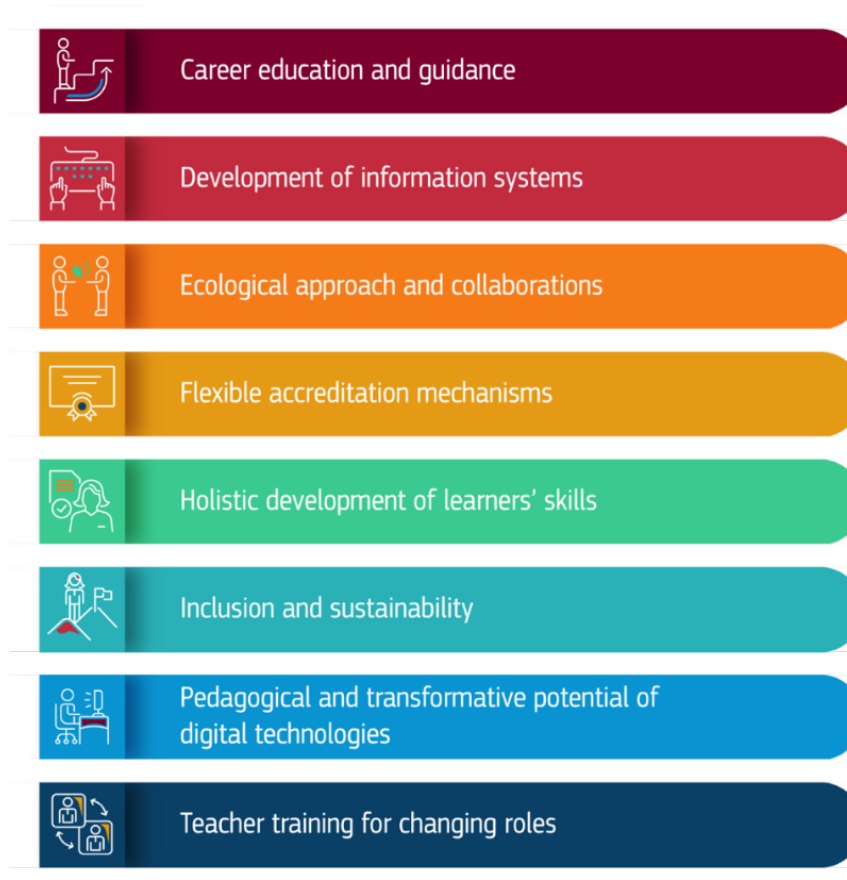
3.1 Career and Education Guidance

Digital technologies are a valuable complement to career guidance in VET allowing for more personalized, data-driven support for learners. They can also help learners to make informed decisions about their future careers. Moreover, emphasis on digital competencies acquisition should be a fundamental component of guidance processes (Bakke & Hooley, 2023).

Recommendation 16 of the CR underscores the importance of leveraging digital platforms such as Europass to enhance career guidance services, ensuring that all learners have access to high-quality, comprehensive information.

The study elucidates the significance of digital technologies in enhancing the scope of career guidance beyond mere information dissemination. These technologies facilitate a transformative learning process that encompasses the cultivation of self-awareness, interaction with support networks, and the empowerment of individuals to construct career pathways both independently and collaboratively. Furthermore, digital technologies serve as a catalyst for optimizing career guidance processes by integrating more comprehensive and current data and information. Additionally, the training of career guidance practitioners in digital competencies and the potential applications of digital technologies is imperative for delivering more effective services to their clients.

3.2 Development and Use of Information Systems

While EU "skills intelligence" systems (e.g., Cedefop, 2019) offer valuable insights, their current application is limited to career guidance, neglecting curriculum modernization. By integrating data from digital competence self-assessments and other sources could enhance these

systems and inform digital transformation efforts with a more granular understanding of the digital skills needs. Furthermore, the lack of publicly available information and impact assessments for VET digitalization initiatives requires attention. Future development should broaden the scope of these systems to include curriculum modernization and ensure transparency by performing impact assessment of initiatives and by providing accessible information for all students, thus avoiding information imbalances.

In alignment with Recommendation 22 of the Council Recommendation, which advocates for the establishment of sustainable partnerships to govern vocational education and training, it is essential to tailor these partnerships to the national context. This includes, where applicable, fostering public-private partnerships that engage social partners and all pertinent stakeholders.

The study indicates that this process can be facilitated through several key strategies related to information systems: i) encouraging the utilization of both local and global information intelligence systems to assess labour market skill demands, thereby informing curriculum revisions and ensuring alignment of education with industry requirements; ii) fostering a culture of information sharing and the evaluation of initiatives and policies pertinent to the transformation of VET; and iii) promoting the adoption of self-reflection exercises by VET institutions and offering guidance on effectively translating the outcomes into institutional and actionable plans for digital transformation.

3.3 Ecological Approach and Collaboration

An important challenge for VET digital transformation is generating an ecological approach. In this context, it refers to an ecosystem that fosters collaboration and integration among various stakeholders, ensuring scalability and sustainability of digital transformation initiatives.

In accordance with the CR, it is advised that Member States undertake measures to implement this policy at the national level. This should be done in collaboration with social partners and other relevant stakeholders to ensure a comprehensive and inclusive approach. This collaborative ecosystem is important for success.

The study shows that despite the proliferation of local initiatives to digitalise vocational training, a lack of coordination limits their effectiveness. Moreover, the digital transformation of VET demands significant investments in Industry 4.0 technologies, and partnerships between educational institutions and industries can facilitate these investments (Walter-Herrmann, 2013). It also calls for developing a systemic framework that promotes interconnection and collaboration among all potential stakeholders (including those working with disadvantaged students and marginalised groups), contextualization, scalability, and sustainability is needed to enhance the impact and ensure the long-term effectiveness of digital transformation initiatives.

3.4 Flexible Accreditation Mechanisms

Industries prioritize skills over traditional credentials (Kumar & George, 2021). Micro-credentials and digital badges offer innovative solutions for recognizing and validating skills, particularly for non-traditional learners, thus aligning educational outcomes with dynamic labour market needs. However, equity issues must be taken into account: a broader and systemic adoption by the systems is needed to avoid a two-tiered accreditation system. The findings suggest that integrating flexible accreditation mechanisms can address specific labour market needs more efficiently, thereby enhancing employability and industry relevance.

In alignment with Recommendation 29 of the CR, it is encouraged to explore the concept and application of micro-credentials, including within vocational education and training (VET).

This exploration should be conducted in collaboration with Member States and relevant stakeholders to realize the potential benefits and integration of micro-credentials into existing educational frameworks.

Micro-credentials and other flexible accreditation mechanisms present valuable opportunities as complements to VET qualifications by addressing specific skill demands of the labour market with agility, flexibility, and precision. This complementary approach emerges as an effective solution for accrediting emerging skills that have not yet been incorporated into formal VET programs, thus enhancing the responsiveness of educational systems to dynamic industry needs. They are also especially adequate for students with non-traditional trajectories.

3.5 Holistic Development of Learners' Skills

Research indicates the importance of a holistic approach to skill development, emphasizing the integration of digital and technical competences with socio-emotional skills. These combined skills are key to navigating Society 5.0 and effectively managing digital technologies (Bakhshi et al., 2017; Echeverría & Martínez-Clares, 2018). Collaborations between the private and public sectors are vital to ensure that learners acquire the skills required by modern and future industry (European Commission, 2020). VET programs must integrate socio-emotional skills with digital competences, fostering resilience and adaptability in learners to meet the challenges of Industry 5.0.

On the one hand, in accordance with Recommendation 1 to Member States of the CR, VET programs should provide a well-balanced integration of vocational and technical skills that are finely attuned to various economic cycles, evolving job roles, and changing work methodologies. These programs should also incorporate key competencies, such as robust foundational skills, digital literacy, transversal abilities, environmental awareness, and other essential life skills. Such a comprehensive skill set aims to build strong foundations for resilience, promote lifelong learning and employability, enhance social inclusion, encourage active citizenship, and support personal development.

The study supports this recommendation with several key insights: i) there is a pressing need to integrate socioemotional skills related to technology within VET programs, adopting a more human-centred approach. This includes fostering resilience and a commitment to sustainability, aligning with the principles of Industry 4.0 and Society 5.0, where humans are central to technological transformation. ii) The development of digital skills is highlighted as a priority within VET programs to support the cultivation of transversal and soft skills, emphasizing the importance of equipping individuals with this combination of competences for living and work in a world that changes rapidly.

On the other hand, in accordance with Recommendation 22 to Member States of the CR, it is encouraged to foster sustainable partnerships for the governance of vocational education and training (VET). These partnerships should be tailored to the national context and, where relevant, facilitated through public-private collaborations. Engaging social partners and all pertinent stakeholders is a key component to creating a cohesive and effective governance framework for VET.

The study reveals the necessity for a well-structured institutional cooperation process between public governance bodies responsible for VET and industry representatives. This collaboration is essential to ensure the continuous updating of the VET offerings, thereby aligning them more closely with both current and anticipated future industry needs.

3.6 Inclusion and Sustainability

Current initiatives to digitalize VET tend to focus a lot on ecological aspects and neglect the broader implications for sustainable human development. VET systems must also address

broader societal impacts such as job displacement and ethical challenges, ensuring that digital transformation contributes to inclusive and sustainable development (European Commission, 2020).

In accordance with Recommendation 9 of the CR, VET institutions should ensure access to state-of-the-art infrastructure and implement digitalization strategies that are aligned with the national context. Additionally, these institutions should integrate principles of environmental and social sustainability into their programs and organizational management. Such initiatives contribute significantly to the advancement of the United Nations Sustainable Development Goals (SDGs).

The study highlights the importance of several key areas: i) Leveraging the potential of VET to promote the inclusion of vulnerable groups. This can be achieved using technology-enabled, adapted training approaches and the enhancement of digital skills, ultimately enhancing these groups' employability. ii) fostering awareness regarding the critical importance of both employment and environmental sustainability and understanding their interconnectedness with digital technologies, iii) assuring the provision of skills that are not going to be replaced by technology.

3.7 Pedagogical and Transformative Potential of Digital Technologies

The educational landscape is being transformed by digital tools, which enable the creation and sharing of resources, active learning, collaboration, personalized learning, and realistic simulations. By integrating virtual reality and augmented reality into VET, educational institutions can provide immersive learning experiences that prepare students for real-world challenges in Industry 4.0 (Chiang et al., 2022; Mulders et al., 2024). These technologies are an appropriate training tool for "DICE situations", these are dangerous, impossible, counterproductive, or expensive/rare situations (Bailenson, 2018), which are relevant for VET learners facing complex tasks for the first time.

In line with Recommendation 12 of the CR aimed at enhancing the attractiveness of VET through modern and digitalized training provisions, VET programs should be delivered using a balanced mix of open, digital, and participative learning environments. This approach includes creating learning-conducive workplaces and is supported by cutting-edge, accessible infrastructure, equipment, and technology. The use of versatile pedagogies and tools, such as ICT-based simulators, virtual reality, and augmented reality, is important for increasing the accessibility and efficiency of training delivery, particularly benefiting small enterprises.

The study underscores the importance of several key actions: 1. Utilizing digital technologies to personalize learning, which entails tailoring education to meet individual needs and providing flexibility in learning paths, content, and alignment with sector-specific demands. This includes experimenting with digital simulated "working environments" to enhance practical learning experiences. 2. Collaborating with industry to access facilities equipped with state-of-the-art technology, such as fablabs and learning factories, to ensure that vocational education and training (VET) programs remain relevant and cutting-edge. 3. Providing financial support and incentives to VET institutions and educators to facilitate the integration of emerging technologies into VET programs. This support is essential for transforming teaching practices and equipping learners with the skills necessary to thrive in a technologically advanced landscape.

3.8 Teacher Training for Changing Roles

The role of VET teachers is evolving from traditional knowledge transmitters to more multifaceted roles, including mentors, guides, curriculum designers, and assessment experts. However, a lack of digital competencies among some educators is hindering this transition (Cattaneo et al., 2022; Cedefop, 2022). Targeted professional development programs are essential to equip

educators with the digital competences necessary to fulfil their expanding roles as mentors and curriculum designers.

In accordance with Recommendation 13 of the CR, it is stipulated that educators, trainers, and associated personnel in VET engage in both initial and ongoing professional development. This is essential to ensure the delivery of high-quality training, the promotion of technical and digital competencies, and the implementation of effective and innovative instructional methodologies, including those applicable to virtual environments. Such professional development aligns with the latest advancements in vocational and digital pedagogy, equipping educators to proficiently utilize digital learning tools and to operate effectively within diverse and multicultural settings.

The study underscores the necessity to i) facilitate the development of emerging roles among educators and trainers, including those related to guidance, orientation, instructional design, and expertise in certification processes; and ii) augment the acquisition of knowledge pertaining to cutting-edge technologies requisite in various industries and sectors, alongside the essential teaching skills and competencies associated with these advancements.

4 Conclusions

Digitalising vocational education must extend beyond technical skills to encompass the human and social dimensions, including socioemotional skills, inclusion, sustainability, and more. However, current initiatives often focus on digital resources, information systems, and teacher training, lacking a holistic approach that includes aspects like inclusion, career guidance, flexible accreditation, and socioemotional skills.

To overcome this, our research proposes a framework of eight interconnected elements to improve the digital transformation of VET systems. The elements of the framework emphasise cross-sector collaboration. Collaborative efforts among government, industry, and educational institutions are key to guaranteeing sustainable and scalable solutions, fostering regional development, innovation, and human capital enhancement. Moreover, the framework also calls for digital transformation efforts that are not only technologically advanced but environmentally sustainable and socially inclusive. A key strength of the framework lies in its integration of various elements that collectively address the multifaceted challenges of inclusiveness and equity (inclusion and access of non-traditional students, personalisation, empowerment for the labour market, guidance…) which aligns with the conference's focus on creating more equitable and inclusive educational pathways.

The framework can serve as a comprehensive guide for designing, implementing, and evaluating digital transformation initiatives in VET at various levels (course, institutional, policy…). Furthermore, its holistic but modular nature allows it to be adapted to diverse sociocultural contexts, addressing the unique challenges and opportunities within different VET systems.

References

Bailenson, J. (2018). Experience on demand: What virtual reality is, how it works, and what it can do. W. W. Norton & Company

Bakhshi, H., Downing, J., Osborne, M., & Schneider, P. (2017). *The future of skills: Employment in 2030*. Pearson.

Bakke, I. B., & Hooley, T. (2022). Neither online, nor face-to-face, but integrated career guidance: Introducing new ways of engaging undergraduate students in career learning and reflective careering. In Buford M., Sharp, M. & Stebleton, M. (Eds.), *Mapping the future of undergraduate career education* (pp. 138-154). Routledge.

Cattaneo, A. A., Antonietti, C., & Rauseo, M. (2022). How digitalised are vocational teachers? Assessing *digital competence in vocational education and looking at its underlying factors. Computers & Education, 176*, 104358. https://doi.org/10.1016/j.compedu.2021.104358

Cedefop (2019). *Online job vacancies and skills analysis: a Cedefop pan-European approach*. Publications Office.

https://www.cedefop.europa.eu/files/4172_en.pdf

Cedefop (2022). Teachers and trainers in a changing world: building up competences for inclusive, green and digitalised vocational education and training (VET): synthesis report. Publications Office. Cedefop research paper, No 86. http://data.europa.eu/doi/10.2801/53769

Chiang, F. K., Shang, X., & Qiao, L. (2022). Augmented reality in vocational training: A systematic review of research and applications. *Computers in Human Behavior, 129*, 107125.

Council Recommendation of 24 November 2020 on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience 2020/C 417/01 (OJ C, C/417, 02.12.2020, p. 1, CELEX: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020H1202(01))

Deguchi, A., Hirai, C., Matsuoka, H., Nakano, T., Oshima, K., Tai, M., & Tani, S. (2020). What Is Society 5.0?. In Hitachi-UTokyo Laboratory (Eds.), *Society 5.0* (pp. 1-23). Springer. https://doi.org/10.1007/978-981-15-2989-4_1

Echeverría Samanes, B., & Martínez Clares, P. (2018). Revolución 4.0, competencias, educación y orientación. *Revista digital de investigación en docencia universitaria, 12*(2), 4-34.

European Commission (2020). *Innovation and Digitalisation: A report from the ET2020 Working Group on Vocational Education and Training*. Publications Office of the European Union. Available at: https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8365European

Herrero, C., Villar Onrubia, D., Cosgrove, J., Kluzer, S., Centeno, C., Castaño Muñoz, J., Romero Rodríguez, S., Moreno Morilla, C., Weikert García, L., Arroyo Sagasta, A., Zubizarreta Pagalday, A., Wisniewski, D., & Fabe, N. (2024). *Digital Transformation of Vocational Education and Training (VET)*. Workshop, Publications Office of the European Union. https://doi.org/10.2760/94528

Herrero, C., & López-Cobo, M. (Eds.) (in press). *Monograph. Supporting the digital transformation of Vocational Education and Training*. Publications of the European Union.

Kumar, R., & George, S. (2020, September). *Why skills–Not degrees–Will shape the future of work.* World Economic Forum. https://www.weforum.org/agenda/2020/09/reckoning-for-skills/

Mulders, M., Buchner, J., & Kerres, M. (2024). Virtual reality in vocational training: A study demonstrating the potential of a VR-based vehicle painting simulator for skills acquisition in apprenticeship training. *Technology, Knowledge and Learning, 29,* 697–712. https://doi.org/10.1007/s10758-022-09630-w

Pasmore, W., Winby, S., Mohrman, S.A., & Vanasse, R. (2019). Reflections: sociotechnical systems design and organization change. *Journal of Change Management*, *19*(2), 67-85. https://doi.org/10.1080/14697017.2018.1553761

Saurabh V., Prashant A., & Santosh B. (2018). Industry 4.0 – A Glimpse. *Procedia Manufacturing, 20*, 233-238. https://doi.org/10.1016/j.promfg.2018.02.034.

Walter-Herrmann, J. (2013). FabLabs–A Global Social Movement. In J. Walter-Herrmann & C. Büching (Eds.), *FabLab: Of machines, makers and inventors* (pp.33-46). https://doi.org/10.1515/transcript.9783839423820

Biographical Notes

Dr César Herrero is a researcher at the European Commission's Joint Research Centre. His work focuses on digital transformation in VET and 21st-century competence frameworks and informs European digital education policy. He leads the SELFIE and SELFIE WBL projects.

Dr Jonatan Castaño Muñoz is a senior research fellow at the University of Seville (Spain). His research focuses on the impact of digital technologies on education and is IP of the Spanish national project ORIENTA-DIG (PID2023-148173NA-I00).

Dr Soledad Romero-Rodríguez is a professor at the University of Seville (Spain). Her fields of interest are career guidance strategies and resources. She is member of the VETNET as part of the EERA, The Career Lead Network and National Correspondent at IAEVG).

Dr Celia Moreno Morilla is an Assistant Professor at the University of Seville (Spain). Her research focuses on career guidance and counselling with people in risk. She is principal researcher of the Spanish national project ORIENTA-DIG (PID2023-148173NA-I00).

The Implementation of Dual Vocational Education and Training in Costa Rica: An Analysis of Dual VET Based on the Criteria for Duality

Hunink, Claudia
claudia.hunink@uos.de, University of Osnabrück

Rommel, Irina
irina.rommel@uos.de, University of Osnabrück

Abstract

Context: Costa Rica has maintained long-standing cooperation with Germany in the field of dual VET, having already implemented initial programs based on this model. The German-Costa Rican partnership in VET spans several decades and has been further intensified in recent years. This has led to the integration of dual VET programs as well as the enactment of a legal framework supporting dual vocational education. Nevertheless, Costa Rica continues to face various challenges in the implementation process, particularly about societal acceptance, contextual adaptation to national conditions, and other structural issues.

Approach: Against this background, the paper investigates the implementation of dual VET structures in Costa Rica, with a particular focus on the criteria that define duality. It further analyses how these criteria manifest in the context through their practical implementation. To this end, the concept of duality as understood within the traditional dual system is first outlined and subsequently applied to the Costa Rican setting. The objective is to present and critically reflect on the current state and the role of dual VET in Costa Rica, based on the identified duality criteria, while highlighting that duality encompasses more than the mere existence of two learning venues.

Findings: The findings demonstrate that the implementation of dual VET in Costa Rica represents a multifaceted and dynamic process. Although a legal foundation has been established through the enactment of the Dual VET Law, substantial challenges persist – particularly with respect to social institutionalization and broader acceptance of dual training structures. Among the most prominent issues are to foster effective inter-institutional cooperation among the various stakeholders involved, including educational institutions, employers, and governmental bodies. These challenges reflect the complex interplay between international models of vocational training and national education systems, and they point to the necessity of contextualized approaches in the transfer and implementation of dual structures.

Conclusions: The challenges in establishing sustainable dual VET structures stem from the need to create a widely recognized and socially accepted basis for the concept of duality and convincing the business and public sector to provide training places. Consequently, both the resilience of the company criterion and the long-term security of dual training programs can be considered insufficiently secured. However, increased research activities in the field of VET could provide new impetus. Targeted empirical studies would enable policymakers, businesses,

and other stakeholders to make informed decisions and contribute effectively to the further development of the VET system and dual training programs.

Keywords

Dual Vocational Education and Training, VET, Duality Criteria, Costa Rica, Stakeholder

1   Introduction

The task of preparing a skilled workforce for the productive sector in Costa Rica falls under the responsibility of the Vocational Education and Training (VET) system. However, this system faces significant challenges, as outlined in the 'Sixth State of the Region Report on Sustainable Human Development' published by the National Council of Rectors. Key challenges include the need to significantly expand coverage and to align the supply of education and training with the current and future demands of the labor market (CONARE, 2021).

In 2015, the Organization for Economic Co-operation and Development (OECD) assessed the VET system in Costa Rica. The OECD evaluation carried out by Álvarez-Galván (2015) revealed several key findings, including a misalignment between Costa Rican VET programs and the specific needs of certain regions and employers. Additionally, it highlighted a lack of practical orientation within these programs, with insufficient emphasis on workplace learning, which is not mandatory for all VET students. As a primary recommendation, the report suggested enhancing the system's responsiveness to labor market demands by implementing mandatory workplace learning components within these programs. A further finding was that there is no clear model for alternation between VET schools and training companies, nor is the curriculum aligned in terms of which content is taught in the classroom and which in the company (Vargas et al., 2020; cited in Camacho Calvo, 2023).

In this regard reports by supranational organizations such as the OECD, UNESCO, and others particularly highlight the positive aspects of alternating approaches such as dual VET. These approaches are said to have the potential to reduce the often-high levels of youth unemployment, produce well-trained skilled workers, and, as a result, strengthen the economy (Álvarez-Galván, 2015; OECD, 2019; UNESCO, 2019). Therefore, many countries in Latin America that do not have such dual structures (in the sense of dual VET in German-speaking countries) are interested in integrating them into their existing formal VET systems (Ibarrola, 2016). Costa Rica, for instance, has been seeking to introduce dual programs since the 1990s (Camacho Calvo, 2024; Láscarez Smith, 2023; Marín Hernándenz et al., 1998).

To this end, the study[1] explores the implementation of dual VET structures in Costa Rica, with a particular focus on analyzing and conceptualizing the concept of duality within the country. First an overview of the criteria that characterize duality and examines how these criteria are being implemented based on their characteristics. Subsequently, the study presents an analysis of the processes and collaborations involved in dual VET in Costa Rica, to concluded with a discussion of the findings, addressing the national and context-specific understanding of duality and its interpretations within the Costa Rican context.

---

2   Theoretical Framework

2.1 Criteria of Duality

Several countries, including Germany, Switzerland, Austria, Denmark and the Netherlands, have well-established VET systems that produce many graduates at the upper secondary level (Allais, 2020; Gonon, 2014). In Germany, a corporate qualification system, also known as the dual system of VET, prevails. In this system, four parties – the federal government, the states and the social partners, represented by employers and employee representatives – regulate the so-called *Berufe*[2] (meaning is not synonymous with occupation) according to the consensus principle (Frommberger et al., 2024; Kutscha, 2022; Meyer, 2023). Thus, *Berufe* legitimize themselves not only through their content and competence requirements, but also through the process of their consensual creation (Meyer, 2023).

The actors involved also monitor the dual VET, which originally took place at the two learning venues, vocational schools and the training companies (Frommberger et al., 2024). Consequently, the German VET system, with its traditionally close links to the business sector, is guided by two contrasting reference criteria: the requirements of the economy and the company's training needs on the one hand, and the personal development of individuals on the other (Kutscha, 2017; Meyer, 2023).

Gonon (2014) describes the learning venue cooperation that enables the combination of theoretical and practical learning in real work processes as the core of duality. In this context, however, it should be critically reflected that in view of the growing importance of other places of learning, such as inter-company VET centers, digital learning platforms, etc., the term duality no longer seems coherent (Kutscha, 2022). Nevertheless, the term persists in German-speaking regions, presumably because it is deeply rooted in the *central core of social representations* (Abric, 1993). Another possible explanation could be that duality has become a kind of trademark (Gonon, 2014).

Accordingly, the German government does not provide the entire dual VET system, but only a part of it, namely the VET schools with specific curricula *(school criteria)*. However, the cooperating companies must be prepared to integrate such curricula into their own training programs, which leads to the next aspect: the willingness of the companies to provide training places *(company criteria)*. This criterion is constitutive for the dual nature of VET (Gonon, 2014). After all, companies serve as learning environments where apprentices acquire skills. However, another important aspect is that young people develop communication and conflict resolution skills and undergo vocational socialization. This supports both the development of individual abilities and the further development of the company. Accordingly, the company criterion links both personal learning processes and organizational development through a learning-oriented work design (Meyer, 2023). In summary, if the willingness of companies to provide apprenticeships were to decline, the dual VET system would be jeopardized. Therefore, the company criterion should not be underestimated. Particularly in the context of international VET cooperation agreements, successful implementation depends largely on the willingness of local companies to provide training places. If this tradition is lacking in a recipient country, it would have to be established in parallel with the system (Gonon, 2014).

Additionally, formal institutionalization involves the development and enforcement of laws, explicit regulations, and structured frameworks designed to ensure systematic integration.

---

[2]   ¨A Beruf is understood to be a pattern of work skills (labor force pattern) based on socially legitimized knowledge and qualification standards, characterized by a role-typical combination of knowledge, skills and abilities and oriented towards the expectation of being able to take advantage of employment opportunities" (Kutscha, 2008, p. 2, translation by authors).

This type of institutionalization is carried out by official bodies such as governments and state institutions and is often associated with formal procedures and legal regulations *(legal criterion)*. As long as there are no corresponding legal regulations, the degree of recognition of dual VET and its official embedding in the overall education system and labor market remains questionable. Furthermore, besides the indispensable integration of local knowledge and experience, apprenticeships should be linked to other knowledge fields like specialized vocational and scientific knowledge. So, a dual model cannot simply be seen as an isolated solution but must be embedded in a broader knowledge context *(formalized scientific criterion)* (Gonon, 2014). For example, German cooperation in VET is based on the five core principles of close cooperation between the state and industry, learning in the work process with reference to training in the workplace, social acceptance of standards, qualification of training staff and the institutionalization of VET research (BMBF, 2017).

2.2 Role of VET in Costa Rica

The Costa Rican formal VET system was introduced in the first half of the 20th century as part of the Latin American educational expansion (Beirute Brealey, 2018; Camacho Calvo, 2024; Peters, 2012). The aim was to initiate a social transformation by expanding and increasing investment in education and integrating the addressees of VET into the labor market – primarily young people from socio-economically disadvantaged backgrounds (Beirute Brealey, 2018). However, the goal of social transformation has been undermined by the liberalization efforts since the 1970s in the Americas (Katz, 2023).

The Costa Rican education system is characterized by a strict separation of formal and non-formal (vocational) education[3]. The difference between the two types of education is that the formal system leads to a recognized qualification that enables further education within the higher education system (Camacho Calvo et al., 2019; Rommel, et al., 2024a). Formal VET at upper secondary level is provided by the vocational schools under the Ministry of Public Education (MEP). The programs are predominantly school-based, last three years and correspond to level 4 of the National Qualifications Framework (NQF) for VET, which refers to the competences being achieved and the hours of programs. Non-formal VET is offered by the National Institute for Apprenticeship (INA) and is recognized at NQF levels 1-3 (Àlvarez-Galván, 2015), see Figure 1.

Regarding the Costa Rican VET system, Beirute Brealey (2018) states that the potential of VET as a mechanism for improving the employability of young people in the country is not being fully exploited. This is manifested in the fact that the Costa Rican business sector is currently complaining about a shortage of skilled workers (UCCAEP, 2021), while youth unemployment remains high. This amounts to 34.2% in young people aged 15 to 24 (INEC, 2022). Accordingly, the Costa Rican VET system appears to be in a weakened position and the original guiding principle of integrating socio-economic disadvantaged groups into the labor market is not being fully realized. In this context, since the 1990s, VET systems with a stronger link to the world of work, such as dual programs, have been seen as a panacea against social and economic challenges (Haddad et al. 1990; Álvarez-Galván, 2015; OECD, 2019; UNESCO, 2019). Therefore, attempts have been made in Costa Rica since the 1990s to integrate dual VET structures. Most of these efforts were initiated by international partners, particularly from Germany (Camacho Calvo, 2024; Láscarez Smith, 2023; Marín Hernández et al., 1998).

To strengthen the Costa Rican VET system and the labor market, Álvarez-Galván (2015) articulates various recommendations within the context of the OECD report, some of which relate to the implementation of dual VET. Since 2016, following the publication of the OECD

---

[3]   See Rommel et al. (2024a) for further information.

report, the previous Costa Rican government has been working to implement dual VET (Camacho Calvo, 2023; Láscarez Smith & Baumann, 2020). As a result, a bilateral agreement on international VET cooperation between the Costa Rican and German governments was concluded in 2019 (GOVET, 2019). In the same year, Law No. 9728 formally institutionalized dual VET (SCIJ, 2019). Following the successful pilot phase, the process of integrating dual programs into the existing Costa Rican VET system was initiated (Láscarez Smith & Baumann, 2020).

Figure 1
Structure and transition of the formal and non-formal tracks of the TVET system in Costa Rica
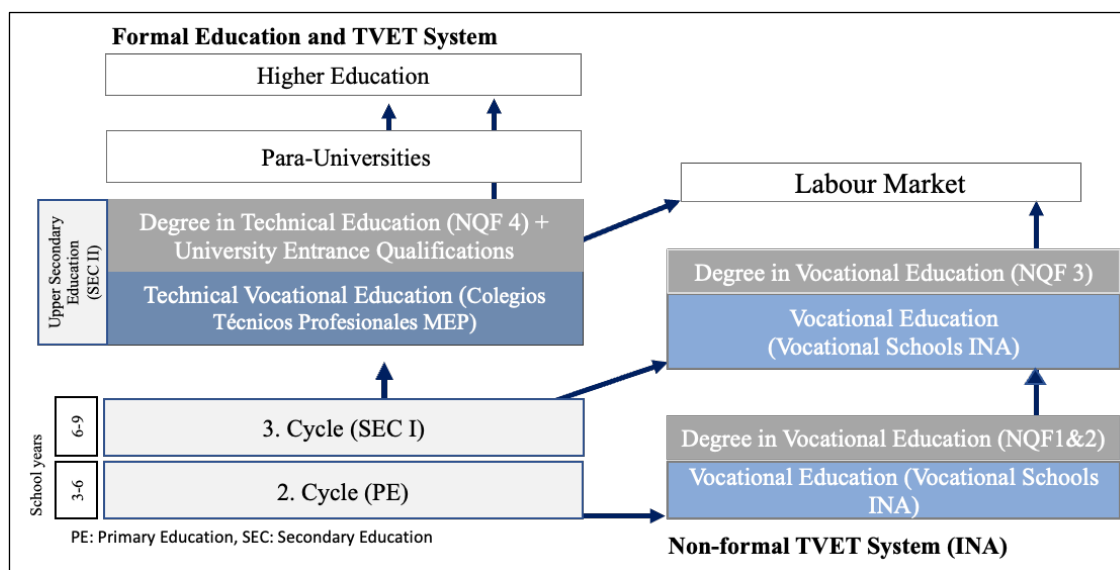
Note. Source: Rommel et al., 2024a

2.3 Implementation and Institutionalization of Dual VET in Costa Rica

Dual VET operates as one option within the broader spectrum of technical and vocational education offered by various accredited institutions in Costa Rica. In practice, the governance of dual VET is based on a regulatory framework designed to foster collaboration among various stakeholders. It operates within the National System for Technical and Vocational Education and Training (SINEFOTEP) as outlined in Law No. 9728 and its associated regulations, while maintaining separate governance structures (Camacho Calvo, 2024). The Costa Rican dual VET system is structured around the fundamental principles of duality and is defined by law (SCIJ, 2019):

> [...] vocational training in the dual modality, [is] understood as that educational modality that enables the apprentice to be trained in two learning environments, namely in a technical vocational training institution and in a training company that uses its tangible and human resources to implement this modality regulated by law. (SCIJ, 2019, translation by authors)

In Costa Rica, two institutions are currently primarily responsible for the development, implementation and monitoring of dual VET programs, the INA and the MEP. However, each institution has different roles and pursues its specific objectives. The MEP is responsible for the entire formal education system, including formal VET programs provided by vocational schools and plays a central role in the regulation and certification (Hunink, 2024). Furthermore,

it chairs the Commission for Dual VET (CAP), which consists of the INA and other stakeholders from society, the education sector and the labor market. The CAP organizes the inter-institutional coordination and implementation of dual programs as well as the definition of corresponding guidelines. A report on the status of dual VET is also published regularly (CAP, 2022).

The other main actor is INA, which provides non-formal VET and dual programs. The INA is tasked with coordinating part of the dual training system, such as managing the special scholarship fund for dual VET, as companies in Costa Rica refuse to offer apprentices in dual programs a salary (INA et al., 2020; Camacho et al., 2019).

As stated by the German Office for International Cooperation in Vocational Education and Training (GOVET), 335 individuals have successfully completed their training programs to date. Most of these individuals have been trained at NQF Level 1, as indicated by the courses offered by INA. The MEP has 18 graduates, all of whom have been assigned to Level 4. Furthermore, there are approximately 200 students currently enrolled in various dual VET programs (GOVET, 2024).

3 Methodology

This study is based on a qualitative research approach in which different data materials are triangulated with each other to paint as comprehensive a picture as possible of the current state of implementation of dual VET in Costa Rica (Flick, 2011; Rothbauer, 2008). At the beginning of the research, a comprehensive analysis of secondary data and documents was carried out to gain a well-founded insight into the context as well as the institutional and social structures of the field of research. The analysis included scientific publications as well as manuals from the CAP and INA, statistical data and reports from the National Institute of Statistics and Censuses (INEC), historical sources, etc. (Hoffmann, 2018). The analysis of the documents made it possible to systematize existing knowledge, identify key concepts on VET and dual structures, formulate hypotheses and develop guiding questions.

In addition, empirical data was collected through guided expert interviews based on Meuser and Nagel (2009), participatory observations and group discussions (Flick et al., 1991).

From March 2023 to January 2025, participating observations were regularly carried out as part of virtual meetings with the MEP to exchange views on the strategic direction of dual VET, on average once a month. In addition, three delegation trips to Costa Rica took place in the course of 2023, with observations made during various meetings and events with the following actors:

- MEP departments: General Directorate for Quality Assessment (DGEC), Directorate of Technical Education and Entrepreneurial Skills (DETCE), Directorate of International Affairs and Cooperation (DAIC)
- National Technical University (UTN)
- Trade Union of Education Workers (SEC)
- German Chamber of Commerce Abroad in Costa Rica (AHK)
- German Embassy in Costa Rica
- Business associations and chambers: Information and Communication Technologies Chamber (CAMTIC), Chamber of Industry (CICR), Costa Rican Chamber of the Food Industry (CACIA), Costa Rican Union of Chambers and Associations of the Private Business Sector (UCCAEP)
- Free Trade Zone Associations: Association of Free Trade Zone Companies (AZOFRAS), Coyol Free Zone, America Free Zone (AFZ)
- Teachers' professional association Colypro

- Training companies: SMC Ltd. Costa Rica, Accenture, Kaizen
- Don Bosco educational center
- INA headquarters in Uruca
- CAP

The group discussions were conducted in June and September 2023 in person at two MEP vocational schools: CTP San Pedro de Barva and CTP Atenas MEP. The discussions concentrated on 18 apprentices, 15 teachers and coordinators of the first generation of *técnico* IV level in the dual VET programs in the disciplines of electrical engineering and web development. The programs are taught at both educational institutions in the evening. At CTP Atenas, eight teachers and coordinators from the electrical engineering field participated, while at CTP San Pedro de Barva, seven teachers and coordinators from the web development field were involved.

However, the analysis of the group discussion with teachers and coordinators at the CTP Atenas is based on memories due to the failure of the audio recording device. Moreover, the discussion with the web development students was conducted twice (June and September) due to the initial circumstances not being conducive to an open discussion. Accordingly, the data was subsequently collected again in a more familiar setting.

Additionally, between February and May 2024, eight experts from science, business, and INA were interviewed. These experts have in-depth knowledge of dual training at INA, covering structural, organizational, and legal aspects, as well as communication with participating companies. The focus of the data collection was on the following topics:

- Perception of (dual) VET by different stakeholders
- Interpretation of duality
- Challenges and potential added value of learning venue cooperation

The evaluation of the transcribed audio material was carried out using QDA software. An abductive approach was chosen in which the coding paradigm was applied in the sense of the research style of Grounded Theory Methodology (GTM) (Heiser, 2018; Strauss & Corbin, 1996).

4   Results on the Institutionalization and Implementation of Duality

Legal Criterion

In Costa Rica, dual VET was legally anchored through the Dual Technical Education Law of 2019. This law defines the training regulations, the rights and duties of apprentices and training companies, as well as the responsibilities of educational institutions. Through these binding regulations, dual VET is to be institutionally secured and formalized as a central element of VET. However, in Costa Rica, this can be seen as questionable. Despite the legislation and regulations outlining the responsibilities and obligations of the relevant actors, there are significant challenges. One such challenge is that companies do not consider themselves obligated to compensate apprentices. At the same time, it should be noted that there are still challenges in implementing and institutionalizing duality according to different understandings of it. This relates both to joint curriculum development and the collaborative work in providing dual training opportunities between stakeholders, as well as the hope associated with duality for better-qualified specialists who meet the labor market's needs.

School Criterion

Dual training programs are relatively new in Costa Rica. In view of this, they are neither well known in society, nor are they deeply embedded in the formal VET system, as is the case in German-speaking countries. Although events under the umbrella of the CAP are jointly organized and carried out to promote dual VET, INA and MEP have different strategies – not least because of their different economic resources.

The MEP contacted specific vocational schools and informed them about dual VET. As part of these conversations, the educational institutions were asked to implement dual vocational education and training programs. As a result, the school implemented the programs quickly and at short notice. From the perspective of the teachers and coordinators, the implementation was basically successful. At the same time, however, they admit that there is still room for improvement, particularly regarding the selection process for students that takes place at the school, as the following extract from a group discussion shows:

> E1: [...] everything we went through last year, let's say this was very abrupt, it started very quickly. It had to be done because it had to be done, it was already law, it had to be tested, we were already there.
>
> E2: We had to run.
>
> E3: We had to run on the treadmill, but yes, we did everything as we were told, as planned, but yes, I do think that if we are going to repeat it, by 2024, the student selection process needs to be enriched a little more, strengthened in the educational part [...]. (SPB, Pos. 21-28)

In contrast, the INA headquarters pursued a different strategy and instead organized information events for INA educational institutions on dual VET programs in all regions of the country. As a result, numerous schools, including those in peripheral areas, introduced dual programs at levels I to III.

An important factor for the implementation of duality was mentioned in the expert interviews in relation to curriculum development in cooperation with companies, and there is still a major disadvantage regarding the collaboration in curriculum development in dual programs.

> As it is in other countries. Right, do business associations review the curriculum? That part, we haven't reached yet here (INA, 2024, Pos. 113-114).
>
> […] also, let's say, from the country's experience, I feel that it is still very difficult for us to understand, right, that professions are linked to the labor market. […] (INA, 2024, Pos. 339-340)

Nevertheless, all teachers and coordinators from both institutions see the high proportion of practical experience as an opportunity for students to become vocationally socialized. They also have the impression that the dual programs make it easier for young people to enter the world of work. In addition, the interviewees recognize that cooperation with companies could be improved, and the joint curriculum development furthered.

Company Criterion

Currently, private sector companies in Costa Rica participate in dual programs, while the public sector is not yet involved. However, the participants' observations showed that they see their participation more as corporate social responsibility (CSR) and do not see much added value for their organizations, which is why the subsidization of participating training companies

is currently being discussed in Costa Rica. Furthermore, acquiring additional training companies through the MEP and INA is proving difficult. This is because, despite their activities in the CAP, both institutions still lack a coherent and coordinated communication and acquisition strategy for companies. However, INA has sufficient financial resources to implement a comprehensive acquisition strategy. For example, a forum on dual VET has already been organized in 2023, which has significantly increased awareness of dual programs within the business sector:

> Companies don't know much about dual training […] Because I don't know, maybe they're scared […]. So, there's a need to provide more information. In fact, we organized a forum […], where we invited a lot of companies […] to give more widespread information […] and that really helped a lot in getting the companies to open up. (INA, 2024, Pos. 2153 – 2159)

In addition, INA has already formalized cooperation with relevant economic chambers in the country through agreements. However, the fragmentation of the Costa Rican business sector seems to make it difficult for INA and MEP to attract more training companies (Hunink, 2024). Nevertheless, the recruitment of training companies seems to be hindered by the lacking motivation – for various reasons – of companies to be an active partner in the training process and by the bureaucracy involved in participating in dual programs.

Formalized Scientific Criterion

In Costa Rican society, VET is at best the second-best educational option after general education (including higher education):

> […] it is important to point out that Costa Rica has a tradition that is very focused on higher education […] so Costa Rica went from having three public universities to having 54, 57 universities, where we now have 5 public. (INA, 2024, Pos. 80-85)

It can be seen that the generally negative image of VET that is prevalent in society at large also seems to play a role in the scientific community. Many scientists perceive VET as less prestigious and therefore do not see sufficient reason to address this topic in their research.

> […] at the university […] I don´t know how to say it […] With this perspective and a stigma that makes [scientists] question why anyone should research the work of the INA, this work is devalued because it is not academic [...]. (INA, 2024, Pos. 167-170)

It is therefore not unexpected that the importance of inclusion of scientific knowledge in VET remains relevantly limited. It can be observed that research related to VET in Costa Rica is in its early stages, institutionalized research in and about VET therefore is in a formative and evolving phase. In general research on VET in Costa Rica is weak but shows progress in the last years due to the increased number of researchers and publication (Rommel et al., 2024b).

5   Conclusion and Outlook

This study refers to the concept and criteria of duality and provides an overview of the institutionalization processes of dual VET in Costa Rica. It analyses both historical developments and current initiatives, thereby creating an important basis for evaluating the state of implementation of dual VET in the country. At the same time, the analysis shows that the transfer of dual VET is a long-term process influenced by various economic, social and cultural factors. The participation and support of key stakeholders – such as public institutions, companies, apprentices, scientists and training providers – plays a crucial role in this.

It becomes evident that dual programs in Costa Rica are integrated into the existing formal VET system in a complex way. In 2019, for example, the formal and institutional anchoring of the dual modality was achieved through the enactment of Law 9728. However, the preliminary results reflect numerous challenges associated with the social institutionalization of dual VET. These include cooperation between educational institutions and companies, and the acceptance and understanding of duality among the stakeholders involved. The biggest challenge, however, is to encourage the business and public sector to provide training places, which is why the company criterion, and the continued existence of Costa Rican dual VET may not be sufficiently secured.

Furthermore, it can be observed that the widespread negative social perception of VET also seems to influence the academic community. Many scientists may consider VET to be less prestigious, which leads to less motivation to study these topics. However, it is precisely the scientific community that should investigate and analyze the effects of the VET system, but also of dual programs. Given the limited scientific discussion in Costa Rica on this topic to date, there is a lack of reliable empirical data, which would be necessary to provide adequate information to both companies, policymakers, and other stakeholders in the field of VET. It would therefore be useful to conduct research that, among other things, examines companies' perspectives on how to secure skilled workers, apprentices' experiences during the transition from training to the labor market, the role of educational institutions in providing vocational training content, etc. Moreover, further research desiderata should be identified and systematically addressed.

References

Abric, J. C. (1993). Central system, peripheral system: Their functions and roles in the dynamics of social representations. *Papers on Social Representations*, *2*(2), 75–78.

Allais, S. (2020). Vocational education and inequalities in transitions from education to work in three African countries. In D. Francis, E. Webster, & I. Valodia (Eds.), *Routledge inequality studies. Inequality studies from the global South* (pp. 141–160). Routledge. https://doi.org/10.4324/9780429282447

Álvarez-Galván, J.-L. (2015). A Skills beyond School Review of Costa Rica: OECD Reviews of Vocational Education and Training. OECD Reviews of Vocational Education and Training. OECD Publishing. https://www.oecd-ilibrary.org/education/a-skills-beyond-school-review-of-costa-rica_9789264233256-en https://doi.org/10.1787/9789264233256-en

Beirute Brealey, T. (2018). Informe Estado de la Educación: Principales cambios en la oferta de Educación Técnica presentados en el periodo 2006-2018 y su pertinencia para jóvenes en zonas de alta vulnerabilidad. Consejo Nacional de Rectores (CONARE); Programa Estado de la Nación (PEN). https://repositorio.conare.ac.cr/bitstream/handle/20.500.12337/7755/Tatiana_Beirute_Oferta_Educ_Tecnica.pdf?sequence=3&isAllowed=y

Bundesministerium für Bildung und Forschung. *Bekanntmachung: Richtlinie zur Förderung der Forschung zur Internationalisierung der Berufsbildung*. https://www.bmbf.de/SharedDocs/Bekanntmachungen/DE/2017/09/1417_bekanntmachung.html

Camacho Calvo, S. (2023). Influencia de las políticas educativas globales en los procesos educativos nacionales: El caso de la modalidad educativa dual en Costa Rica | Actualidades Investigativas en Educación. *Revista Actualidades Investigativas En Educación*, *23*(1), 1–30. https://doi.org/10.15517/aie.v23i1.51441

Camacho Calvo, S. (2024). Educación y Formación Técnica Profesional (EFTP) de Costa Rica: perspectiva histórica. In W. Ruiz-Chavez (Ed.), *Educación y Formación Técnica Profesional: evolución, paradigma y experiencias en el contexto universitario costarricense* (pp. 17–46). Editorial Universidad Técnica Nacional. https://repositorio.utn.ac.cr/server/api/core/bitstreams/15597b86-8986-4837-a3a4-be572cda43a2/content

Camacho Calvo, S., García Fallas, J., Kemper, J. M., Maldonado Mariscal, K., & Vargas Porras, A. (2019). *Country Case Study on Technical Vocational Education and Training (TVET) in Costa Rica* (Working Papers, No. 8). ETH Zürich; Universidad de Costa Rica. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.dcdualvet.org/wp-content/uploads/2019_KOF_WP_Country-Case-Study-on-TVET-in-Costa-Rica.pdf

Consejo Nacional de Rectores (CONARE). (2021). *Sexto Estado de la Región*. https://repositorio.conare.ac.cr/items/332ae9fc-d7c0-4886-a8cd-b67ea5f0ac38

Educación y Formación Técnica Profesional Dual Costa Rica. *EFTP Dual*. https://educacionyformaciondual.cr/que-es-educacion-y-formacion-dual/sobre-el-programa

Equipo Técnico de la Comisión Asesora y Promotora de la EFTP dual (CAP). (2022). *Manual de Consultas Frecuentes sobre la Educación y Formación Técnica Profesional Dual*.

Flick, U., Kardorff, E. v., Keupp, H., Rosenstiel, L. von, & Wolff, S. (Eds.). (1991). *Handbuch qualitative Sozialforschung: Grundlagen, Konzepte, Methoden und Anwendungen*. Psychologie-Verl.-Union.

Flick, U. (2011). *Triangulation Eine Einführung* (3rd ed.). *Qualitative Sozialforschung*. http://scans.hebis.de/HEBCGI/show.pl?23424930_aub.html https://doi.org/10.1007/978-3-531-92864-7

Frommberger, D., Schmees, J. K., Ebbinghaus, M., & Krekel, E. M. (2024). *Deutschland: Internationales Handbuch der Berufsbildung (IHBB)*. Budrich. https://www.bibb.de/dienst/publikationen/de/19386

Gonon, P. (2014). Development cooperation in the field of vocational education and training: The dual system as a global role model? In M. Maurer & P. Gonon (Eds.), *Studies in vocational and continuing education: Volume 12. The Challenges of Policy Transfer in Vocational Skills Development: National Qualifications Frameworks and the Dual Model of Vocational Training in International Cooperation* (pp. 241–260). Peter Lang.

German Office for International Cooperation in Vocational Education and Training (GOVET). (2019). *Costa Rica setzt auf deutsche Berufsbildungsexpertise*. https://www.govet.international/de/100891.php

German Office for International Cooperation in Vocational Education and Training (GOVET). (2024). *Almost five years of dual vocational education and training in Costa Rica: Time for an assessment*. https://www.govet.international/en/201967.php

Haddad, W. D., Carnoy, M., Rinaldi, R., & Regel, O. (1990). *Education and development: Evidence for new priorities* (World Bank discussion papers). The World Bank. https://files.eric.ed.gov/fulltext/ED326471.pdf

Heiser, P. (2018). *Meilensteine der qualitativen Sozialforschung: Eine Einführung entlang klassischer Studien*. *SpringerLink Bücher*. Springer VS. https://doi.org/10.1007/978-3-658-18557-2

Hoffmann, N. (2018). *Dokumentenanalyse in der Bildungs- und Sozialforschung: Überblick und Einführung*. *Grundlagentexte Methoden*. Beltz Juventa. http://www.content-select.com/index.php?id=bib_view&ean=9783779948308

Hunink, C. (2024). The Significance of Exams and Certificates in Vocational Education and Training (VET) in Costa Rica. In C. Nägele, B. Esmond, N. Kersh, & B. Stalder (Eds.), *Trends in Vocational Education and Training Research: Proceedings of the European Conference on Educational Research (ECER), Vol. VII* (pp. 55–64). Vocational Education and Training Network (VETNET). https://doi.org/10.5281/zenodo.13236693

Ibarrola, M. de. (04/2016). *Dilemas de futuro para la educación formación técnico profesional en América Latina: Contribución al debate* (Tendencias en Foco). UNESCO; IIPE; Red ETIS. https://unesdoc.unesco.org/ark:/48223/pf0000371203

Instituto Nacional de Aprendizaje (INA), Konrad Adenauer Stiftung (KAS), Cámara de Industrias de Costa Rica (CICR), & Alianza Empresarial para el Desarrollo (AED). (2020). *Guía para el sector empresarial empleador: Cómo implementar la formación en la modalidad dual en Costa Rica)*. Instituto Nacional de Estadística y Geografía (INEGI). https://cicr.com/wp-content/uploads/2021/11/Guia_sector_empresarial_empleador.pdf

Instituto Nacional de Aprendizaje (INA). (2022). *Anuario INA en cifras*. https://www.ina.ac.cr/transparencia/Documentos%20compartidos/INA_en_cifras/INA_cifras_2022.pdf

Instituto Nacional de Estadística y Censos (INEC). (2022). *DESEMPLEO SE SITÚA EN 13,6% Y PERSONAS JÓVENES SON LAS MÁS AFECTADAS*. Instituto Nacional de Estadística y Censos (INEC). https://inec.cr/noticias/desempleo-se-situa-136-personas-jovenes-son-las-mas-afectadas

Katz, J. (2023). ¿Quo vadis, América Latina? Las dos caras del nuevo capitalismo latinoamericano. *Revista CEPAL*, *140*, 7-21. https://repositorio.cepal.org/server/api/core/bitstreams/84b1b263-047b-41d8-b853-0ccfa3b1f681/content

Kutscha, G. (2008). Beruflichkeit als regulatives Prinzip flexibler Kompetenzentwicklung - Thesen aus berufsbildungstheoretischer Sicht. *Bwp@ Berufs- Und Wirtschaftspädagogik – Online*, *14*, 1–11. http://www.bwpat.de/ausgabe14/kutscha_bwpat14.shtml

Kutscha, G. (2017). Berufsbildungstheorie auf dem Weg von der Hochindustrialisierung zum Zeitalter der Digitalisierung. In B. Bonz, H. Schanz, & J. Seifried (Eds.), *Berufsbildung konkret: Band 13. Berufsbildung vor neuen Herausforderungen: Wandel von Arbeit und Wirtschaft* (pp. 17–47). Schneider Verlag Hohengehren GmbH.

Kutscha, G. (2022). Politik des dualen Systems in Deutschland. In M. Eckelt, T. Ketschau, J. Klassen, J. Schauer, J. K. Schmees, & C. Steib (Eds.), *Berufsbildung, Arbeit und Innovation: Band 67. Berufsbildungspolitik: Strukturen - Krise - Perspektiven* (pp. 41–56). wbv.

Láscarez Smith, D. (2023). Political participation of business organizations in the construction of the technical vocational education and training system in Costa Rica between 1980 and 2021. https://osnadocs.ub.uni-osnabrueck.de/bitstream/ds-202310069852/1/thesis_lascarez_smith.pdf https://doi.org/10.48693/410

Láscarez Smith, D., & Baumann, F.-A. (2020). Costa Rica: Berufsbildung im Wandel. In F.-A. Baumann, D.

Frommberger, M. Gessler, L. Holle, L. Krichewsky-Wegener, S. Peters, & J. Vossiek (Eds.), *Internationale Berufsbildungsforschung Ser. Berufliche Bildung in Lateinamerika und Subsahara-Afrika: Entwicklungs-stand und Herausforderungen Dualer Strukturansätze* (pp. 73–109). Springer VS. https://doi.org/10.1007/978-3-658-31752-2

Marín Hernández, L. M., Zúñiga Solano, N., & Castrillo Montoya, R. (1998). *Educación Dual en Costa Rica: Experiencia y Perspectivas.* Ministerio de Educación Pública (MEP).

Meuser, M., & Nagel, U. (2009). Experteninterview und der Wandel der Wissensproduktion. In A. Bogner, B. Littig, & W. Menz (Eds.), *Experteninterviews: Theorien, Methoden, Anwendungsfelder* (3., grundlegend überarbeitete Auflage, pp. 35–60). VS Verlag für Sozialwissenschaften.

Meyer, R. (2023). Beruflichkeit und Interaktion. In S. Hiestand (Ed.), Berufsbildung, Arbeit und Innovation: Band 77. Beruflichkeit - Interaktionsarbeit - Kompetenz: Impulse für eine kompetenzorientierte Interaktionsarbeit in der Pflege (pp. 19–35). wbv.

Organization for Economic Co-operation and Development (OECD). (2019). *OECD Economic Surveys: MEXICO 2019*. https://doi.org/10.1787/a536d00e-en

Peters, S. (2012). Ist Bildungsgerechtigkeit möglich? Das Dilemma progressiver Bildungspolitik in Lateinamerika. *Nueva Sociedad*(Sonderheft), 142–163. https://static.nuso.org/media/articles/downloads/3874_1.pdf

Rommel, I., Goncharova, A., & Frommberger, D. (2024a). Vocational teacher education and vocational education research in Costa Rica: Status quo and perspectives. In M. Gessler, O. Zlatkin-Troitschanskaia, S. Bohlinger, C. Olivier, M. Toepper, A. Bieß, A.-C. Greppmair, H. Long Nguyen, & I. Scheuch (Eds.), *Expanding Horizons: Research on the Internationalization of Vocational Education and Training* (pp. 213–233). Springer VS.

Rommel, I., Angles, E., & Frommberger, D. (2024b). Towards Institutionalised TVET Research in Costa Rica– Empirical Analysis on Status, Needs, and Challenges. *Actualidades Investigativas En Educación*, *24*(1), 1–28. https://doi.org/10.15517/aie.v24i1.55637

Rothbauer, P. M. (2008). Triangulation. In L. M. Given (Ed.), *The Sage encyclopedia of qualitative research methods* (pp. 892–894). Sage.

Sistema Costarricense de Información Jurídica. (2019). *Educación y Formación Técnica Dual: Nr. 9728*. http://www.pgrweb.go.cr/scij/Busqueda/Normativa/Normas/nrm_texto_com-pleto.aspx?param1=NRTC&nValor1=1&nValor2=89820&nValor3=118020&strTipM=TC

Strauss, A. L., & Corbin, J. M. (1996). Grounded theory: Grundlagen qualitativer Sozialforschung. Beltz.

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2019). Educación dual y responsabilidad corporativa: Alianzas público-privadas para la movilidad social.

Unión Costarricense de Cámaras y Asosiaciones del Sector Empresarial Privado (UCCAEP). (06.2021). *II Encuesta Trimestral de Negocios: "Pulso Empresarial" 2021*. https://www.uccaep.org/inicio/images/con-tent/pulso-empresarial/2021/IIETN2021prensa.pdf

Biographical Notes

Claudia Hunink is a research associate at the Department of Vocational Education and Training, University of Osnabrück, Germany. Her research interests are focused on international comparative TVET research, youths in transition, and vocational orientation. She is currently engaged in the CoRiCert project (Development and testing of models and instruments for examination and certification in the context of dual vocational training programs in Costa Rica), which is supported by the German Ministry of Education and Science, BMBF.

Dr Irina Rommel is a research associate at the Department of Vocational Education and Training, University of Osnabrück, Germany. Her research interest focuses on international VET cooperations and international comparative TVET research with a focus on Latin America. She is currently the assistant director and coordinator of the CoRiVET project (financed by the German Ministry of Education and Research, BMBF), which aims at the actualization of TVET teacher qualification and the institutionalization of TVET research in Costa Rica.

"Thinking Outside the Box" - Holistic Skill Development for Vulnerable Groups as a New Educational Practice in Challenging Times

Ixmeier, Sebastian

sebastian.ixmeier@uni-due.de, University of Duisburg-Essen

Muenk, Dieter

dieter.muenk@uni-due.de, University of Duisburg-Essen

Abstract

Context: A central task of the European vocational education and training systems is to qualify young people for entry into the labour market. This serves both the social endeavour for professional inclusion and participation as well as securing the increasingly virulent demand for skilled workers. Despite this dual requirement, a significant proportion of Europe's young people are disconnected from the training and labour market. There is a risk of permanent unemployment. Holistic participation support for disadvantaged groups could help to reduce structural exclusion dynamics. The focus is not only on imparting professional expertise, but also on the skills of a person as a whole. This approach is a genuine component of the German vocational education and training system but is strongly employment-centred.

Approach: Based on current empirical findings (mixed-methods design) from a German pilot project, the question is answered as to how a holistic support strategy to promote the participation of long-term unemployed people with health impairments can succeed.

Findings: The holistic development of resources, which encompasses both the removal of external barriers (e.g. access to support structures) and the development of general skills (e.g. social skills), is at the centre of support practice for the vulnerable target group. In this context, five effectiveness factors of the holistic approach can be identified, which include both conceptual and didactic implications: Holistic, flexible programme portfolio, interdisciplinary cooperation structure, voluntary participation, and long-term support. Provided that these structural prerequisites are guaranteed, the holistic support strategy can enable new opportunities for professional and social participation. While the holistic support strategy enables professional (re)integration, particularly for younger people and those who tend to be more able for work, the project offers social participation and development prospects, especially for older people and those who tend to be unable to work.

Conclusions: The results point to the need for early, holistic support. This should be able to take all areas of life into consideration in order to reduce complex barriers to participation. To achieve this, the rigid German vocational training system must become more open and rethink the traditional concept of occupation ('Berufskonzept').

Keywords

inclusion, holistic support strategies, mixed methods, disadvantaged groups, transformation of VET systems

1 Diversity in Europe's Vet Systems: Holistic Approaches in Germany

In recent years, there has been a rapid increase in global challenges and crisis-like developments. The VET systems of the European countries are faced with the joint task of fulfilling their hinge function between the training and labour market even in these challenging times. In this way, it is not only important to secure the increasingly virulent demand for skilled labour, but also to promote an inclusive social order in which all people can participate on an equal footing (Ixmeier et al., 2023; UNSDG, 2023). Despite the common challenges, the national VET systems in Europe differ from one another. This is due not least to their economic and socio-cultural path dependencies (Münk, 2020, p. 726ff.).

The teaching of basic competences and general skills is an integral part of the German vocational education and training system. This involves teaching not only direct technical skills, but also social and personal skills. The aim is to achieve a "holistic competence to act (...) in the sense of a holistic problem-solving ability" (BMBF, 2013, p. 53f.). This should enable trainees to act independently and appropriately, especially in increasingly complex work situations, and thus to cope with rapid technological and socio-economic change (Markowitsch et al., 2020, p. 18f.). This holistic educational requirement is therefore designed to be very occupation-specific and as such is embedded in the traditional concept of occupation ('Berufskonzept'), which is the centrepiece of the German vocational training system (Arnold et al., 1998, p. 3; Zabeck, 2013, p. 11). The focus of this 'Berufskonzept' is on conveying a comprehensive professionalism in a specific occupational field that transcends the purely market-specific logic of utilisation by also encompassing personal and social functional logics (Seifried et al. 2019, 11f.). The downside of this approach is that the German fully qualifying system of vocational training (i.e. dual and full-time school-based) is disastrous for the disadvantaged in the system precisely due to its explicit focus on the 'Berufskonzept' and its fundamentally vocational nature of work, because they are subject to the radical exclusion principle of all or nothing. This means, that if young people don't fit into the standard ways of becoming a fully holistic educated employee according to the 'Berufskonzept', the chances to gain a recognized vocational training qualification sinks dramatically. This manifests itself in strong social disparities in access to and completion of fully qualifying training programmes (ABB, 2024, p. 11, 16f.; Frehe & Kremer, 2016, p. 16). In contrast, low-threshold qualification offers that follow the European idea of 'employability' as a qualification goal, for example, may be much better suited to giving disadvantaged individuals a realistic chance of integration into the labour market due to their significantly higher systemic and structural flexibility and - above all - due to the significantly lower entry level of vocational qualification.

The following article deals with the question of the extent to which a holistic approach to vocational education and training can successfully promote the participation of vulnerable target groups such as disadvantaged young people. To this end, the categories of poverty, health impairment and migration are first used to show that the need for inclusive strategies in vocational education and training has increased in Europe. This is followed by empirical insights into a pilot project to promote the vocational participation of long-term unemployed people with health impairments in order to illustrate the complex needs of vulnerable target groups and discuss holistic solutions. The article concludes with a discussion on the prospects for an inclusive transformation of the VET system through a truly holistic approach to VET.

2 Vulnerable Groups - Structural Exclusion from the Labour Market

Disadvantaged young people are particularly affected by structural exclusion dynamics. Achatz et al. (2021) describe the group of socially disadvantaged young people as "young people who, due to their individual circumstances, have limited opportunities in the transition from

school to work and therefore require support". The characteristics of this group include precarious living situations, poverty and social inequality as well as physical and mental impairments (Rahmani & Groot, 2023). Migrants can also be categorised as disadvantaged young people, as they often have to overcome language and cultural barriers in addition to the aspects mentioned above. They also lack social networks and usually have less knowledge of the local training and labour market (Bergseng et al., 2019, p. 8f.). These key vulnerabilities (poverty, health impairment or disability, migration or social disadvantage) are widespread in the European Union and often affect each other reciprocally.

In 2023, around 71.9 million people in the EU-27 countries were affected by relative poverty (below the 60% median of the respective national equivalised income). This corresponds to an average of 16.2% of all inhabitants. The range between the individual countries is between 9.8% (Czech Republic) and 22.5% (Latvia/Estonia). The rate is particularly high in southern and eastern Europe. Wage labour must be considered the most serious factor for the risk of poverty - almost half of people (47.5%) without earned income are affected by poverty in Europe (IAQ, 2024b). In the period from 2005-2022, this rate remained at a relatively constant level within the EU, with slight fluctuations (IAQ, 2024a, p.1f.).

According to the European Commission (2025), around 87 million people in Europe currently live with a disability. Of these, only around 50% are in employment (compared to 75% of people without disabilities). Around 28% are affected by poverty or social exclusion - this is only the case for around 18% of people without a disability. In Germany, the number of people with disabilities increased by almost a quarter between 1993 and 2019. In 2021, the figure was 7.8 million people - 3.1 million of whom were of working age. On the one hand, this is due to the demographic ageing of the population. On the other hand, however, mental disorders in particular have increased enormously as a result of changing workloads. An increase of almost 50% has been recorded here since 2009 (Buck et al., 2024, p. 2f.).

The figures on first-time asylum applications in the EU member states provide an impression of the development of refugee migration in Europe. In 2023, an average of 2,337 asylum applications per million inhabitants were submitted in the European Union. In Germany, the figure was 3,900. Particularly high figures were registered in Cyprus (12,664), Austria (6,107) and Greece (5,559). In Germany, around 52.3% of all applications for asylum were granted in the first instance during this period (Destatis, 2025). After a sharp rise in first-time asylum applications in 2014 - around 1.5 million migrants seeking protection were registered in Germany alone between 2015 and 2016 (Bergseng, 2019, p. 8) - there was a significant drop again after 2016. Since 2021, there has been a steady increase again, approaching the figures from 2015/16 (Destatis, 2025).

An international study conducted by CEDEFOP in 2017 confirms this: Completing an apprenticeship (vocational or general education - ISCED 3) significantly increases the chances of entering employment, although the strength of the effect can differ considerably in some cases depending on the type of training considered in the context of the prevailing national vocational training system (see the explanations on the German concept of vocational work above). As a result, people without a qualification at ISCED 3 level have a greatly increased risk of belonging to the group of NEETs (Not in Employment, Education or Training), which can also be used as one of two international benchmarks for the effectiveness of (vocational) education and training systems. In a European comparison of the EU-27 countries, Germany is in fifth place with 5.7%, which is well above the EU-27 average of 10.1%. With a youth unemployment rate of 5.8% in 2019 - the second international benchmark for the effectiveness of education - Germany is even in first place (together with the Czech Republic). The average value for the EU-27 countries was 14.8% (Schultheis et al., 2025).

Although this picture is relatively positive for Germany in an international comparison, at least three aspects must be taken into account. Firstly - as the OECD has been pointing out since

the early 1990s (OECD 1992) - the number of young people who are locked into initial vocational training in Germany is relatively high due to its specific national vocational education and training structure. This also includes the growing, upstream (and often critically questioned) vocational training measures like the so called transition system ('Übergangssystem') (Frehe & Kremer 2016; BMBF 2024, p. 26.). This reduces the number of unemployed young people and thus, of course, the total number of NEETS in the system, as they fall out of the statistics. Secondly, ranking at the top does not mean that there is no need to optimise the integration capacity of the vocational training system: Every person who is unable to participate in education and work in a modern gainful employment society is one person too many. This is all the more true in times of increasing demand for skilled labour. And thirdly, another worrying trend can be observed in the recent past: The number of young people (aged 20-34) in Germany with 'no formal Qualification' (nfQ) (without completed vocational training or study degree) has risen consistently in recent years from 2.12 million (14.4%) in 2018 to 2.86 million (19.1%) in 2022. Particularly high proportions of the group of nfQs are people without a school-leaving qualification (74.4%), people without German citizenship (38.1%), people with their own migration experience (38.1%) and, in particular, refugees from war and crisis zones (57.4%) (BMBF, 2024, p. 96f.). These figures indicate an increasing problem of structural exclusion dynamics in the participation of disadvantaged groups in education. This is accompanied by an increased risk of not being able to pursue permanent gainful employment (BMBF, 2024, p. 96). Vocational education data on people with health impairments is not collected as part of official statistics (BMBF, 2024, 58f.). However, figures elsewhere show their structural disadvantage on the labour market: while the labour market participation rate for people without impairments in Germany was 81% in 2017, this was only the case for 53% of people with impairments (BMAS, 2021, p.215).

Disadvantaged groups could be given even better support in the transition from school to the labour market through suitable vocational training opportunities. Otherwise, there is a risk of unemployment. Against this backdrop, Germany also has a very high proportion of long-term unemployement: In September 2024, there were around 980,000 people (BA, 2024). Here, too, there are a number of intersectional barriers for labour participation, such as a lack of qualifications, health impairments, advanced age, language deficits or caring responsibilities (Beste et al., 2023, p. 127f.). According to estimates by the Federal Labour Office, up to 220,000 of these people have such serious barriers that they are unlikely to be reintegrated into work with the current support instruments (Trappmann et al., 2019).

3   Holistic Skill Development for Vulnerable Groups

Holistic approaches as a core category of the German VET system on the one hand - increasing structural exclusion of vulnerable groups with intersectional barriers on the other. This raises the question of how holistic participation support for vulnerable target groups can succeed. This question will be answered on the basis of empirical research data from a pilot project on holistic participation support for long-term unemployed people with health impairments. The article therefore outlines complex requirements and conditions for the success of holistic skills development as a new educational practice and thus provides pointers for a more inclusive and sustainable VET system.

3.1 Methodology

The methodological basis is a mixed-method study design, using data from a pilot project on holistic participation support for long-term unemployed people (i.e. unemployed for at least 12 months) with health impairments. The support strategy centres on individual, holistic support from an interdisciplinary team of experts in a long-term setting (up to 20 months). The

central aim is to stabilise the individual's situation and, building on this, to introduce them to the labour market. Participation in the project is voluntary.

The analysis results presented here are based on participant surveys at the beginning of their participation in the project (*n*=180) and after at least 9 months of the project (*n*=87). The data was collected between August 2020 and August 2024 and analyzed using statistical methods (a.o. descriptive & correlation analyses). The findings were supplemented by the analysis of project progress data (*n*=275) as well as open coding and a content analysis of interviews (*n*=75) with project participants and observation protocols (*n*=44). The aim of this method triangulation is to achieve a deeper understanding of the mechanisms of action of the research object. By applying explorative and hypothesis-testing methods, new correlations can be inductively uncovered and correlated, but also a deductive test for numerical relevance and significance can be carried out (Kuckartz, 2014).

3.2 Results

By August 2024, 164 people (of 275 participants in total) had completed the ongoing project. The majority of participants were male (approx. 60%) and distributed relatively evenly across all age groups (19 to 63). Multimorbidity plays a key role: three out of four participants have at least three health impairments. Over 90% report a physical impairment, and a good 78% have a mental impairment. Over 70% have simultaneous mental and physical illness. Accordingly, the ability to work (measured by the Work Ability Index at the start of the programme by medical professionals) is rated as critical by a clear majority (around 75%). While around 90% of participants have completed secondary level 1 (ISCED 2) with a qualification, around 48% of all participants have no vocational training. Over 77% of participants have been registered as unemployed for a very long time, at least five years. A good one in two have never been in employment subject to social security contributions.

At the centre of support practice is the holistic development of resources, which includes both the removal of external barriers and the development of general skills. These two areas can therefore be seen as levers of support. By analysing interviews and project reports, the following key aspects of these two levers were identified:

The development of individual competences (support lever 1): Individual competences represent the holistic ability to lead a self-determined life and participate in functional areas of society. They are subject-centred and can be differentiated into four levels: Personal competences stand for a self-determined lifestyle. Central areas of intervention here include the creation of self-efficacy and motivation for (professional) participation as well as the development of a daily structure and health-conscious behaviour. Social skills stand for the reduction of social blockages, opening up to the outside world and learning communication routines. Vocational skills include all aspects relating directly to getting a job, in particular vocational orientation and learning specialised vocational knowledge (qualification). Finally, overarching competences stand for the development of a general perspective and the development of soft skills (e.g. creativity, diligence, perseverance).

To reduce external barriers (support lever 2): External barriers stand for environmental factors that can have a decisive influence on the individual participation opportunities of those affected but are institutionally closed to them. A very typical and important example for the target group is the support provided by the specialised staff in the project context when applying for rehabilitation status or a so-called 'degree of disability' (GDB). The application process is described as bureaucratic, complex and resource-intensive. However, it is a necessary condition for accessing the highly differentiated, organised support system in Germany for people with health impairments. In addition, depending on the needs situation, support is provided for further health-related (e.g. access to a specialist), social (e.g. language courses or access to an

association) and professional (e.g. placement in training programmes) connections. Two aspects are central here: On the one hand, access to these support structures is difficult for the people concerned (at least at the time of their increased vulnerability, which is the reason for participating in the measures) due to various institutional closure processes (e.g. lack of transparency; complex application procedures). On the other hand, needs are highly individualised and temporarily volatile, which is why needs-based and flexible assessment and support appear necessary.

This support focuses on the reciprocal relationship between structure and individual results in expanded participation perspectives that transcend the purely occupational sphere but are structurally coupled to it. This connection becomes clear in the following quote from a project employee:

> (...) I experience this very, very often, that we are in case conferences and the success of the participant in the project is: I still haven't found a job. But that we have already worked out a lot of points that naturally lead to the final goal. But (.) in completely different situations, because most of the participants don't think about that. And then they always say: But look what you've already worked out. (...) They now go to the doctors regularly. They have these diagnoses, we have established them, they have already been to debt counselling and, and, and.
> Project worker in the Essen.Pro.Teilhabe pilot project

The project worker reports on his experiences with participants in the context of so-called case conferences. These are regular meetings between the participant and the members of the interdisciplinary project team responsible for them (administrative specialist, social coach, doctor or other staff members if necessary). This is where the individual project development is discussed, and further goals are cooperatively agreed. While the participants often only see professional reintegration as a criterion for success, the project staff emphasise the success of the measures on a holistic level. Accordingly, external barriers such as access to social and health service providers have often already been removed. The statement also points to the development of personal skills through more health-conscious behaviour (regular visits to the doctor). The project employee interviewed also sees these measures as setting the course 'towards the ultimate goal', which ultimately corresponds to taking up employment. Holistic participation support for vulnerable target groups therefore does not focus solely on the subject level or on the level of the vocational (education) system. Rather, it consistently removes this artificial separation and looks at the spaces and relationship patterns in between. In this way, factors that inhibit participation can be reduced and new perspectives established.

Promoting participation outside of a purely professional utilisation logic thus enables professional (re)integration, especially for younger people and those who tend to be more able to work. Of the 164 people who have completed the project so far, almost 45% have been reintroduced to the training or labour market. For 22.4%, this meant integration into the primary labour market (i.e. unsubsidised employment) or the resumption of education or vocational training. 21.7% were able to take up state-subsidised employment. Considering the complex problems faced by the participants, this can certainly be seen as a significant developmental step. At 31.9%, significantly more participants under the age of 40 were able to enter the primary labour market or vocational training. As expected, integration into education is significantly higher here than among the older participants (around 10% to 2%). The integrative power of the holistic measure is even clearer if the project results are differentiated according to employability at the start of the project according to WAI (see above). This shows that 40% of the people who tended to be more employable were integrated into the primary labour market or into training. In contrast, the majority of older groups of people and people with a very critical WAI were placed in subsidised employment as an integration result. Of the latter group, however, almost

one in two (45.7%) cancelled the project prematurely. The empirical findings indicate that participation in the low-threshold measures requires a minimum level of mobility and mental capacity. This excludes certain medical conditions (e.g. acute addictions). Upstream measures or extended care 'building blocks' could provide a solution here. However, there are also participants who reject the project approach per se, as they see it as an invasion of their privacy or do not have a fundamental willingness to change.

Above all, the project offers social participation and development prospects to older people and those who tend to be unable to work. Approximately 19% of participants have completed the project regularly, but without integration into the first or second training or employment market. This value is particularly high for people over 40 (23.6%). However, this does not mean that there are no positive development patterns observed in these groups. In fact, 55-60% of participants in an online survey (n=87) reported improvements in their health status, health behaviour, and overall competences (self-confidence; individual skills/abilities) after at least 9 months of project participation. Similarly, subjective development patterns on social and professional levels are predominantly perceived as positive. There were hardly any reports of deterioration.

In interviews, participants highlighted the development of higher-level competences (developmental orientation and the establishment of a daily routine) and the establishment of social contacts as a positive effect of programme participation. Furthermore, participants reported improvements in their health situation and the establishment of a professional perspective as a result of the holisitc care:

> Interviewer: What has changed in your life through EPT?
>
> P: Everything. The whole life has been completely turned upside down. When I think about how I was before, yes, I was reserved, shy. I approached people with caution. I thought everyone wanted to do me harm. That's been completely turned around here in just half a year, I'd say. After about two years, it was time to start with job searching, writing applications, creating CVs and so on. So, you can get on a good path relatively quickly here. And that's really good." Participant (P), Model Project Essen.Pro.Teilhabe

The participant reports on their individual development process as part of programme participation. Initially, health-related (psychological) barriers had to be overcome to regain access to social functions such as work and social services. This is a typical development pattern and has been described in more detail elsewhere (Ixmeier, 2024). Accordingly, the introduction of a salutogenic process is the primary goal for many project participants. After the incremental removal of related participation barriers, attention can then be turned to other participation dimensions, particularly work. The creation of self-confidence and motivation among participants is a central challenge. This requires time – the average participation duration in the project is 18 months. However, even this timeframe is considered too short for entrenched problems. Creating suitable support networks after participation is of central importance. Early intervention would be even better, preventing problems from becoming entrenched in the first place.

A key aspect of holistic participation promotion is a prepared, flexible portfolio of measures that can be used in participant care. This must enable holistic intervention with a focus on the complex problems faced by participants. The core is the removal of external barriers and the development of individual competences. In the model project, 25 clusters of offers were identified on the three intervention levels of work, social services, and health/prevention. Although these were of varying relevance to participants, they all represented an important

building block for the individually determined participation strategy. Furthermore, a professional, interdisciplinary project team is essential for identifying problems and providing corresponding offers. This holistic vocational education team consists of well-trained administrative staff, employment experts, social coaches, doctors, and psychologists, as well as experts in occupational and stress testing in a protected environment. The portfolio of offers can be expanded along the individual needs of the target group.

In summary, five effectiveness factors of the holistic approach can be identified, which include both conceptual and didactic implications: Holistic, flexible programme portfolio, interdisciplinary cooperation structure, voluntary participation, and long-term support.

4 Development Lines

The aim of this study was to determine the extent to which a holistic strategy can successfully promote the participation of the growing group of disadvantaged people in Germany and Europe. To this end, the results of a pilot project to promote the vocational participation of long-term unemployed people with health impairments were presented. In this concluding chapter, the key findings are summarised and implications for an inclusive transformation through the adaptation of a truly holistic approach to vocational education and training are discussed.

Overall, it becomes clear that participation promotion for vulnerable target groups can only be understood as a holistic process that enables the gradual removal of entrenched participation barriers. These barriers are effective at the interface between individual and society and must be removed accordingly. However, due to the complex and entrenched problems faced by long-term unemployed individuals with health impairments, objective measurable successes may only become apparent after a longer period. Consequently, early intervention could make a significant contribution to creating equal opportunities, mitigating the shortage of skilled workers, and thus minimizing the need for costly, curative measures on the part of service providers. Therefore, an expanded, life-world-oriented, holistic participation promotion could be particularly relevant as a vocational education strategy (possibly as a supplementary measure) for the increasingly relevant group of disadvantaged young people. This approach may seem resource-intensive, but it is a sustainable and inclusive alternative to structural exclusion from the education and employment market, with both normative and economic advantages to be taken into account.

If the promise of holistic VET is taken seriously, it must not remain in the area of vocational skills. To meet the growing challenges of our time and fulfill the aspiration of a fair education system, we must 'Think outside the box'. The broader implications and scope for a truly holistic transformation of the VET system must be critically discussed, especially in a corporatist system such as Germany and against the backdrop of financial policy bottlenecks. **So, against the backdrop of the German system's reality and problems, at least two findings emerge:** Firstly, it becomes clear on the basis of the empirical findings of this study that the overarching goal of vocational integration stands in second row. It can only succed, if holistic promotion strategies are invented to reduce medical, psychosocial, and general social problems (social disadvantage and participation problems), too.

Secondly, the rigid system of dual or full-time vocational training in Germany, which is almost the only way to achieve a fully qualifying VET degree and thus good and sustainable employment prospects, shows that this one-sided focus on formal vocational qualifications must be supplemented by lower-threshold offers in the sense of the European demand for 'employability', in order to transport more flexibility into the system, for example through modularization (Pilz, 2009).

References

ABB (Autor:innengruppe Bildungsberichterstattung). (2024). Bildung in Deutschland 2024: Ein indikatorenge-stützter Bericht mit einer Analyse zu beruflicher Bildung. wbv.

Achatz, J., Reims, N., Sandner, M., & Schels, B. (2021). *Benachteiligte Jugendliche tun sich beim Übergang von der Schule ins Erwerbsleben besonders schwer*. IAB-Forum. https://www.iab-forum.de/benachteiligte-jugendliche-tun-sich-beim-uebergang-von-der-schule-ins-erwerbsleben-besonders-schwer/ [Accessed February 18, 2025].

Arnold, R., Lipsmeier, A. & Ott, B. (1998). Berufspädagogik kompakt. Prüfungsvorbereitung auf den Punkt gebracht. Cornelsen.

BA (Bundesagentur für Arbeit). (2024). *Langzeitarbeitslosigkeit. Einzelausgabe – September 2024*. Statistik Arbeitsagentur. https://statistik.arbeitsagentur.de/SiteGlobals/Forms/Suche/Einzelheftsuche_Formular.html?nn=1610096&topic_f=langzeitarbeitslosigkeit [Accessed September 30, 2024].

Bergseng, B., Degler, E., & Lüthi, S. (2019). *Unlocking the potential of migrants: cross-country analysis*. OECD, 1-120.

Beste, J., Coban, M., & Trappmann, M. (2023). Zahlreiche Faktoren verringern die Erfolgsaussichten von Grundsicherungsbeziehenden. *Wirtschaftsdienst*, *103*(2), 123–129.

BMAS (Bundesministeriums für Arbeit und Soziales) (Ed). (2021). Dritter Teilhabebericht der Bundesregierung über die Lebenslagen von Menschen mit Beeinträchtigungen.

BMBF (Bundesministerium für Bildung und Forschung) (Ed.). (2024). *Berufsbildungsbericht 2024*.

BMBF (Bundesministerium für Bildung und Forschung) (Ed.). (2013). *Deutscher EQR-Referenzierungsbericht*. https://www.dqr.de/dqr/shareddocs/downloads/media/content/deutscher_eqr_referenzierungsbericht.html [Accessed November 15, 2024].

Buck, P., Ixmeier, S., & Peters, A.-K. (2024). Berufliche Bildungsperspektiven für Menschen mit gesundheitlichen Beeinträchtigungen zur Sicherung des Fachkräftebedarfs. *bwp@ Spezial HT2023: Hochschultage Berufliche Bildung 2023*, 1–18.

Destatis. (2025). *Flucht und Asyl in Europa.* https://www.destatis.de/Europa/DE/Thema/Bevoelkerung-Arbeit-Soziales/Bevoelkerung/EUAsylantraege.html [Accessed February 18, 2025].

EC [European Commission]. (2025). *Persons with disabilities.* https://commission.europa.eu/strategy-and-policy/policies/justice-and-fundamental-rights/disability/persons-disabilities_en [Accessed February 18, 2025].

Frehe, P. & Kremer, H.-H. (2016). Ausbildungsvorbereitung als Domäne – Inklusion in der Exklusion? *Berufs- und Wirtschaftspädagogik Online*, *30*, 1–21.

IAQ [Institut für Arbeit und Qualifikation]. (2024a). *Armutsgefährdungsquote in ausgewählten Ländern der EU 2005-2023*. https://www.sozialpolitik-aktuell.de/files/sozialpolitik-aktuell/_Politikfelder/Europa-Internationales/Datensammlung/PDF-Dateien/abbX10.pdf [Accessed February 18, 2025].

IAQ [Institut für Arbeit und Qualifikation]. (2024b). *Armutsgefährdungsquoten in der EU-27 2023*. https://www.sozialpolitik-aktuell.de/files/sozialpolitik-aktuell/_Politikfelder/Europa-Internationales/Datensammlung/PDF-Dateien/abbX24.pdf [Accessed February 18, 2025].

Ixmeier, S. (2024). Teilhabeförderung langzeitarbeitsloser Personen mit gesundheitlichen Einschränkungen – Eine Chance zur Sicherung des Fachkräftebedarfs? In S. Ixmeier, P. Buck & D. Münk (Eds.), *Chancen für Alle durch (berufliche) Bildung: Inklusion und Teilhabe für Menschen mit gesundheitlicher Beeinträchtigung* (pp. 143–164). wbv.

Ixmeier, S., Münk, D., & Muscati, N. (2023). Fachkräftemangel in Deutschland. Strukturmerkmale, Substituierungspotentiale und Reformvorschläge für das berufliche Bildungssystem. *Berufsbildung*, *198*(77), 3–6.

Kuckartz, U. (2014). Mixed Methods: Methodologie, Forschungsdesigns und Analyseverfahren. Springer VS.

Lipsmeier, Antonius, Ott, Bernd, & Arnold, Rolf. (1998). Berufspädagogik kompakt. Prüfungsvorbereitung auf den Punkt gebracht. Cornelsen.

Markowitsch, J., Grollmann, P. & Bjørnåvold, J. (2020). *Berufsbildung 2035: Drei Szenarien für die Berufsbildung in Europa*. Bonn: Franz Steiner Verlag

Münk, D. (2020). Berufliche Bildung in Europa. In R. Arnold, A. Lipsmeier, & M. Rohs (Eds.), *Handbuch Berufsbildung* (pp. 725–738). Springer.

OECD (1992). *Education at a glance*. https://www.oecd.org/en/publications/education-at-a-glance-2024_c00cad36-en.html [Accessed February 18, 2025].

Pilz, M. (Ed.). (2009). Modularisierungsansätze in der Berufsbildung: Deutschland, Österreich, Schweiz sowie Großbritannien im Vergleich. W. Bertelsmann Verlag.

Rahmani, H., & Groot, W. (2023). Risk factors of being a youth not in education, employment or training (NEET): A scoping Review. *International Journal of Educational Research*, *120*, 102198.

Schultheis, K., Sell, S., & Becher, L. (2021). *Berufliche Bildung im internationalen Vergleich*. https://www.bpb.de/themen/arbeit/arbeitsmarktpolitik/326635/berufliche-bildung-im-internationalen-vergleich/ [Accessed February 18, 2025].

Seifried, J., Beck, K., Ertelt, B., & Frey, A. (2019). Beruf, Beruflichkeit, Employability – zur Einführung. In J. Seifried, K. Beck, B.-J. Ertelt, & A. Frey (Eds.), *Beruf, Beruflichkeit, Employability* (pp. 9–16). wbv.

Trappmann, M., Ramos Lobato, P., Unger, S., & Lietzmann, T. (2019). *Leistungsberechtigte mit gesundheitlichen Einschränkungen: Nicht jeder ist erwerbsfähig*. IAB-Forum. https://www.iab-forum.de/leistungsberechtigte-mit-gesundheitlichen-einschraenkungen-nicht-jeder-isterwerbsfaehig/ [Accessed January 31, 2024].

UNSDG (2023). *Leave no one behind*. https://unsdg.un.org/2030-agenda/universal-values/leave-no-one-behind [Accessed February 8, 2024].

Zabeck, J. (2013). Geschichte der Berufserziehung und ihrer Theorie. (2. Ed). EUSL.

Biographical Notes

Sebastian Ixmeier, MA. is Research Associate at the Department of Vocational Pedagogy and Vocational Training Research (University of Duisburg Essen).

Dr. Dieter Muenk is professor and chair holder of the Department of Vocational Pedagogy and Vocational Training Research (University of Duisburg Essen).

Re-Engaging Students: Secondary Vocational Education as a Strategy Against School Dropout in Argentina

Jacinto, Claudia

claudiajacinto01@gmail.com, Centro de Investigaciones Sociales, Consejo Nacional de Investigaciones Científicas y Técnicas, Argentina.

Roberti, Eugenia

mariaeugeniaroberti@gmail.com, Consejo Nacional de Investigaciones Científicas y Técnicas, Argentina

Montes, Nancy

nmontes@flacso.org.ar, Facultad Latinoamericana de Ciencias Sociales, Argentina.

Abstract

Context: Recognizing the limitations of traditional secondary education in addressing the early school drop-out, this paper examines the potential impact of Secondary Vocational Education (SVE) in Argentina, a new educational model designed to reintegrate at-risk youth. The research explores how specific components of the SVE model, such as personalized support and flexible learning options, influence student motivation and engagement, focusing on the model's relevance and integrality.

Approach: This research employed a mixed-methods approach. Quantitative analysis utilized data from the National Survey MICS 2019-2020 and the Annual School Survey to analyze the relationship between socioeconomic status, gender, and school dropout rates. Qualitative data were collected through 89 interviews (students and institutional actors) and group interviews conducted in four Argentine provinces.

Findings: the results confirm the contribution of both external and internal factors to school dropout, with students reporting negative experiences related to both. However, the SVE model demonstrates a positive impact on student motivation and engagement. Students positively valued the learning environment, highlighting a supportive climate, close teacher-student relationships, and a sense of belonging. Academic flexibility, student-centered pedagogical practices, and the focus on "learning by doing" were also highly appreciated. The personalized guidance provided by trajectory coordinators and the individualized learning paths tailored to student needs were identified as key components of the SVE model's success.

Conclusions: the SVE's create new institutional conditions for students learning and renewed motivation to continue studying. In this sense, the study's findings align with those reported in the literature as achievements of student-centered vocational training programs in upper secondary education

Keywords

early school leaving, vocational training, learner-centered pedagogies, educational support, student motivation

1   Purpose and Literature Review

Numerous research studies have identified interconnected factors contributing to early school leaving. These include individual characteristics like gender, with students from disadvantaged backgrounds being more likely to drop out. Social context, encompassing family, peers, and community networks, are crucial, as are parental education, attitudes towards education, and support. Furthermore, institutional factors, such as rigid school structures, negative class climate, and traditional pedagogical approaches, also contribute negatively (Bonal et al., 2003; Marhuenda Fluixa & García-Rubio, 2017; Marhuenda, 2023). This interplay of external and internal factors affects discontinuous school trajectories, a long-term process of disengagement with poor academic outcomes and lack of motivation that predict dropout (Aarkrog et al., 2018).

To face the early school leaving, many studies have shown that Vocational Education and Training (VET) tends to be more inclusive for students coming from disadvantaged backgrounds than other educational pathways and crucial for preventing dropout (CEDEFOP, 2015; 2016; Salvà et al., 2019). Beyond reducing internal dropout, VET attracts and reintegrates young people, especially those who left general education. Its practical, career-focused approach and sense of community offer a valuable alternative.

European research indicates a positive correlation between VET participation and upper secondary completion rates (Lavrijsen & Nicaise, 2015). In particular, some studies conclude that the adoption of innovative learning approaches based on constructivist theory and/or active pedagogies in secondary VET increase students´motivation and aim to prevent dropout. The learner-centred pedagogies (LCP) prioritize student needs, capacities and interests, individualizing education, promoting student autonomy and developing skills through methods like small group work, problem-based learning, and project-based teaching. A Cedefop study in 15 European countries (CEDEFOP, 2015) revealed the impact of learner-centered pedagogies, increasing student motivation, engagement, and satisfaction, leading to persistence and progress. However, careful consideration must be given to the specific cultural and contextual factors that may influence the implementation and impact of these approaches (Schweisfurth, 2011). Specifically addressed to vulnerable young people, second Chance Schools retain or re-enroll students through vocational training and practical programs, emphasizing institutional organization and creating a meaningful learning experience (Marhuenda, 2023). Beyond these strategies, many countries have programs for at-risk youth, following the OECD suggesting that interventions addressing specific needs, like changes in program duration, preparatory programs, or personalized support, improve upper secondary completion rates (Schmid, 2020).

These debates about how to face early school leaving have also taken place in Argentina, as in recent decades compulsory schooling has been extended to the end of upper secondary education. However, difficulties persist in retaining and graduating at that level. Among 15 to 17-year-olds, 67% attend, 25% attend late, and 8% do not attend, of which 6 out of 10 are boys. Only 42% manage to graduate on time. The graduation rate is higher among women than among men (for the year 2023 it was 82% and 72%, respectively) and the highest percentage of graduates are women (54,7%) (UNICEF, 2022). Educational policies and programs have been developed to address institutional aspects that constitute barriers to inclusion and school permanence (new regulatory frameworks, strategies to support school trajectories, and designing new institutional proposals with other organizational and pedagogical formats) (Montes et al., 2019). However, although much empirical research evidence in Argentina (Jacinto, 1998, 2007, 2019)

and other Latin American countries demonstrates that targeted training and situated learning contribute to creating motivating learning experiences, VET policies aimed at retaining and regaining students have been more limited. Only in recent years has a new institutional model been designed at a national level where VET is the articulating axis of pedagogical proposals for school re-entry.

Recognizing the ongoing challenges of secondary school dropout, the paper purpose is to explore how the unique components of the Secondary Vocational Education (SVE), such as personalized support and flexible learning, contribute to creating a more motivating and engaging learning experience for at-risk youth. While the goal is to reduce secondary dropout, this paper focuses on the mechanisms through which the SVE might contribute to reducing dropout (i.e., by increasing motivation and engagement), specifically its *intermediate outcomes on* student motivation and engagement.

The SVE is a new educational offering (created in 2022) grants professional certification and an upper secondary degree. It is aimed at young people between 14 and 18 years old who have dropped out of their secondary studies. It offers a flexible and personalized curriculum; curricular integration between vocational training and basic general education such as language and mathematics; personalized trajectory coaching; groups of up to 15 students; and the validation of prior learning. Essentially, SVE is a multidimensional pedagogical approach to learners, deployed to generate motivation to participate and graduate in compulsory education with a professional certification.

2   Methods

The central research questions concern the interrelated factors to discontinuous school trajectories and early school leaving (endogenous factors like school institutional and curricula organization and external like individual and socioeconomic backgrounds, family support) and how do specific components of the SVE model, (such as personalized support and flexible learning options), influence student motivation and engagement. In other words: in which ways is the SVE model relevant and integral, and how did it meet students' interests and needs? The working hypothesis to organize the research are:

Hypothesis 1: Students who have dropped out of secondary school generally report negative experiences stemming from a combination of external (e.g., school environment) and internal (e.g., personal motivation) factors. Specifically, while students in Second Chance Education (SVE) programs also experienced negative perceptions of their previous schooling, we hypothesize that they will report more positive experiences that motivate and engage them within their current SVE program. To investigate this hypothesis, we will examine representative quantitative data from existing surveys of secondary school dropouts, as a background for analyzing qualitative data collected through group interviews with SVE students across four Argentine provinces.

Hypothesis 2: The increased motivation that SVE generates is attributed to key components of the SVE model, concerning relevance and integrality (Jacinto, 1998; Marhuenda, 2023), including:

- Relevance of the learning experience (adequacy to youth needs and expectations):
    - Focus on Student Needs
    - Competence Development
    - Innovative Methods (small group work, problem-based learning, project-based learning)
- Integral approach (holistic consideration of youth learning conditions and student well-being):
    - Personalized guidance/coaching

o Curricular integration between general learning and vocational training.

To examine this hypothesis, we work with qualitative data from group interviews to SVE students and teachers conducted in 4 Argentine provinces. The research methodology included two strategies:

a) Quantitative analysis: Two databases were used: the National Survey MICS 2019-2020 (UNICEF, 2022), which surveyed a representative sample of urban households, and the Annual School Survey. These databases allowed for information to be disaggregated by socioeconomic status, and gender. The MICS Survey data were used to analyze the relation between socioeconomic status, gender, and school dropout rates.

b) Qualitative strategy: Fieldwork was conducted in four provinces, involving 89 interviews (40 institutional and group student´s interviews). The qualitative interviews explored students' perceptions of their previous school experiences, and students and teachers' perceptions of the school climate, teacher relationships, and student engagement in SVE and traditional programs. The interviews also explored how SVE provided personalized guidance and individualized support, focusing on the students' experiences with the trajectory coordinator and the tailoring of learning programs to their needs. These data were analyzed to assess the relevancy and integrality of the SVE model.

This paper presents partial results of a larger research project funded by FONIETP-INET (2020-2023), which aims to contribute knowledge to address educational inequalities.

3 Findings

Inter-related Factors Influencing School Discontinuities in Secondary Level

Argentina faces a significant problem regarding the discontinuity of school trajectories in compulsory education (especially in upper secondary). The pandemic had a strong impact, since in 2021 the figure of students who did not return to classes due to working rose to 17% (SEIE, 2022). The graph shows the average of the values for the secondary level of the main indicators, which show a better performance by women. This is evident in lower rates of grade repetition, school dropout, non-progression to the final day of classes, and higher graduation rates for girls. However, despite positive trends in recent years, overall graduation rates still reveal challenges, with only 42% of students completing their studies on schedule.

Furthermore, attrition – encompassing temporary or permanent dropouts and grade repetition – highlights the difficulties faced by teenagers and young adults in state schools, alongside poor performance in learning assessments. Only 64% of students entering year 1 reach their final year within the expected timeframe, a figure that decreases to 58% in rural areas. Regarding learning outcomes, the latest data from "Aprender" (2022) indicates that 61% of final-year students perform below the basic level in Mathematics, and 28% are in the same situation for Language.

Concerning the factors that contribute to attrition, a 2022 UNICEF survey investigating the reasons for dropping out among adolescents aged 12 to 17 revealed a strong association between school factors and this discontinuity. Disinterest was cited as the primary reason by 25% of adolescents who dropped out. Difficulty in progressing with learning was also a significant factor, reported by 8% of young people. These issues often contribute to increased absences (9%) and grade repetition (7%), which some students directly link to their decision to leave school. External factors also play a substantial role, with socio-economic difficulties and social and family factors, largely related to living conditions, being prominent. Economic hardship was the reason for dropping out for 10% of adolescents. The necessity of working to provide financial support at home compels 9% of young people to leave their studies. Caregiving responsibilities disproportionately affect women, with teenage pregnancy accounting for the

dropout of 5% of adolescent girls (UNICEF, 2022). Similarly, grade repetition is the second most significant reason for adolescent girls discontinuing their education. Conversely, adolescent boys more frequently identify learning difficulties as a reason for not continuing with secondary school (Graph 2).

Graph 1
School trajectories by sex. Secondary education. Argentina, year 2023 (in percentage)
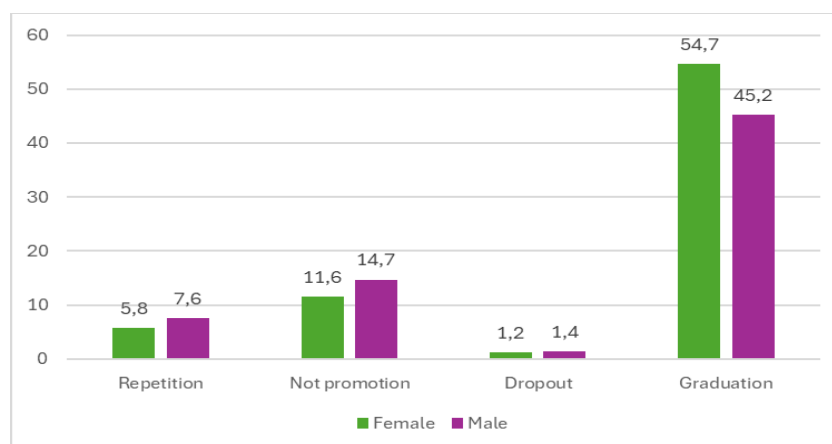
Note. Own elaboration based on data from the 2023 Annual Survey, Ministry of Education of the Nation.

It is important to note that these factors are not isolated but rather interconnected, creating situations of vulnerability that impede students' educational continuity. Data indicates that adolescents and young people with greater needs also experience the impact of school factors more intensely, in addition to facing socio-economic challenges.

Graph 2
Adolescents out of school according to reasons for interrupting schooling (grouped) by sex and socio-economic condition. Argentina, 2019-2020 (in percentage)
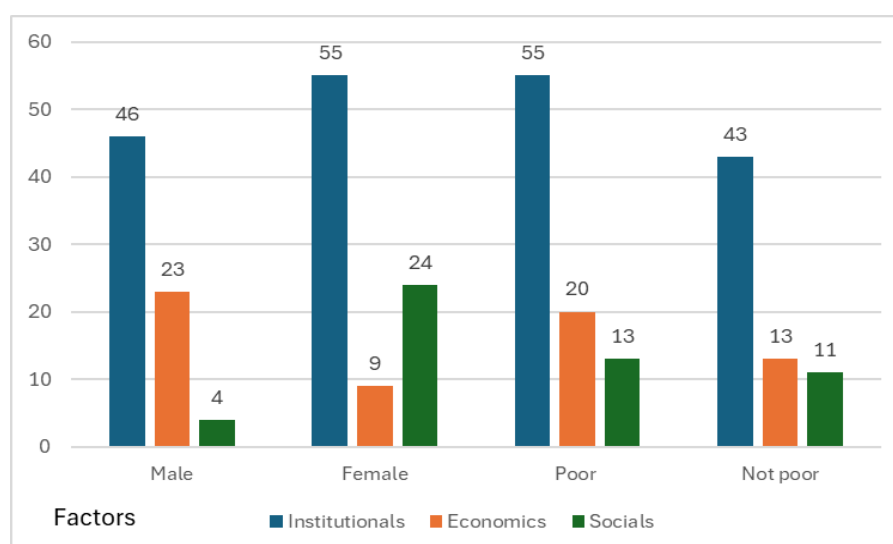
Note. Own elaboration based on UNICEF (2022).

Consistently with the quantitative data, the students interviewed in the qualitative study of SVE students (most are male (69%) and between the ages of 16 and 18 (77%) cite economic, social, and family factors, as well as factors within the school and the broader context. They

said they had dropped out or experienced discontinuous schooling for various, strongly interrelated reasons. Among the external factors, economic, social, and family aspects include socio economic problems that force them to work or be responsible for childcare at home; frequent family restructurings (such as one parent leaving the home); domestic violence, addictions, and health problems; and serious housing problems.

The interviews provide a deeper understanding about the internal school-related factors. They include a hostile school environment and excessive academic demands: a lack of dialogue with teachers and feelings of harassment and lack of integration with the institution and even peer groups. Some boys and girls report having been harassed in their previous schools. Males report behavioral issues that led to their feeling harassed, while girls more often cite gender-related issues. One young man reported:

> I did first and second grade, but second grade I did until mid-June, I think, or July, because I suffered a lot of 'bullying from principals and teachers...'" (ID 46).

Several students express having felt unintegrated in their previous schools.

> I did from 1st to 5th grade in the same school. Then, halfway through the year, I left 5th grade because I had problems with my classmates. They bothered me every day. Besides, I was going through a bad time and wasn't able to look for more problems. So, I just left school (ID 57).

Excessive academic demands are also a factor, particularly for students who are working. Difficulties in understanding and keeping up with schoolwork tend to accumulate throughout their time at school. One student described the workload and stress experienced at their previous technical college, which made it impossible to balance their studies with daily work on the family farm. Attending a double-shift technical college in the past placed very high demands on them, as they couldn't keep up with their studies or maintain their emotional well-being.

> And I studied every day, practical work, assessments, every week, and it was exhausting. I would fall asleep at one in the morning after finishing the work, then get up... It was a suffering, terrible dark circles under my eyes, you couldn't rest, you didn't eat properly...(ID 50).

These factors contribute to a growing detachment from school, and absences mount up. The phrase "I didn't want to leave...but I couldn't, I felt bad and I couldn't continue" appeared in several interviews.

Contextual factors, such as the distance to schools and family migrations for seasonal work, also play a role. The negative impact of disconnection during the pandemic is notable. The isolation (which lasted a year and a half in Argentina) and remote learning exacerbated the difficulties faced by many students, particularly those with less access to technology at home, leading them to drop out.

> I did all of high school there, I went to fifth form and left because I had a lot of pandemic subjects, I didn't understand anything during the pandemic, I didn't have a computer, I didn't have good connectivity... I didn't want to leave, but I didn't understand anything at school, so I left (ID 45).

Thus, these interconnected factors created negative school experiences in traditional institutions, related to the schools' institutional and pedagogical organisation and the relationships

formed there. Conceptually, disinterest and a lack of motivation appear to be the result of several concurrent factors, where weak ties, low grades, and frustrations stemming from relationships with the school lead to discontinuous educational paths. As we will show deeply in the next point, SVE appears a more suitable alternative that aligns with their needs and expectations.

The SVE Model: Relevance and Integrality from the Perspective of Students and Teaching Staff

The organizational and pedagogical model of the SVE seeks to respond to the problems of absenteeism and discontinuous student trajectories. It promotes a contextualized and student-centered pedagogical approach, which addresses their motivations, interests, and needs, taking Vocational Training as the central point articulated with general education. It seeks to break with traditional forms of secondary schooling.

Student Perceptions of SVE

Student evaluations of SVE focus on four main aspects, clearly related to the Learning centered pedagogies (LCP) theory:

a. School climate and teacher-student relationship: Students positively value the SVE learning environment, highlighting an atmosphere of trust, respect, and collaboration. The relationship with teachers is close, personalized, and mutually supportive, creating a positive and meaningful learning environment. This aligns with the "support" category, a key aspect emphasized by previous research and theoretical approaches to LCP (CEDEFOP, 2016). Students contrast this positive climate and these attitudes with their frustrating prior experiences. The smaller class sizes and close relationships with teachers foster strong bonds and a greater sense of belonging. Student accounts confirm this positive climate, which generates renewed interest in learning.

> And, within the workshop, there's always sharing of opinions, helping each other, discussing how to do it, what's the best way, faster, easier (ID 53).

b. Academic flexibility and student-centered pedagogical practices: Students appreciate the course modality with fewer subjects, which allows them to better organize their time and balance studies with other responsibilities. They value student-centered pedagogical practices, such as clear explanations of content, attention to individual needs, and the creation of a more flexible and personalized learning environment. Relating it with the LCP, it shows that the students' perceptions seem to be taken into account, they feel they have more control over their learning process, and a sentiment of autonomy in the process of learning. Flexibility in learning times and personalized attention to learning trajectories are valued.

> In this school, I really like the teachers because they are very nice […]. They treat you well. If you don't understand something, you can tell them "I didn't understand" and they help you. You can talk with the teachers…, do homework… It's very comfortable, calmer, a different environment (ID 57).

c. Learning by doing and new skills: school workshops, where students develop and practice skills related to a professional profile, are what they most enjoy. They particularly appreciate learning by doing, and learning math or other subjects takes on new meaning for them. Furthermore, the possibility to simultaneously complete high school and learn a trade is valued not only for future jobs but also to contribute to their families and communities.

> On the other hand, here at the SVE I liked it more because although it is based on theory, there is much more practice and that is what I like (ID 32).

In summary, SVE are positively valued by students due to their close and personalized learning environment, academic flexibility, student-centered pedagogical practices, development of practical skills for the world of work, and connection with the needs of family and work life. These aspects align with key categories of the learner centered pedagogies such as the Motivating Learning Environment theory, creating a learning environment that is supportive, engaging, and relevant to students' lives. As a result, students express satisfaction and new motivations to continue studying. SVE become a significant experience for them.

The SVE Model in Action

In order to understand the institutional responses to school drop-out, the following section will analyze the criteria of relevance and integrality that the SVE model promotes, based on a set of strategies for intervention and resolution.

a. Relevance: the relational dimension and personalization strategies

A distinctive characteristic of the SVE is the creation of an environment of socio-affective personal relationships, where the personalization of the bond promotes relationships of proximity and closeness.

There is a positive assessment of the proposal in the retention of students, based on a relational dimension that allows establishing "another relationship" both among peers and with teachers: we listen to see if they want to tell us something [...] beyond teaching content (Teacher, ID 13). "Listening," "containment," "trust," and "good treatment" are associated with close support and personal follow-up. This is possible thanks to the figure of the trajectory coordinator and the organizational format, which includes small groups and the constant presence of teachers. Proximity and trust enable personal involvement and familiarity with the particular situations of each student: they tell us their intimate problems (Trajectory Coordinator, ID 31).

The SVE model promotes dual assistance: it solves teacher absenteeism and improves student attendance levels. The close treatment and concern of teachers respond to the need of a close follow up because of students previous trajectories and the low presence of families. In addition, they contribute to improving the low self-esteem of students and changes in their previous behaviors.

> Nowadays I don't have any kid who has [addiction problems]... even the one who said "I put the bullets in the street"... the most arrogant (...) Nowadays, that kid changed 180 degrees. And he goes out to work, to shovel, to do odd jobs, that is, to do masonry, whatever. .. And these things he did not learn at home, or in the family. Sometimes he says to me "teacher, if I go to work for a couple of days, will you cover my absence?", I say "well, I'll cover one absence, but you complete the folder for me." So, we negotiate (Trajectory Coordinator, ID 47).

The flexibility of the institutional organization addresses the employment situation of young people and the problems that cause a more discontinuous relationship with the school. Although teachers value the "unstructured" nature of the proposal, the task of motivating and retaining students is not without conflict.

Even though class attendance is not compulsory, all institutional actors agree on the importance of presenceIt is pointed out that the basic general education (GE) area allows for some flexibility, but work in the workshop (Vocational Training) necessarily implies situated learning.

The SVE proposal also involves an alternative model from a pedagogical dimension. Knowing what is happening to students, being attentive to their starting point and progress, and carrying out personalized monitoring of their performance allows for another way of linking with what is taught.

The centrality acquired by the development of personalized learning trajectories is highlighted. The construction of diverse forms of learning is promoted, which allow overcoming standardized practices and knowledge. This supposes the design of pedagogical-didactic strategies and a specific follow-up of the teaching team to attend to singular situations, with the purpose of inscribing them in more flexible and personalized teaching proposals (Garino *et al.*, 2024).

The teacher's commitment to personalization and accompanied learning constitutes a requirement for the tasks of teaching and learning to be possible. Attention is focused on those who present learning difficulties or absenteeism, and opportunities for acceleration are provided to accredit knowledge to those who are more advanced, thus recognizing individual learning times.

> The center is the student, that we adapt to the course, to how they came today and so we are building the subject, the class development, everything, from them [...] this also of having patience with them, giving them time to learn.. (Trajectory Coordinator, ID 47).

Indeed, as an alternative pedagogical model, the SVE questions the assumption of a monochronic learning and suspends the notion of gradualness. In order for another form of teaching and learning to be possible, the SVE also seeks to break with the decontextualization of knowledge and low learning achievements through situated learning, oriented to generate motivating experiences for students.

> The challenge in my case is always the whole articulation, being all the time thinking how I am going to articulate or what to bring them that will awaken their interest, which is the idea, and that it will be useful to them [...] syntactic analysis, or verbs, a formal and strict thing that does not work for them (Language teacher, ID 13).

b. Integrality: the professional profile as the articulating axis

One of the distinctive characteristics of the SVE is the centrality of VT, which is presented as the articulator of the proposal. Placing professional training at the center of the SVE proposal gives meaning to learning in other areas, while strengthening the relationship between theory and practice, generating new motivations in students, towards dual certification.

A challenge presented in the implementation of the SVE proposal is the curricular integration both within the GF and between it and the VT. The extracurricular spaces, such as exhibitions at science fairs, and the PBL (Project-Based Learning) teaching proposal represent for institutional teams the possibility of advancing in that direction.

In order to guarantee pedagogical continuity, the SVE model promotes different programs and actions aimed at supporting students in their schooling and accompanying teaching tasks, calling on various actors for their promotion. These interactoral networks are conceived as those interrelationships that are established between educational management, schools and other governmental, social and community actors (Giovine *et al.*, 2023).

Numerous situations were observed in the school daily life, which showed a set of articulations oriented towards the integral attention of students: from accompanying and intervening in situations of family violence, offering material resources for extracurricular activities, going to look for them at their homes for school outings, guiding them in the elaboration of a life

project, until providing a space for a snack or breakfast. These interventions show that closeness and care are distinctive features of the proposal

Thus, the articulations with extra-school actors are presented as a support to address diverse problems and needs, linked to the profile of SVE students. Here, informative programs and/or talks with professionals on topics related to addictions, violence, grooming, the environment, sex education, etc. acquire centrality, although recreational or playful "school outings" that are highly valued by students are also carried out.

Finally, some articulations emerge with the purpose of generating inputs and promoting the development of skills linked to the VT taught. For the SVE team, these articulations are an opportunity to put into practice and apply what was seen in the workshop space. In this regard, the formation of work cooperatives that seek to self-supply and develop entrepreneurial skills has also been detected.

4   Conclusions

The study shows that SVE's organizational and pedagogical model aims to address the many internal and external factors contributing to early school dropout. In the face of significant attrition – characterized by absenteeism, grade repetition, and academic or economic difficulties that lead to demotivation – the SVE's institutional organization and pedagogical approach create new institutional conditions for students' learning. As a result, they express satisfaction and renewed motivation to continue studying, thanks to a model that addresses their interests and needs. In this sense, the study's findings align with those reported in the literature as achievements of student-centered vocational training programmes in upper secondary education. They contribute to motivating learning environments. Since the students served share the characteristics of the most disadvantaged who have gone through long processes of disengagement with school, a particular component is the strong emphasis placed on personalized support. The attention, care, and personalization of both learning and socio-affective bonds are relevant features of the model. In addition, the intra- and extra-school networks that guarantee a comprehensive approach aimed at supporting students in their schooling are highlighted.

Although teachers and students positively assess the SVE, the model faces inherent limitations in tackling attrition and dropouts. The task of motivating and retaining students presents ongoing challenges. Accommodating those who attend sporadically or arrive late and fatigued due to work or home responsibilities requires constant effort. Furthermore, certain life circumstances, such as those of student mothers, have not been fully addressed due to the requirement for in-person attendance. Despite its positive impact on students' educational paths, the SVE remains experimental, which introduces an element of precariousness to the model. Finally, two key questions warrant further consideration: What level of general and professional skills will the SVE ultimately foster, and does this inclusive approach risk creating a separate educational pathway with lower prestige?

References

Aarkrog, V., Wahlgren, B., Larsen, C. H., Mariager-Anderson, K., & Gottlieb, S. (2018). Decision-Making Processes Among Potential Dropouts in Vocational Education and Training and Adult Learning. *International Journal for Research in Vocational Education and Training, 5*(2), 112–129. https://doi.org/10.13152/IJR-VET.5.2.2

Bonal, X. (Dir.), Alegre, M. A., González, I., Herrera, D., Robira, M., & Saurí, E. (2003). *Apropiacions escolars. Usos i sentits de l'educació obligatòria en l'adolescència*. Octaedro.

CEDEFOP. (2015). Vocational pedagogies and benefits for learners: Practices and challenges in Europe (Cedefop research paper No. 47). Publications Office.

CEDEFOP. (2016). Leaving education early: Putting vocational education and training centre stage. Volume I: Investigating causes and extent (Cedefop research paper No. 57). Publications Office.

CEDEFOP. (2023). *The future of vocational education and training in Europe: Synthesis report* (Cedefop Reference Series, No. 125). Publications Office.

Garino, D., Giovine, R., & Roberti, E. (2024). ¿Qué significa sostener? Un análisis de las políticas de inclusión educativa en contextos en pandemia y postpandemia. *Entramados: educación y sociedad, 11*(16), 157-179.

Jacinto, C. (1998). ¿Qué es calidad en la formación para el trabajo de jóvenes de sectores de pobreza? Un análisis desde las estrategias de intervención. In C. Jacinto & M.A. Gallart (Eds.), *Por una segunda oportunidad* (pp. 311-341). CINTERFOR.

Jacinto, C., & Terigi, F. (2007). ¿Qué hacer ante las desigualdades en la educación secundaria? Aportes de la experiencia latinoamericana. Santillana.

Jacinto, C. (2019). Working with historical, cultural and economic logics: The case of vocational training in Argentina. In L. Unwin & D. Guille (Eds.), *International Handbook of Vocational Education and Training* (pp.513-530). Wiley.

Giovine, R., Garino, D., & Correa, N. Y. (2023). Políticas y tramas interactorales en pandemia: acompañamiento y revinculación de estudiantes secundarios en las provincias de Neuquén y Buenos Aires. *Espacios en blanco, 33*(1), 75-90.

Lavrijsen, J. & Nicaise, I. (2015). Social inequalities in early school leaving: The role of educational institutions and the socioeconomic context. *European Education, 47*(4), 295-310.

Marhuenda Fluixá, F., & García-Rubio, J. (2017). La educación de la juventud, ¿es posible superar los límites de la educación obligatoria?. *Profesorado, Revista De Currículum Y Formación Del Profesorado*, *21*(4), 1–15. https://doi.org/10.30827/profesorado.v21i4.10042

Marhuenda, F. (2023). Vocational and educational training offered in second chance schools in Spain: Possibilities and limits from an organizational analysis. In V. Tutlys, L. Vaitkute, & C. Naegele (Eds.), *Vocational education and training transformations for digital, sustainable and socially fair future: Proceedings of the 5th Crossing Boundaries Conference in Vocational Education and Training* (pp. 291–299). Kaunas, 25-26 May 2023.

Montes, N., Pinkasz, D., & Ziegler, S. (2019). Los cambios en las políticas para la educación secundaria en la Argentina de los últimos años en el contexto regional. *Revista Estado y Políticas Públicas, 13*, 103-127.

Salvà, F., Pinya, C., Álvarez, N., & Calvo, A. (2019). Dropout prevention in secondary VET from different learning spaces: A social discussion experience. *International Journal for Research in Vocational Education and Training*, *6*(2), 153-173.

Schmid, E. (2020). Upper secondary education for youth at risk: A comparative analysis of education and training programmes in Austria, Norway, Sweden and Switzerland. *International Journal for Research in Vocational Education and Training, 7*(1), 21–44. https://doi.org/10.13152/IJRVET.7.1.2

Schweisfurth, M. (2011). Learner-centred education in developing country contexts: From solution to problem? *International Journal of Educational Development, 31*(5), 425-432.

SEIE. (2022). Survey "The voice of students about their learning". Results report. Ministry of Education.

UNICEF. (2022). National Survey of Children and Adolescents (MICS) 2019-2020. Thematic report: Adolescence and Education.

Biographical Notes

Claudia Jacinto holds a Ph.D. in Latin American Studies-Sociology from the University of Paris III. She is a Senior Researcher at CONICET in CIS-IDES, coordinator of Programme of Studies on Youth, Education, and Work (PREJET); Member of the International Academy of Education.

Eugenia Roberti is PhD in Social Sciences from the National University of La Plata (Argentina). Adjunct Researcher at the CONICET. Member of INCASI2 (International Network for Comparative Analysis of Social Inequalities), European Union's Horizon Europe research and innovation programme under the Marie Sklodowska-Curie grant agreement No 101130456.

Nancy Montes, Sociologist from the University of Buenos Aires (UBA) and Specialist in techniques for measuring social and demographic indicators (UBA). She is a professor and researcher at Latin American Faculty of Social Sciences (FLACSO) Argentina.

Fostering Practically Based Learning and Transitions from Education to Work Through 'Third Spaces' in Higher Education

Kersh, Natasha
n.kersh@ucl.ac.uk, IOE, UCL's Faculty of Education and Society

Laczik, Andrea
alaczik@edge.co.uk, Edge Foundation

Emms, Katherine
kemms@edge.co.uk, Edge Foundation,

Abstract

Context: This paper is based on the project *Building Bridges Between Higher Education (HE) and Employment: Learning from Practically-Based HE*, conducted collaboratively by the authors from 2022 to 2024 in England. The study focuses on the intersections between work-related and academic learning, examining the role of stakeholders and new practices within practically-based, industry-engaged higher education. It explores how higher education can better prepare students for the workplace by strengthening connections and crossing boundaries between academic learning and practical experience. In doing so, this paper aims to uncover how practically-based education models are positioned within higher education and to understand how institutions and stakeholders respond to evolving social and economic demands. The research questions are addressed through an in-depth exploratory case study of two universities based in England. Twenty semi-structured interviews were conducted with university staff and students. Approach: The study used a qualitative methodology, focusing on two higher education institutions in England. Empirical data were gathered through twenty semi-structured interviews with a range of stakeholders, including university staff and students. Findings: Overall, our findings suggest that all key stakeholders, such as university staff, industry representatives, and students, are continuously contributing to the co-creation of multiple third spaces, which represent new forms of spaces that bridge academic and practical (work-related) dimensions. This requires an enabling learning environment which is considered as the core to develop work-ready graduates. Conclusions: The study indicates that the cross-over between theoretical learning, practical experiences and employer engagement involves continuous boundary crossing across in-between spaces (e.g. intersections between higher education and work) in order to foster the effective development of skills and expertise of students necessary for the contemporary world of work.

Keywords

higher education, employability, work-related learning, employability skills, crossing boundaries

1 Introduction

This research is particularly relevant as many UK universities are now introducing more practically-oriented programmes, often developed in collaboration with industry, to enhance students' work readiness and employablity. This trend is underpinned by contemporary policy and research discussions that emphasize the importance of preparing higher education graduates for the labour market (Savickas, 2011; Kornelakis & Petrakaki, 2020; Bridgstock & Tippett, 2019). The traditional model of matching individuals to specific jobs is gradually disappearing due to societal shifts, including digitalisation, machine learning, and AI. As a result, individuals are less able to rely on stable employment and must instead focus on continually developing their own employability. As Cook (2022) emphasises, employability goes beyond simply securing a job and involves continuous lifelong learning, with employment being just one possible outcome. Other scholars also highlight the complex nature of becoming employable and the development of employability skills (e.g., Green, 2016; Succi and Canovi, 2020; Siivonen et al., 2023). For instance, considering employability as a dynamic process actively shaped by the various interactional spaces that graduates navigate as they enter the labour market (Siivonen et al., 2023, p. 15). Similarly, Baldauf and Luchinskaya (2019, p. 44), argue that career decisions are not static or final but rather evolve as individuals' circumstances and the broader economic landscape change. This perspective highlights that employability is not a final achievement, but an ongoing process influenced by personal and contextual factors that graduates engage with throughout their careers and personal development journeys. In this interpretation, employability introduces a more dynamic, agency-centered approach, emphasising the idea that the value of higher education lies in graduates' ability to effectively navigate the labour market, apply their knowledge and skills, and adapt their experiences. This ability is a crucial component of their academic studies, particularly in practically-based contexts. From this perspective, the role of higher education shifts from being merely a steppingstone to employment to becoming closely associated with equipping students to build, adapt, and develop their careers over time.

This highlights the need for a long-term, adaptive view of transitions to work and career development, in which higher education plays a continuous role in equipping graduates to make informed decisions throughout their professional lives. Thus, developing employability through practically-based higher education is an ongoing process that happens in various learning spaces, bringing together both academic and practical learning through collaboration with relevant stakeholders. Within the context of this research, the terms 'practice' and 'practically-based' learning in higher education,' as introduced elsewhere (Kersh and Laczik, 2022), refer to the affordances and spaces that contribute to integrating 'academic' and 'practical' learning, contributing to enhancing graduate work-related skills development and employability

The study examines two higher education institutions[1], exploring how each has developed innovative models to align academic provision more closely with industry needs.

The paper addresses the following research questions:

1. How do universities develop and sustain unique learning environments that facilitate boundary-crossing between higher education and industry, as well as between learning and working spaces?
2. In what ways do higher education institutions develop innovative models and strategies to shift their academic offerings toward more work-related provision, enabling students to engage with industries and learn alongside industry professionals?

---

[1] These universities will be further referred to as U1 and U2

2   Theoretical Framework

In order to explore the complexities of moving higher education provision towards more work-related provision, enabling continuous boundary crossing between education and work, we are drawing on the spatial theories (Soja, 2009; Malloch et al., 2022), specifically employing the concept of the third space (Bhabha, 1994; Whitchurch, 2008). The learning space, as a concept, has been reconceptualised and is no longer perceived as a singular place where teaching and learning take place. Instead, it is viewed as a multidimensional space that overlaps with other contexts, such as the workplace, community, and home (Evans et al, 2017). This leads to individuals continuously crossing boundaries between these spaces (Akkerman & Bakker, 2011; Akkerman, 2011). Third space was conceptualised by Bhabha (1994), as a space for the interaction, negotiation, and transformation of different cultures and identities. This theoretical perspective challenges the notion of fixed spaces, considering them instead as constantly evolving (Soja, 2009).

In our study the third spaces approach serves as an analytical perspective to illuminate instances and patterns of crossing boundaries and co-creating new forms of learning spaces 'in between' higher education and industry, where students integrate academic knowledge with practical skills. The notion of third space, while highlighting how individuals navigate a range of spaces, extends beyond boundary crossing and contributes to the creation of new forms of spaces. Operating in newly created spaces requires blending theory and practice in creative ways and is most effective when supported by strategies that promote and encourage a culture of stakeholder engagement, partnership, and collaboration (Whitchurch, 2008). These developments emphasise the significance of new interactions and collaborations within the 'in-between' or 'third spaces' of academic and practice-based learning, where students integrate academic knowledge with practical skills. In this study, the concept of third spaces helps to enhance our understanding of how individuals, networks, and institutions interact and co-create third spaces for integrating theoretical and practical knowledge in the context of higher education to enhance students' learning and experiences.

3   Methodology

The study used a qualitative methodology, focusing on two higher education institutions in England selected to explore both shared and distinct approaches to enhancing graduate employability through work-integrated provision. Purposeful sampling identified universities that recently updated their institutional strategies to move their programmes towards more practically based provision to facilitate student employability. Data collection followed a two-step approach. First, desktop and contextual research provided insights into each university and its local area, including regional skills and employment trends, to better understand the institutional and community context. Second, empirical data were gathered through semi-structured interviews to examine each institution's practical learning offerings. Interviews were conducted with students and university staff[2] including Pro-Vice-Chancellors and other members of the senior leadership teams, Heads of Schools, lecturers, and staff members with either university-level or school-level professional roles, such as Employment Engagement Officers. In total, 20 interviews were conducted across the two universities between Spring 2023 and Summer 2024. In this paper, we primarily focus on the views and perspectives of university staff.

---

[2]   Further referred to as 'SL' for HE senior leaders (e.g., university leadership team, such as a vice dean) and 'ML' for HE middle leaders (e.g., head of department).

Thematic content analysis was used to identify themes and sub-themes from the interview data using a combination of both, inductive and deductive approaches. The research was conducted in accordance with British Educational Research Association's ethical guidelines (British Educational Research Association, 2018) and received institutional ethical approval.

4 Findings

The findings indicate that integrating theoretical learning, practical experience, and employer engagement depends on co-creation and continuous movement across third spaces-shared spaces at the intersection of higher education and work. Key stakeholders, such as university staff, industry partners, and students, can co-create these spaces to enhance the integration of theory and practice. These third spaces allow students to experience the significance of crossing boundaries between academic and work-based learning, fostering unique environments for collaborative learning and co-creation. The study suggests that this distinctive learning environment is both developed and sustained through boundary-crossing, typically driven by three interconnected elements: (1) sustained stakeholder engagement and collaboration, (2) curriculum development, and (3) the integration of theory and practice.

4.1 Sustained Stakeholder Engagement and Collaboration

Stakeholder engagement and partnerships have emerged as crucial factors in promoting collaboration between academia and industry and creating spaces for integrating theory and practice. Our interviews reveal that the creation of a 'third space', as a platform for integrating academic knowledge with practical industry insights, is a continuous development, co-created by various key stakeholders, including university staff, industry representatives, and students. The form these third spaces take can vary, depending on the nature of the engagement, communication, and new roles and responsibilities of the stakeholders involved.

For university staff, one influential development has been the creation of new roles within the university and the development of existing roles to facilitate practically-based learning and foster students' opportunities to develop work-related skills (Emms et al., 2024). The creation of new roles included developing entirely new positions at the university and departmental levels, dedicated to improving graduate employability and strengthening links with industry, thus bridging the gap between industry and academia. Expanding existing staff roles to include responsibilities related to the work-readiness of graduates and ensuring work-related provision has also been cited as an emerging trend. Through these developments, the role of academic staff goes beyond what may be considered the traditional academic role to include new responsibilities that bridge the gap between theoretical and practical learning and facilitate connections with employers, thus contributing to the co-construction of third spaces of learning. One example relates to curriculum development, i.e., ensuring the curriculum is contextualised to meet the demands of the workplace (e.g., through modifying assessments and initiating employer-led projects) (Emms et al., 2024).

Employer engagement has been cited as another important element in crossing the boundaries between academia and industry. Examples include internships, industry involvement in curriculum design, providing placements, work experience, project work for students, and participation in career fairs and employer-led presentations. Such opportunities for employer engagement create spaces where students can learn about industry and '*get a greater [sense(?)] of how an employer functions and the type of work and opportunities that are there for them*' (ML, U1).

However, developing sustainable relationships with industry has emerged as both an opportunity and a challenge, acknowledged by both universities. Communication and collabora-

tion with industry partners have been identified as essential in this process. Strengthening employer engagement and fostering sustainable relationships has been described as a multidimensional process involving establishing new contacts with employers while also drawing on previously developed collaborations. As described by one member of staff, the '*first port of call was to make the contacts that I needed to make within the university to ensure I had the right connections*' (ML, U1). In doing so, he noted that he drew on his own previous collaborations and contacts, developed while working in a non-academic sector during his prior employment.

This process has been described as somewhat patchy and often lacking sustainability and consistency in the approach to employer engagement. Members of staff across different departments may contact the same employers somewhat randomly, which has been described as: '*The danger is that we all have the potential to knock on the same employer's door at the same time on a particular day*' (ML, U1). The lack of central coordination in terms of industry engagement has been highlighted as one of the challenges to address:

> So we don't have, at the moment, oversight of everybody's activity. The university is a big place. Quite often, you may get approached by people you've spoken to before. Or you start the conversation with, 'Have you had any contact previously with the university?' But there's no central database for employers that everybody involved in employer engagement is using. There are plans to correct that, but we're in a situation where that's not the case at the moment (ML, U1).

This lack of coordination may result in '*losing many opportunities to build relationships*' (ML, U2) with industries. When staff members rely on their personal contacts with industries, these collaborations have been recognized as '*not always sustainable,*' often disappearing when staff members move to other roles:

> We had lots of transactional engagements as a university where individual academics had built a relationship with a company around a specific project. But once that project was over, the academic moved on to the next project and partnership (Senior Leader (SL), U1).

To address this, strategies have focused on finding ways to sustain industry partnerships with academia, particularly through creating sustainable 'third spaces' that bring together academia and industry.

4.2 Curriculum Development and the Integration of Theory and Practice

Ensuring that the university curriculum is fit for purpose in developing students' employability and industry awareness has been an important element of curriculum development and (re) design across both universities. The process of curriculum development aims to emphasise the significance of industry collaboration and facilitate both students and university staff in crossing boundaries between working and learning, theory and practice, and industry and academia. In this context, the key question, as put forward by a senior leader at University 1, is: '*What do my students need to learn from this subject and apply in the world?*' (SL, U1). It is important to highlight, that the development of a practically-based curriculum does not undermine the significance of disciplinary (theoretical) knowledge. Subject-specific knowledge remains a crucial foundation in the context of higher education, as '*there is an element of theory behind everything*' (SL, U1). The curriculum is '*being built around students*', with a balanced focus on both theoretical and practical knowledge to foster students' employability and career development. However, there is growing importance in ensuring the curriculum is designed in

such a way that emphasises the shift from merely acquiring theoretical knowledge to understanding how it can be effectively applied in real-world contexts. As noted by one of the respondents:

> One needs to know physics, you just need to know it. You can't avoid it. That's fine. You need to know it because it informs all else. However, the means of that dissemination, and the means and the purposes of that have radically changed and are radically changing such that having that knowledge is not the endpoint. The endpoint is how to activate it in a real-world setting (SL, U1).

The innovation in curriculum development has been described as designing it with an 'outward-facing' orientation, emphasizing its strong connection to the real-life demands of particular industries. This demand-led approach aims to ensure that course design is aligned with labour market needs, with an emphasis on local industries:

> So the way I would describe our curriculum where it works best, is outward facing. So there is always connection with the outside world. It isn't a knowledge for knowledge sake again. It is demand-led, so that the course has come about via an element of market analysis which includes both ends of the pipeline-both the student demand for that kind of course. But also the employer demand or the jobs market demand, or the professional landscape demand for that kind of skill set (SL, U1).

The aim of this strategy is twofold: to equip students with relevant academic and work-related knowledge and skills, while also developing sustainable relationships between higher education and employers through the 'demand-led curriculum' design and implementation.

4.3 The Integration of Theory and Practice

Crossing boundaries and creating new forms of learning spaces 'in between' higher education and industry provide opportunities for the integration of academic knowledge with practical skills. Stakeholder communication and collaboration with university staff, as well as curriculum redesign, have been consistently identified as crucial aspects in facilitating boundary-crossing between academia and industry. Our interviews suggest that 'third spaces,' which promote the integration of academic and practical knowledge, are not only constructed but also co-constructed through the collaboration of key stakeholders, including university staff, industry representatives, and students. Such spaces can take different forms, including specific activities or events (e.g., work experiences), networking opportunities, instances of informal and formal learning in the classroom, and engagement in work-related projects.

In fields such as business studies and law, for example. practical learning is embedded through initiatives like running a pro bono clinic. This allows students to engage directly with real-life cases, offering services to the wider public and gaining invaluable insights into professional practice. As one senior leader at University 1 explained, this type of engagement provides students with '*real-life experience through real-life cases, working with the wider [city] public*'. Examples from other disciplines include instances of creating third spaces for engagement with industries through project-based collaboration with SMEs. Dance students, for instance, work alongside local production companies to create professional performances. In addition, simulations have been used to emulate workplace environment in both universities (e.g. medical facility for the training of nurses). Such spaces for integration working and learning enables the students to engage with the realities of the workplace and industries. The third spaces offer safe environments in which students can practice what they have learnt in the classroom in an active and collaborative manner. Support from the staff members is an important component in providing affordances for students to bridge this gap between their studies and employment

through both the management of these third spaces, and through their development of employer relationships (Emms et al., 2024).

5 Conclusions

In our study, the third spaces approach serves as an analytical perspective to illuminate instances and patterns of boundary crossing and the co-creation of new learning spaces 'in between' higher education and industry, where students integrate academic knowledge with practical skills. The notion of third space not only highlights how individuals navigate a range of spaces but also extends beyond mere boundary crossing, contributing to the creation of new forms of space as well as fostering the potential for growth and shared objectives. The specific contribution to knowledge of the paper is in exploring the potential and role of 'third spaces' in considering how universities develop and sustain unique learning environments that link higher education and industry while transitioning their academic provision towards a more work-related focus.

Our data indicates that both universities are increasingly designing learning environments that combine academic rigor with real-world industry application, breaking traditional barriers between learning and working spaces. These environments, conceptualised as third spaces, blend formal education settings with more informal, dynamic contexts where students can interact with industry professionals. Third spaces are not only physical but also conceptual, offering students the opportunity to navigate diverse environments where academic knowledge and practical industry skills intersect. Through partnerships with industries, universities integrate work-related learning into their curricula, providing students with opportunities to engage directly with real-world problems.

To sustain these environments, universities build long-term partnerships with industries, ensuring that both educational and professional needs are met. Employers contribute to curriculum design, offer internships, and real-world case studies, thus ensuring that the learning experiences remain relevant and adaptable to industry trends. These collaborations also allow universities to remain flexible, constantly reflecting on their academic programmes. Overall, our findings indicate that all key stakeholders, such as university staff, industry representatives, and students, are continuously contributing to the co-creation of multiple third spaces, which represent new forms of spaces that bridge academic and practical (work-related) dimensions. This requires an enabling learning environment which is considered as the core to develop work-ready graduates.

This study has certain limitations, particularly regarding the relatively small number of interviews conducted and the focus on only two universities. As the interviews were limited to university staff and students, the findings primarily reflect the perspectives of these two stakeholder groups. Including additional voices, such as those of employers and alumni could offer a more comprehensive understanding of the topic and help to triangulate the insights presented here. However, efforts were made to ensure diversity within the sample: staff and students interviews spanned a wide range of academic disciplines and professional services and included individuals at varying levels of seniority across both institutions.

References

Akkerman, S. F. (2011). Learning at boundaries. *International Journal of Educational Research*, *50*(1), 21–25. https://doi.org/10.1016/j.ijer.2011.04.005

Akkerman, S. F., & Bakker, A. (2011). Learning at the boundary: An introduction. *International Journal of Educational Research*, *50*(1), 1–5. https://doi.org/10.1016/j.ijer.2011.04.002

Baldauf, B., & Luchinskaya, D. (2019). Graduate choices in post-education jobs and careers: A literature review, May 2019. Department for Education.

British Educational Research Association. (2018). *Ethical guidelines for educational research* (4th ed.). British Educational Research Association.

Bhabha, H. K. (1994). *The location of culture* (New ed.). Routledge.

Bridgstock, R., & Tippett, N. (Eds.). (2019). Higher education and the future of graduate employability: A connectedness learning approach. Edward Elgar Publishing.

Cook, E. J. (2022). A narrative review of graduate employability models: their paradigms, and relationships to teaching and curricula. *Journal of Teaching and Learning for Graduate Employability*, *13*(1), 37-64. https://doi.org/10.21153/jtlge2022vol13no1art1483

Emms, K., Kersh, N., & Laczik, A. (2024). Fostering practically based learning spaces through industry-engaged higher education models. *London Review of Education*, *22*(1), 32. https://doi.org/10.14324/LRE.22.1.32.

Evans, K., Ostendorf, A., & Permpoonwiwat, K. (2017). Introduction: Researching working spaces as learning spaces. In A. Ostendorf & C. K. Permpoonwiwat (Eds.), *Workplaces as learning spaces - conceptual and empirical insights* (pp. 9–14). https://doi.org/10.15203/3122-73-4

Green, F. (2016). Skills demand, training, and skills mismatch: A review of key concepts, theory, and evidence. Government Office for Science.

Kersh, N., & Laczik, A. (2022). Reconsidering the nature of the learning space in practically-based higher education: Innovative approaches to higher education in the UK context. *Hungarian Educational Research Journal*, *12*(4), 370–383. https://doi.org/10.1556/063.2022.00047

Kornelakis, A., & Petrakaki, D. (2020). Embedding employability skills in UK higher education: Between digitalization and marketization. *Industry and Higher Education*, *34*(5), 290–297. https://doi.org/10.1177/0950422220902978

Malloch, M., Cairns, L., Evans, K., & O'Connor, B. N. (Eds.). (2022). *The SAGE handbook of learning and work*. SAGE Publications Ltd. https://doi.org/10.4135/9781529757217

Savickas, M. L. (2011). New questions for vocational psychology: Premises, paradigms, and practices. *Journal of Career Assessment*, *19*(3), 251–258. https://doi.org/10.1177/1069072710395532

Siivonen, P., Isopahkala-Bouret, U., Tomlinson, M., Korhonen, M., & Haltia, N. (Eds.). (2023). *Rethinking graduate employability in context: Discourse, policy, and practice* (1st ed.). Springer International Publishing.

Soja, E. (2009). Thirdspace: Toward a new consciousness of space and spatiality. In K. Ikas & G. Wagner (Eds.), *Communicating in the third space* (pp. 49-61). Routledge.

Succi, C., & Canovi, M. (2020). Soft skills to enhance graduate employability: Comparing students' and employers' perceptions. *Studies in Higher Education*, *45*(9), 1834–1847. https://doi.org/10.1080/03075079.2019.1680173

Whitchurch, C. (2008). Shifting identities and blurring boundaries: The emergence of third space professionals in UK higher education. *Higher Education Quarterly*, *62*(4), 377–396. https://doi.org/10.1111/j.1468-2273.2008.00387.x

Biographical Notes

Dr Natasha Kersh is an Associate Professor in Education at the IOE, UCL's Faculty of Education and Society (UK). Her research interests and publications relate to the study of VET, school-to-work transitions and adult education in the UK and international contexts.

Dr Andrea Laczik is Director of Research at the Edge Foundation and an Honorary Research Fellow at the University of Oxford, Department of Education. Her research interests include TVET, employability and skills development, transition from school to work/HE, and education and skills policy across the UK and internationally.

Katherine Emms is a Senior Education & Policy Researcher at the Edge Foundation. At Edge, Kat's main areas of research are in higher education, vocational education, skills shortages in the economy and employability skills.

Long-Term Unemployed Women with Impairments Living Alone – Towards Employment, Social Participation and Health Through the German Employment Service

Kohlhof, Stefan

stefan.kohlhof@uni-due.de, University of Duisburg-Essen

Abstract

Context: Long-term unemployed women with impairments living alone are highly vulnerable in terms of employment, social participation and health. Nowadays, employment services expanded their services towards health and vocational rehabilitation as impairments are quite common among long-term unemployed women living alone.

Approach: As part of a pilot project the target group is offered regular coaching about health goals, prevention programmes and final job placement. Quantitative standardised surveys are carried out that allow pre-post interference analyses of the project's outcome regarding health and employability skills related to techniques of self-preservation of companies.

Findings: Participants improved their physical and mental work ability. Also, they improved significantly communication and social participation. Furthermore, impact regarding time habitus and task execution remains unclear.

Conclusions: The pilot project has an impact on the employability of the participants and strengthens their employability, which can facilitate professional inclusion and have an impact on society through the implementation of diversity measures. Nevertheless, the participants still have difficulties in coping with factual and temporal self-preservation measures of companies, which contradict the companies' risk-minimising procedures and therefore block the participants' access to the companies.

Keywords

women, impairment, living alone, employability, institutional programme

1 Intersectionality of Gender and Disability in European Discourse

The problem persists partly because of a lack of coverage in the academic literature, as well as insufficient data to further demonstrate and reveal the obstacles women with disabilities face in the employment market, even more than men with disabilities. Even in the current initiative of the Disability Employment Package, as rightly noted by the European Disability Forum, 'it is worrying that the gender perspective and the intersectionality of gender and disability has not been included'. (Atanasova, 2023, p. 8)

Employment services are crucial for women living alone to enter the labour market as well as to find vocational training opportunities and guidance. Women living alone often relay on institutions due to a lack of social contacts, income and vocational education. At the same time,

those institutions are important to the implementation of governmental measures to ensure a sufficient labour supply. Nowadays, impairments are quite common among women living alone, such as increased psychological stress or more chronic or long-term illnesses, which more often lead to early retirement for women (BZgA, 2022). This is why the German employment service has expanded its services towards health and vocational rehabilitation in a new institutional programme called "bergauf".

The central research question is therefore what occupational effects the pilot project under investigation has on the employability of women with impairments who live alone and are long-term unemployed.

1.1 Women Living Alone: An Overlooked Target Group

Women living alone have been marginalised in scientific discourse in recent years (DESTATIS, 2024; LIGA, 2015), although data collected through surveys and interviews as part of the presented pilot project (bergauf, 2024) point to social, economic, educational and health-related challenges in the constantly growing group of eight million women living alone in Germany today (DESTATIS, 2024). Women living alone in particular have smaller social networks, which usually consist of a maximum of two people (67%, n=84, bergauf) and diminish with long-term unemployment due to a lack of economic resources for social participation. This not only limits social participation, but also diminishes social capital, which represents a form of security (LIGA, 2015). Furthermore, most women living alone only have a financial income of up to 1500 euros per month (DESTATIS, 2024), which makes them particularly vulnerable in times of unemployment. In addition to lower incomes, women living alone face a decline in full-time employment opportunities and, in East Germany, in educational opportunities too, although vocational training was common for women living alone during the socialist era (DESTATIS, 2012). In addition, women living alone are very often dissatisfied with their health regardless of actual physical or mental health problems (Güther et al., 2004). When impairments occur, they are more likely to face mental health issues (71%, n=41, bergauf) that affect not only physical performance, but also time management and social interactions, two cornerstones of employment.

1.2 Specialized Institutional Services are Widley Accepted

Even though long-term unemployed women living alone generally do not accept the German unemployment service, they are dependent on the monthly payments and are therefore prepared to enter into an unhappy marriage between themselves and the institution (LIGA, 2015). The situation is different for long-term unemployed women with impairments living alone, provided that the offer is not only geared towards employment (78%, n=129, bergauf), but also offers self-selected (97%, n=135, bergauf) social interaction programmes (75%, n=134, bergauf) and health services (96%, n=133, bergauf). Therefore, programmes that offer achievable health (78%, n=46, bergauf) and social (82%, n=46, bergauf) goals are more interesting to participants than employability opportunities (66%, n=44, bergauf), even if they are provided by services that provide labour supply. In addition, especially gender-segregated services are more attractive to women as they offer interactions with other women, women's health services and counselling.

2 Companies, Their Accessibility and Employability Skills

The success of women with impairments in securing employment depends not only on their own skills and capabilities but also on their ability to align with the organisational structures and requirements of potential employers. This requires that employees meet the social, temporal and factual demands of the organisation.

Organisations, including companies (Meyer, 1994), rely on membership and recognition rules to define who is included and excluded from their internal structures. This distinction ensures the persistence of the organisation by marking the boundaries between members and non-members. For women with impairments, navigating these boundaries and aligning with the organisation's criteria can be a significant challenge, as they often do not meet the desired criteria, especially since companies increasingly prioritize risk-minimizing strategies to ensure their continued existence.

Social systems, such as companies, strive for internal stability while remaining adaptable to external pressures. They achieve this by developing structures along factual, temporal, and social dimensions.

2.1 Factual Dimension

To this end, the factual dimension determines how the complexity of a social system can be reduced by defining tolerated factual issues (Meyer, 1994) and introducing rules for the acquisition and distribution of resources. In this way, target programmes can regulate which topics are of interest to organisations at all. However, conditional programmes also increase the persistence of organisations, as they establish fixed processes. The same applies to vacant positions, as the position outlasts the person carrying it out and is linked to a fixed, enduring programme, which thus preserves the connectivity of the position in the organisation. On the other hand, there can also be an increase in environmental relationships, for example in companies that want to win over different markets.

In organisations that are only weakly goal-structured, so-called secondary variance-increasing decision criteria can also be identified, whereby the internal orientation is no longer chosen by the organisation itself but is determined externally, e.g. by the market. Likewise, this external influence experienced by the organisation can also be processed internally on an ad hoc basis, resulting in individual decisions within the organisation that are rich in variants. Due to the associated low-level capability of standardisation, expert knowledge, project orientation and decentralisation are of great importance in such adhocracies, as is the independent overcoming of boundaries.

2.2 Time Dimension

The time dimension can reduce the complexity of the social system through temporal hierarchisation (Meyer, 1994) by establishing sequential processes and structures. Here, fixed dates and deadlines are useful for bringing together results from processes based on the division of labour, thus ensuring stability even in the case of ambiguities and diffuse goals. Furthermore, projects serve to ensure persistence through their time limits, as they do not automatically change the processes of the overall organisation after completion despite their own new internal project organisational structures. Fixed time-dependent budgets also support the maintenance of the organisation by making effects predictable over time. However, in order to ensure stability over individual time periods, organisations can establish formal procedures such as regular conferences or jour fixe meetings. Reducing the duration of processes can also reduce risks, as the effects of individual processes on the organisation as a whole are reviewed more frequently.

At the same time, timelines and budgets can also be designed to be variable so that, on the one hand, it is possible to react to coincidences and, on the other hand, sustainability beyond deadlines is made possible. Objectives can also be renegotiated so that the level of requirements and staffing can be adjusted, thus maintaining the organisation's diversity. Overall, the time dimension is realised through the establishment of time habitus, which must be learned.

2.3 Social Dimension

The social dimension can be used to reduce the complexity of an organisational structure through coordinated action (Meyer, 1994) by establishing functional social subsystems through internal differentiation. In this way, the definition of communication channels can establish a framework security that allows results to be expected. Similarly, the people present in the organisation, due to their habitualisations and orientations, can contribute to making actions expectable among the members of the organisation. Loyalty ties between members and the organisation or management as well as high peer pressure also contribute to increased stability and a culture of strong collective norms that secure the basis for consensus. However, despite all persistence, the use of symbolically generalised media - e.g. money and power - always maintains a minimum degree of variety. Thus, interactions change with power relations and shifts in budgets.

Functional internal differentiation, as the most important contribution in the social dimension, also acts to increase variety, as the formation of individual subsystems that take on specific tasks increases the complexity of the overall system. Furthermore, organisational members can increase variety through a behavioural style that supports functional differentiation if, for example, they have the ability to adapt to changing role expectations. Bypassing fixed communication channels also increases variety, although this must be based on reciprocity within organisations so that the deviating interactions remain compatible. In addition, the renunciation of a general definition of programmes and communication channels can also increase variety so that action can be taken according to the situation. However, this strategy only seems conceivable in the case of strong dependence on, for example, individual clients, as otherwise there is a risk that the organisation will dissolve itself due to internal rifts. Since every organised social system is based on ritualised cooperation and the division of tasks, it is necessary for the members of the organisation to have social skills.

3 Methodology

In 2017, the Federal Ministry of Labour and Social Affairs presented the federal rehapro programme - a nationwide initiative with the aim of testing innovative services and organisational measures to maintain or restore the earning capacity of people with health impairments (rehapro, 2023). The job centres of the independent cities of Wuppertal, Solingen and Remscheid applied with a concept that is characterised by its focus on the specific and previously largely ignored target group of long-term unemployed (12+ months) women with health impairments living alone. The aim of this pilot project named "bergauf" is to provide successful services for the target group and to generate an empirical basis for the target group itself (bergauf, 2024).

Firstly, a broad concept of impairment is chosen that is not limited to (severe) disabilities (AktionMensch, 2021). Furthermore, the definition of the single benefits community is used for the purposes of the job centres in order to assign them to the category living alone.

The project follows a phase model that starts with

1. diagnostics with subsequent discussion of support goals,
2. prevention programmes and participation in rehabilitation, and
3. final job placement with work-promoting occupational therapy.

Participants are encouraged to actively shape their own strategies over the course of the three-year project, to initiate the transition to the next phase themselves and to approach the project's health counsellors independently. The health offers provided by the project are developed exclusively for the participants by the counselling health coaches following a request from

the participants. On the one hand, the focus is always on women's life situations and on the other hand, the effects of impairment are always taken into account. There is also an additional focus on living alone during long-term unemployment. Participation in all programmes remains voluntary and free of sanctions.

As part of the pilot project, quantitative surveys are carried out that allow not only descriptive analyses but also the calculation of key figures and interference analyses. The research design is structured in phases, so that in addition to an initial survey in the first four months of participation, there is also a first follow-up survey after six to eleven months and a second after twelve to fourteen months with a smaller sample size due to drop-outs. There is no selection of participants and participation in the surveys is voluntary throughout.

The initial survey and second follow-up survey include items according to the standardised instruments German Health Update (RKI, 2017) and European Health Literacy Questionnaire (Jordan & Hoebel, 2015) as well as medical diagnostics. Additionally, the first and second follow-up survey include five identically Likert-scale (disagree - tend to disagree - tend to agree - agree) items regarding health counselling. The following hypothesis were tested:

- The participants health situation improved after 14 months (descriptive statistics).
- The participants are able to ensure expectable workflows in the factual dimension after 14 months (interference analysis).
- The participants are able to ensure expectable processes in terms of time after 14 months (inference analysis)
- After 14 months, the participants are able to ensure expected behaviour in interaction with others (interference analysis).

The findings for hypothesis 1 are based on descriptive pre-post analysis of the same participants using four items from the German Health Update and five medical diagnostic items.

Findings for hypothesis 2 are based on paired t-tests of two European Health Literacy Questionnaire items, two items from the German Health Update and one item referring to counselling.

To test hypothesis 3, five items from the German Health Update and two items referring to counselling were used in paired t-tests.

To address hypothesis 4, paired t-tests were used on six European Health Literacy Questionnaire items, two items from the German Health Update and two items referring to counselling.

4 Findings

4.1 Outcomes of the Institutional Programme

In the first 14 months of the programme, long-term unemployed women with impairments living alone benefited physically, as the preventive recommendations on nutrition (-6.8%, n=74) and addiction decreased (-4.5%, n=74) and fewer urinary findings occurred (-17.6%, n=34). In addition, physical activity increased (+24%, n=75). Many participants were also able to improve their mental state, as fewer participants were "so depressed that no one could cheer them up" (-12%, n=75) and more participants were able to find psychotherapists (+11.4%, n=79). The participants' ability to work increased both generally (+32.5%, n=77) and physically (+6.5%, n=77), while more participants sought medical advice about their professional situation (+3.8%, n=79).

4.2 Progress in Meeting the Requirements of Companies with Regard to the Factual Dimension

Participants were not only able to perform more activities (improvement, Cohen d=0.17, n=74, not significant: n.s.), but were also better able to judge whether the information presented in the media about health risks was trustworthy (improvement, d=0.59, n=7, n.s.), while the coaches helped them to achieve personal goals (small decrease at a high level, d=0.06, n=22, n.s.). However, participants had more difficulties in finally executing tasks (decrease, d=0.14, n=73, n.s.) and in following medical instructions (decrease, d=0.04, n=27, n.s.).

4.3 Progress in Meeting the Requirements of Companies with Regard to the Time Dimension

Psychologically, the participants were able to stay active longer than usual (improvement, d=0.05, n=74, n.s.) and complete more tasks than they wanted to (improvement, d=0.10, n=72, n.s.). In addition, pain interfered less with activities in the four weeks prior to the test (improvement, d=0.10, n=75, n.s.). Meanwhile, regular contact (slight decrease at a high level, d=0.15, n=23, n.s.) and accessibility (slight decrease at a high level, d=0.21, n=23, n.s.) of the coaches remained the same. At the same time, although contradictory, from a physical perspective, fewer participants were able to be active for as long as usual (decrease, d=0.25, n=74, significant 0.05) and to complete the tasks they had planned (decrease, d=0.10, n=73, n.s.).

4.4 Progress in Meeting the Requirements of Companies with Regard to the Social Dimension

Social participation improved, as the health restrictions affected social contacts less frequently (improvement, d=0.32, n=67, significant 0.05) and to a lesser extent (improvement, d=0.25, n=75, significant 0.05). Participants also communicated better with doctors (improvement, d=0.14, n=24, n.s.), understood better health advice in the family (improvement, d=0.05, n=22, n.s.), health warnings (improvement, d=0.41, n=6, n.s.) and information in the media on how to improve health (improvement, d=0.08, n=23, n.s.). In addition, in their perception, counselling supports participants well (improvement at an already high level, d=0.09, n=22, n.s.) and helps them to manage their health tasks (improvement at an already high level, d=0.58, n=21, n.s.). However, participants do not understand the doctor's prescriptions better (constant, d=0.00, n=28, n.s.) and have difficulties in finding professional medical help (decrease, d=0.05, n=29, n.s.).

4.5 Holistic Approach Towards Employability of Women with Impairments Living Alone

The institutional programme approach supports the target group in a variety of ways in independently achieving the ability to (re)produce professional performance, at least temporarily, despite prevailing and accompanying circumstances or after setbacks. They benefit from a holistic approach on a health, social and professional level, particularly because complex challenges in the areas of life counselling and social security are interwoven with physical and mental challenges and professional expectations. Furthermore, the target group benefits from the voluntary nature of participation and the choice of services used. The participants not only improve their mental and physical health but also their health-related ability to work.

Furthermore, the pilot project led to a significant improvement in communication, as health restrictions affect communication much less frequently and to a lesser extent. The participants are therefore experiencing a level of communication that enables the results to be expected by themselves, by others and by potential future coworkers. In addition, the participants also changed their habits when completing tasks by now approaching previously unknown people. The participants' new habits can help to make their actions expectable, which also applies

among colleagues. However, the participants experience that functional differentiation does not always strengthen the social organisation of people because the participants struggle to find the specific subsystem they can rely on in the complexity of the overall systems. Consequently, they do not experience the strength of functional differentiation, which is the most important contribution to the social dimension of companies. Moreover, participants do not improve their ability to understand instructions, so regular communication channels may not work, and participants have to find workarounds. However, this must be reciprocal within the organisations so that the divergent interactions remain compatible.

In addition, the participants improved their time habitus, as they are psychologically and due to less pain more capable to achieve goals on time, which strengthens the division of labour in the companies. Participants also adhered to formal timelines due to regular contact, which increases process reliability in companies. In addition, the participants are able to complete more tasks than they had expected due to their improved psychological condition, which enables them to react better to business coincidences. At the same time, however, participants have to renegotiate their tasks as their bodies make it difficult for them to keep up with the workload.

In addition, participants may find it more difficult to follow target programmes because they have difficulty following instructions and completing tasks. However, they may become conditioned and thus develop fixed routines if they are supported in completing tasks and achieving goals. Also, although jobs are tied to a fixed permanent programme, participants might now take on a wider variety of positions rather than just certain jobs. Additionally, participants may have improved their judgement, leading to better decision making based on a better assessment of the situation, which in turn strengthens the company.

Given the improvement in the participants' physical and mental working capacity and the significant improvement in social participation, the pilot project has an impact on the employability of the participants and strengthens their employability, which can facilitate professional inclusion and have an impact on society through the implementation of diversity measures. Nevertheless, the participants still have difficulties in coping with the factual and temporal redundancy measures of the companies, which contradict risk-minimising procedures and therefore block the participants' access to the companies.

5   Conclusions

In summary, the findings highlight the need for institutional programmes to adopt a holistic, flexible, and inclusive approach that addresses individuals' health, social, and professional needs. These programmes empower participants, particularly those from vulnerable groups like those with chronic illnesses, minorities, and elderly workers, by promoting autonomy and service choice, ultimately improving work-related abilities. Key elements such as adaptable organisational structures, expactable communication, and task flexibility are crucial for maintaining productivity, especially for those returning to work or facing health challenges. Diversity and inclusion measures are also essential in enhancing the employability and decision-making skills of marginalised groups. However, participants face challenges in navigating complex organisational systems, often lacking clear support subsystems and struggling to understand instructions, which may require alternative communication methods. While communication is important, organisations must work to ensure compatibility between divergent interactions. Despite improvements, organisational barriers remain, particularly in balancing risk-minimizing procedures with stability measures, which can limit participants' access to opportunities. Continued adaptation and flexibility in organisational practices are necessary to create more inclusive and productive environments, helping individuals overcome barriers and thrive in the workforce.

References

AktionMensch (2021). *Situation von Frauen mit Schwerbehinderung am Arbeitsmarkt*. Aktion Mensch.

Atanasova, A. (2023). Narrowing the employment gap for people with disabilities. The need for effective policy implementation. *ETUI Policy Brief*, 2023(09).

bergauf (2024). *Rehapro Projekt bergauf*. https://www.bergauf-rehapro.de.

BZgA (2022). *Daten und Fakten zur Frauengesundheit in Deutschland*. Bundeszentrale für gesundheitliche Aufklärung. https://www.bzga.de%2Ffileadmin%2Fuser_upload%2FProgramme%2F2022-06_frauengesundheit_faktenblatt.pdf&usg=AOvVaw31QOkDjEvG93l0S7WsGaNk&opi=89978449.

DESTATIS (2012). Alleinlebende in Deutschland. Ergebnisse des Mikrozensus 2011. Statistisches Bundesamt.

DESTATIS (2024). *Mikrozensus – Haushalte und Familien. Endergebnisse 2022*. Statistisches Bundesamt. https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Haushalte-Familien/Publikationen/Downloads-Haushalte/statistischer-bericht-mikrozensus-haushalte-familien-2010300227005-endergebnisse.xlsx?__blob=publicationFile.

Güther, B., Milenovic-Rüchardt, I., Picot, S., Riedmüller, B., Schneekloth, U., & Willert, M. (2004). *Abschlussbericht. Die Lebenssituation alleinstehender Frauen in Deutschland*. Riedmüller/Infratest.

Jordan, S., & Hoebel, J. (2015). Gesundheitskompetenz von Erwachsenen in Deutschland. In: Bundesgesundheitsblatt. Gesundheitsforschung. *Gesundheitsschutz*, *58*(9). https://doi.org/10.1007/s00103-015-2200-z.

LIGA (2015). Lebenslagenbericht Alleinstehende langzeitarbeitslose Menschen im Landkreis Reutlingen. Liga der freien Wohlfahrtsverbände.

Meyer, M. (1994). Ziele in Organisationen. Funktionen und Äquivalente von Zielentscheidungen. Springer Gabler.

rehapro (2023). *Innovative Wege zur Teilhabe am Arbeitsleben. rehapro.* https://www.modellvorhaben-rehapro.de/DE/Home/home_node.html/.

RKI (2017). Supplement Fragebogen zur Studie „Gesundheit in Deutschland aktuell. Robert Koch Institut.

Biographical Notes

Stefan Kohlhof is a doctoral student. His areas of interest are innovative approaches to the professional and social participation of women and people with impairments. He is a member of the scientific research team of Prof. Dr. Dieter Münk.

Analysing Costs and Benefits of Dualized VET in Developing Countries: A Methodological Discussion

Krichewsky-Wegener, Léna
krichewsky@iit-berlin.de, Institute for Innovation and Technology (iit) Berlin

Jaik, Katharina G.
jaik@iit-berlin.de, Institute for Innovation and Technology (iit) Berlin

Abstract

Context: Developing sustainable financing systems for Technical and Vocational Education and Training (TVET) in developing countries is challenging due to demographic growth, poverty, and limited public funding. Dualized Vocational Education and Training (VET) models offer a potential solution by sharing training costs between the state and the private sector. However, empirical research on the cost-benefit structure of dualized VET for companies in developing countries remains scarce, particularly in Sub-Saharan Africa. This study examines the challenges and adaptations required for conducting cost-benefit analyses of dualized VET in such contexts.

Approach: The study is based on research conducted in Côte d'Ivoire, where dualized VET has been recently introduced. It employs a mixed-methods approach, including literature review, semi-structured interviews with key stakeholders, and cost-benefit analysis using both projection and simulation methods. The study adapts methodologies from industrialized countries to account for the informal economy, differences in training models, and data availability constraints.

Findings: The results highlight significant methodological challenges in transferring cost-benefit analysis models from Europe to developing countries. Key factors include the informal nature of many businesses, variations in VET structures, and limited wage and employment data. Different methodological solutions are presented.

Conclusions: Cost-benefit analyses are crucial for informing VET policies in developing countries, but methodologies must be adapted to local economic and institutional contexts. This study contributes to methodological discussions by refining projection and simulation approaches for cost-benefit analysis in the context of a French-speaking Western African country.

Keywords

financing of VET, cost-benefit analysis, dualized VET, developing countries

1   Context

Developing sustainable systems for financing TVET in developing countries is a huge challenge. Demographic growth combined with persisting high levels of poverty, limited public spendings and decreasing flows of official development assistance are strong arguments to reform existing systems in order to increase the contribution of the private sector to financing

skills development. In this context, dualized VET models carry the promise of sharing the costs of training mainly between the state and the private sector, opening up an avenue for young people to develop marketable skills in a context where most of them cannot afford high tuition fees (Jäger, 2016). While expectations are high, there is still little published empirical research done on the actual cost and benefit structure of dualized TVET for the private sector in developing countries, even though it is considered key for establishing sustainable dual VET structures (Asghar et al, 2016). Published cost-benefit studies have mainly been conducted in Europe or have transferred the methodologies developed in Europe to emerging economies such as the Philippines and Vietnam (Hauschildt, 2018; DC dVET, 2016). In Sub-Sahara Africa until now, while there are many countries introducing or already implementing dualized VET schemes, the number of (published) cost-benefit studies is still limited. Publicly accessible documents, which are usually reports on donor-funded apprenticeship schemes, provide some evidence on costs and benefits of companies' participation in skills development, but theoretical and methodological aspects are usually not critically reflected. This paper, which is based on the authors' experience in an ongoing study conducted in the context of development cooperation, examines the challenges and possible solutions to transfer and adapt existing methodological approaches to cost-benefit analysis to the context of developing countries. After reviewing and discussing the transferability of different approaches based on the literature, we will report on the experience of implementing our research design in the context of a French-speaking West-African country. The aim is to answer the following research question: What are adequate methods for performing a cost-benefit analysis for dualized VET in the context of a developing country in Sub-Sahara Africa?

2 Conceptual Framework: Defining Costs and Benefits in the Context of Developing Countries

At least three challenges must be addressed when considering the transfer of concepts and methods for cost-benefit analysis from industrialised countries to developing countries, more specifically to Sub-Sahara Africa. The first challenge lies in the specificity of the economic structure, namely the existence of a large informal sector. The informal sector, which typically consists of small and micro enterprises operating without being regulated by the government, provides more than 60% of total employment and contributes more than a third of gross domestic product on average in Sub-Sahara African countries (Ohnsorge & Yu, 2022, p. 234). Bookkeeping is non-existent or rudimentary in the informal sector. Employment relations are usually not formalized and atypical employment forms (e.g. contributing family work) requires a broader perspective on remuneration. In addition, ethnographic studies reveal that recruitment and other human resource management decisions may not primarily follow a logic of maximizing material gains or minimizing transaction costs but are "more about the reinforcement of a tradition and an organizational culture" (Tidjani & Simen, 2014, p. 127). As a result, monetarising costs and benefits can prove even more challenging than in the context of industrialised countries, raising the question as to how cost-benefit analysis should be complemented by an analysis of motivations and non-monetary obstacles and advantages to participation in dualized VET.

A second challenge relates to the model of dualized VET implemented in developing countries, that differ significantly from the models existing for instance in Germany or Switzerland. These differences also have implications for the cost structures. The present study examines a dualized VET arrangement in which learners are enrolled as students in VET schools, with parts of the curriculum being delivered in a work-based setting in companies. This system differs from traditional apprenticeships also existing in the same country, where learners are affiliated to a company in which they learn on the job without formal curriculum. The recent introduction of dualized VET and the parallel existence of a different type of apprenticeship raise questions

regarding the quality of work-based training. Cost-benefit surveys should therefore be complemented by contextual data in order to avoid misinterpretations of positive results, which could for instance be linked to a poor quality of training and/or the exploitation of trainees as cheap labour.

A third challenge lies in the limited availability of data, including official statistics, even in relation to the formal sector. This constrains the operationalisation of the cost and benefit concepts but also raises challenges for sampling. When not enough companies are engaged in dualized VET for certain branches, a simulative approach based solely on official statistics and document analysis is difficult or impossible to implement. Empirical data collection is needed not only to calculate hiring costs, but also to gather some information on salaries.

The definition of costs and benefits for enterprises participating in dualized VET usually include the following elements (Muehlmann & Wolter, 2014):

- Costs: personal costs for the trainees, costs for the trainers, physical costs (e.g. training materials, consumables etc.).
- Benefits: productive contributions of the trainees (short-term) and long-term benefits for the company (e.g. recruitment costs, costs in hiring, costs in orientation of new employees, productivity difference between internally and externally recruited employees).

Based on experiences in South Africa, it seems necessary to adapt the definitions to the context of the country under scrutiny. For instance, the costs should also include administration costs induced by formal requirements for participation in the dualized VET (Hauschildt, 2018, p. 9).

3   Methodological Design

The present study is being conducted in Côte d'Ivoire, which can be considered an interesting case because of the similarities of its VET system with VET systems in other French-speaking countries in Western Africa (Maurer & Gonon, 2014, p. 21). In that country, like in Madagascar, Senegal or Benin for instance, dualized VET is an innovative approach within the context of a centralised and mainly school-based VET system. In order to develop adequate data collection instruments, a first step of the study thus included five exploratory semi-structured interviews with key stakeholders, alongside a document analysis. Interviews were conducted in January 2025 with three representatives of the private sector (two umbrella organisations of employers' associations and one sectoral business association), representatives of the VET Ministry and representatives from the National Training Fund. The interviews aimed especially at understanding the extent of actual implementation of current legislation on dualized VET and its financing mechanisms, exploring the main motivations and barriers for participation in dualized VET from the point of view of companies, and characterizing the main target group of dualized VET among the private sector.

As costs and benefits of dualized VET vary between occupations (Wenzelmann & Schönfeld, 2022), the study is focused on five occupations selected on the basis of three main criteria: the implementation stage of dualized VET, the existence of a sufficiently large number of companies in need of skilled workers, and a mix between industrial and services occupations to find out whether the dualized approach fits for different economic sectors. As result, the following training programmes were selected: automotive repair, cooking, heavy construction, refrigeration and air conditioning, accountancy. The original evaluation method for cost-benefit analyses for companies in dual VET was developed in Germany and Switzerland. To make use of it also in other contexts, where the VET systems do not fully correspond to the classic type of dual VET, and including in cases where dual VET is not yet fully established, it has been adapted and developed into a simulation and a projection method (DC dVET, 2021). For the

purpose of this study, further adaptations of the method to the local context had to be made after the exploratory phase. These adaptations are presented and discussed in the following section.

4 Results

4.1 Dualized VET in Côte d'Ivoire: Context Information and Methodological Implications

Dualized VET has been officially introduced in Côte d'Ivoire through the Decree 2023-773 from 28 September 2023. It stipulates a share of 40% of in-class training and 60% of enterprise-based training. Trainees are enrolled in the programme as students ("sous statut scolaire"), they are not employed as apprentices by the company. Interviewees reported that until now, it is common practice among schools to assign students to companies based mainly on practical considerations (e.g. minimizing transportation between the place of living and the company). Companies have no obligation to remunerate their trainees. In practice, however, they often provide them with financial assistance for transportation costs and in some cases also with free meals and financial compensation. This form of dualized VET implies that the costs incurred by companies are significantly lower than in dual VET systems found for instance in Germany or Switzerland. The most important costs, according to the exploratory interviews, are thus the equipment and training materials as well as the time invested by in-company trainers. Until now, companies do not benefit from any financial support or tax exemption from the State to compensate for these costs. Training duration is an important factor affecting the cost-benefit ratio (Mühlemann & Wolter, 2019). Ideally the training duration should be agreed upon by all stakeholders, including also the private sector. In this case, however, it was determined by the State for those occupations already trained in the dualized model. For the other occupations, the training duration can be varied to simulate different scenarios. All these specificities must be taken into account when transferring methods for cost-benefit studies developed in Germany or Switzerland and when interpreting results. For instance, the motivation and thus the amount of time and efforts invested by the companies in training may be affected by the fact that they do not choose and do not pay the students in dualized VET. Especially, there is a risk that trainees are merely considered as "cheap labour" to perform tasks, which otherwise would be affected to unskilled workers – in this case, a positive cost/benefit ratio would need to be critically assessed against information on training quality.

While the decree on dualized VET is still very new in Côte d'Ivoire, the country looks back on different projects, which piloted forms of dualized VET in the past. While the approach was not institutionalized at the time, some training programmes were reconducted by participating schools and companies. As a result, some of the companies participating today in dualized VET already have experiences in training young people in similar settings. In addition, companies may have apprentices or provide internships for school-based training schemes. Estimates from such companies concerning for instance the productivity of trainees compared to skilled workers, or the time invested in training by the in-company trainers, can be used to support projections or simulations and to define scenarios for sensitivity analysis. Existing evaluations of past projects, even if there are differences in terms of curriculum, status of the learners or share of work-based learning, can also be used for plausibility checks (e.g. Crépond & Premand, 2017).

4.2 Occupational Specificities and Their Methodological Implications

The stage of implementation of dualized VET differs between occupational areas. Hospitality and automotive repair have a comparatively long tradition of dualized VET in the country, since the early 2000s. Four VET schools started in 2024 to pilot the new dualized VET scheme in these two areas. Interviews with representatives of the private sector revealed a high interest both of large companies and of small and medium enterprises in dualized VET, especially in

these two areas and in construction and refrigeration. According to the interviewees, companies suffer from a shortage of skilled workers due to low practical and transversal skills of VET graduates in the above-mentioned sectors. Hiring and induction costs are high as diplomas and certificates have no signalling function and companies mostly rely on personal networks and recommendations to identify potential employees, leading to a high turnover in the probation phase. The investment in training new employees is perceived as high and risky, due to the volatility of the labour market and high turnover rates. This situation has prompted several large companies in the formal sector to develop their own training programmes, sometimes in partnership with private education and training providers. Interviews further revealed that companies in the formal sector do not benefit directly from the training levy collected by the National Training Fund. These funds are currently being used for punctual project-based financing and research and consultancy activities supporting VET reforms. Companies involved in dualized VET do not benefit from any exemptions.

Due to the different stage of implementation of dualized VET in the different occupational areas selected for the study, two different methods are applied for cost-benefit analysis: a projection-based approach is used in hospitality and automotive repair and a simulation-based approach is used in the three other occupational areas.

4.3 The Projection-Based Approach

The projection-based approach has been developed by Bolli et al. (2019) in the context of Nepal. It is suitable when dual VET has been recently introduced, so that the first cohort of learners has not yet graduated. This method is adequate in our case, because as mentioned before, the introduction of dualized VET only started in 2024 and graduates of the 3-year-programmes are not yet available. The approach combines data from local sources (e.g. primary or statistical data on wages) with the collection of data on costs and benefits incurred up until the date of data collection. Assumptions based on cost-benefit studies conducted in established dual VET systems are used to compensate for missing data and allow projections regarding costs and benefits for the whole training period, or even beyond. In the case of automotive and hospitality training, following data is collected among companies already engaged in dualized VET:

- Costs of training personnel in the first year of training
- Costs for infrastructure not used productively because of instructing apprentices
- Costs for supplies used for non-productive activities
- Costs for trainees (e.g. training allowance, transportation costs, free meals etc.)
- Value of unskilled tasks performed by trainees during the first year of training
- Value of skilled tasks performed by trainees during the first year of training
- Costs for participating in the dualized VET scheme (e.g. administrative costs)
- Hiring costs (costs for recruiting and training new employees)

The questionnaire for companies includes questions about estimated costs and benefit for the second and third year of training. This information is used to check the plausibility of projections based on two key assumptions adopted from Bolli et al. (2019, pp.18-22): first, that training benefits increase linearly during the training period of three years, and second, that costs for in-company trainers decrease over time until about 40% until full productivity of students is reached.

4.4 Data Availability for the Simulation Approach and Methodological Implications

For our analysis, we also picked occupations, where dualized VET has not yet been introduced, but could potentially be implemented in the future. For this case, the simulation method is most suitable. Simulations make use of data from cost-benefit analyses conducted in other contexts to compensate for the lack of experience in implementing dual(ized) VET in the country of interest. Most simulation studies use data from Switzerland and Germany, as these countries have conducted multiple studies, thus providing an extensive database of good quality (see for instance Muehlemann, Wolters & Joho, 2018 for Italy, Wolter & Joho, 2018 for England, Wolter & Mühlmann, 2015 for Spain). Those studies took data from the local contexts on wages for skilled and unskilled workers, combined it with data on apprentices' productivity from the dual systems in comparable occupations, and results from a company survey about hiring and induction costs for local companies. For the context in Côte d'Ivoire, we had to adapt this approach mainly in two regards. First, the assumption that apprentices' productivity in dual systems and dualized approaches is similar is probably not plausible. Therefore, we integrated questions on estimated productivity in our questionnaire, expecting companies which have trained VET students in internships or which have had apprentices in other VET contexts to be able to make plausible estimates. Second, high quality wage data for skilled and unskilled workers in the occupations we analyse is not available, so that calculations are based on information collected on wages via our survey (but comparing it with the official data available). This means that there are limitations regarding the representativity of our findings.

As in the projection approach, the analysis is based on assumptions, in particular, that the costs for personnel are the main costs incurred by companies and that the productivity of trainees and the time invested by the company in training are similar in developing and in industrialised countries. These assumptions, however, might be questioned since the content and quantity as well as quality of training might differ – for instance due to different levels of digitalization and automatization, different quality standards expected by customers, or differences in the competences of trainees at the start of their training. For a plausibility check and sensitivity tests, results will be compared to findings from cost-benefit studies conducted in other work-based training schemes (e.g. Crépon & Premand, 2017).

5 Conclusion and Outlook on Further Results

Cost-benefit analyses are highly relevant in developing countries that seek to establish dual VET systems or dualized VET approaches, since they provide essential data to inform policies on VET financing and offer a foundation for companies considering participation. However, methodologies commonly used in industrialized countries, such as evaluations and simulations, cannot be directly transferred to developing countries and have to be adapted. The lack of reliable data, differences in economic structures, and variations in dualized VET models require methodological adaptations to ensure accurate and meaningful results. This study makes two methodological contributions by applying and adapting existing methods to a rather new context. Building on the work of Bolli et al. (2019), our study adapts and expands the proposed projection method to the context in Côte d'Ivoire, where dualized VET recently started. In addition, we propose adaptations to the simulation method in order to apply it to the context of developing countries, for occupations where the implementation of dualized VET has not yet started.

The specific design of dualized VET "*sous statut scolaire*", such as implemented in Côte d'Ivoire and other countries, raises critical questions about the interpretation of cost-benefit analysis results. Since trainees are not officially employed and companies are not required to compensate them, there is a risk that firms may use them primarily as cheap labor rather than investing in quality training. At the same time, in a context of shortage of skilled workers, firms

may also recognize the long-term benefits of investing in human resource development. Implementing the research design will help assess these dynamics, providing insights into employer motivations, training quality, and the overall feasibility of the dualized VET model. The findings will contribute to refining cost-benefit methodologies in the context of developing countries and supporting evidence-based decision-making for sustainable VET development.

References

Asghar, W., Shah, I. H., & Akhtar, N. (2016). Cost-benefit paradigm of apprenticeship training: reviewing some existing literature. International Journal of Training Research, 14(1), 76–83. https://doi.org/10.1080/14480220.2016.1152029

Bolli, T., Kemper, J., Parajuli, M. N., Renold, U., & Thapa, B. K. (2019). *Projection of Net Benefits for Companies in the Dual VET-Apprenticeship Programme in Nepal.* KOF Swiss Economic Institute Working Papers (12). https://www.dcdualvet.org/wp-content/uploads/2020_KOF_WP_Projection-of-Net-Benefits-for-Companies-in-the-Dual-VET-Apprenticeship-Programme-in-Nepal.pdf

Crépon, B., & Premand, P. (2017). Impacts à Court Terme de l'Apprentissage Dual sur les Jeunes et les Entreprises: Résultats de l'Evaluation d'Impact de la Composante Apprentissage du Projet Emploi Jeunes et Développement des compétence (PEJEDEC) en Côte d'Ivoire. World Bank.

Donor Committee for Dual Vocational Education and Training (DCdVET). (2021). Cost-Benefits Studies: Overview of Types, Requirements and Suitability: When does a cost-benefit study make sense and how does it work? Zurich. 210831_DC-dVET-Cost-Benefit-Studies_Methods-Suitability-and-Steps.pdf

Hauschildt, U. (2018). *A Review of Methodologies for measuring the costs and benefits of in-company apprenticeship training.* International Labour Organization. https://www.skillsforemployment.org/sites/default/files/2024-01/edmsp1_250827.pdf

Jäger, M. (2016). *Dual VET as an Option in Development Cooperation.* Zurich. https://www.dcdualvet.org/wp-content/uploads/DC-dVET_Dual-VET-as-an-Option-in-Development-Cooperation_Survey_ENGL_FINAL.pdf

Koçer, R. G. (2016). *How Many Shades of Grey are there? Continuum Conceptualization of Formal/Informal Divide and Its Implications.* R4D Working Paper (5). https://www.wti.org/media/filer_public/7a/0c/7a0cb6ca-fd27-4e0e-a29f-ccd275849899/wp_2016_05_how_many_shades.pdf

Maurer, M., & Gonon, P. (2014). The Challenges of Policy Transfer in Vocational Skills Development. National Qualifications Frameworks and the Dual Model of Vocational Training in International Cooperation. Peter Lang Verlag. https://doi.org/10.3726/978-3-0351-0758-6

Mühlemann, S., & Wolter, S. C. (2019). The economics of apprenticeship training: Seven lessons learned from cost-benefit surveys and simulations. Bertelsmann. https://doi.org/10.11586/2019062

Mühlemann, S., Wolter, S.C., & Joho, E. (2018). A*pprenticeship training in Italy – a cost-effective model for firms?.* Bertelsmann. https://doi.org/10.11586/2018043

Mühlemann, S., & Wolter, S.C. (2015). *Apprenticeship training in Spain – a cost-effective model for firms?.* Bertelsmann. https://doi.org/10.11586/2016011

Mühlemann, S. & Pfeifer, H. (2023). *Evaluating apprenticeship training programs for firms.* IZA World of Labour. https://doi.org/10.15185/izawol.506

Mühlemann, S., & Wolter, S. C. (2014). Return on investment of apprenticeship systems for enterprises: Evidence from cost-benefit analyses. *IZA Journal of Labor Policy*, 25 (3).

Ohnsorge, F., & Yu, S. (Ed.). (2021). *The Long Shadow of Informality. Challenges and Policies*. Washington, D.C.: World Bank. https://doi.org/10.1596/978 -1-4648-1753-3

Tidjani, B., & Simen, S. F. (2014). Human Resource Management in the Informal Sector in Senegal: In Search of a Model. *Journal of Management Research*, 6(1), 126–140. https://doi.org/10.5296/jmr.v6i1.4474

Wenzelmann, F. & Schönfeld, G. (2022). Kosten und Nutzen der dualen Ausbildung aus Sicht der Betriebe: Ergebnisse der sechsten BIBB-Kosten-Nutzen-Erhebung. Verlag Barbara Budrich

Wolter, S.C., & Joho, E. (2018). *Apprenticeship training in England – a cost-effective model for firms?.* Bertelsmann Stiftung. https://doi.org/10.11586/2018008

Biographical Notes

Dr Léna Krichewsky-Wegener holds a PhD in education sciences from the University of Osnabrück. She is a senior consultant at the Institute for Innovation and Technology (iit) in Berlin. Her work is focused on international cooperation in VET and adult education.

Dr Katharina Jaik holds a PhD in economics of education from the University of Zurich. She is a consultant for education economics and financing at the Institute for Innovation and Technology (iit) in Berlin. Previously, she worked for the DC dVET donor committee and as a freelance consultant for ILO/CINTERFOR, AHK Mexico, and IDB.

Access to and Accessibility of the Initial Vocational Education and Training (IVET) System in Türkiye and Germany

Kühn, Ida Kristina

Kristina.kuehn@uni-bremen.de, Institute Technology and Education, University of Bremen

Saniter, Andreas

asaniter@uni-bremen.de, Institute Technology and Education, University of Bremen

Selvi, Kıymet

kselvi59@gmail.com, Kıymet Selvi Eğitim Destek ve Danışmanlık Ltd. Şti., Ankara University TTO

Keser, Ayşe Dilek

keseraysedilek@gmail.com, Ankara University

Abstract

Context: Germany and Türkiye have maintained relations since a long time. Germany faces an increasing need for skilled workers. Türkiye shows both immigration because of the existing need for skilled workers abroad and the resulting emigration that leads to brain drain. Additionally, the country is challenged by the integration of many refugees from Syria into education and labour. This research aims to identify factors that hinder and facilitate access to IVET in the context of (future) work migration and accessibility within IVET.

Methods: The research design contains a document analysis of academic literature, policy papers and regulatory documents and qualitative interviews following a problem-based approach. A total of 77 interviews was conducted in Türkiye and Germany. Both country cases were compared based on the approach of educational inequality (IEO) and accessibility, based on legal frameworks as well as implementation examples.

Findings: The findings show certain similarities and differences in access as well as accessibility in a country-based comparison. Barriers to access were identified at all analytic levels. Accessibility is created through individual and institutional commitment.

Conclusions: Development of skills partnerships between both countries require a deep, partner-related understanding of country-specific conditions. Cross-country IVET partnerships need to cover cross-country supporting structures and a reliable funding. Future research could be an analysis of best cases for partnership and curriculum development.

Keywords

initial vocational education and training; access; accessibility; migrants; social inclusion

1 Problem Statement

Türkiye and Germany have been closely linked for more than 60 years, and the Turkish German relationship developed in various ways. Today, around 2,9 million people belong to

the Turkish community in Germany. After a long period of decrease, the number of Turkish people living in Germany is increasing again since 2023 (Statistisches Bundesamt [Federal Statistical Office], 2024).

Recently, Germany has been facing an increasing lack of skilled workforce, and due to that, it has intensified the recruiting of skilled workers from other states, especially third (non-European Union) countries (Institut für Arbeitsmarkt- und Berufsforschung [Institute for Labour Market and Occupational Research, IAB], 2022). Türkiye is one of the main countries of origin for the controlled migration of skilled workers (Mayer & Clemens, 2021) and is still labelled as a third country from the German perspective. This has regulatory implications for instance as regards the recognition of qualifications acquired in Türkiye (framed by Asylum Procedures Directive and migration agreements). Monitoring, such as the 'Education at a Glance' published by the Organisation for Economic Co-operation and Development (OECD), does not cover data about work-related migration in combination with career ambitions (OECD, 2024). Overall, labour migration, access to educational systems and recognition of qualifications awarded in origin countries are a burning issue at policy level as well as for research. An integrated perspective of labour market needs and brain drain in both countries of origin and target countries of skilled and work migration, for instance through 'home tracks' and 'abroad tracks' (Clemens, 2015) is not widely applied. One example is the 'dual intent' approach aiming the integration of Ukrainians, which focuses on a long-term perspective in target countries for Ukrainian refugees while also considering return and re-integration pathways. This is achieved, among other things, by 'streamlining the recognition of skills and qualifications in the host country and Ukraine' (OECD, 2023a). Another example is the cooperation on cross-country recruiting to gain skilled workers for different sectors in Germany without causing brain drain in the countries of origin run by the Gesellschaft für Internationale Zusammenarbeit (GIZ) (Luciano & Schimpf, 2021).

The HORIZON EUROPE funded project SKILLS4JUSTICE[1] aims at overcoming these single-sided approaches by analysing the situation in both, target and origin, countries. This research[2] compares the situations in Türkiye and Germany - closely linked to the paper submitted by Turkish colleagues that is more future-looking. It focusses on two research questions:

RQ1. What hindering and facilitating factors exist regarding the access to initial vocational education and training system of (future) migrant workers in Türkiye and Germany?

RQ2. What actions do Germany and Türkiye apply to create accessibility in their IVET systems?

It is outlined in this research, that VET in Germany and Türkiye in both cases is challenged by integration of refugees, lack of skilled labour and dropout. The focus, however, is set different, as Türkiye hosts many mainly Syrian refugees without protective refugee state, while Germany focuses on either integration of refugees with recognized refugee state (mainly Syrian and Ukrainian) or the attraction of skilled labour from non-EU countries. Access and accessibility, therefore, address the same groups (refugees and (future) skilled workers), but to a different extent. Due to the project context, Germany is defined as a target country for skilled workers and Türkiye as a country of origin, while being aware of Türkiye's double role as a

---

[1] https://www.skills4justice.eu
[2] Another paper is from Turkish perspective with focus on a shared model of skills development between both countries.

target country as well, though mainly for refugees with the potential of becoming future professionals.

2 Initial Vocational Education and Training (IVET)

Germany

Legally, there are no specific preconditions necessary to start an apprenticeship for people who live in Germany (Berufsbildungsgesetz [Vocational Education and Training Act] BBiG[3], 2024). Normally, at least a school leaving certificate is required. Apprenticeship contracts are concluded directly with companies. The employers decide, what they want or need in terms of requirements. VET schools are subordinate and accept every student, that is registered by the companies. The described procedure is valid for the non-regulated apprenticeships. Regulated, i.e., school-based occupations, require higher entry conditions, due to their specific responsibility (Bundesagentur für Arbeit [German Federal Employment Agency], 2025).

Figure 1 illustrates the new entries into the three pillars of the German IVET system over the last five years. The predominant dual system (non-regulated occupations) is marked dark and covers a relatively stable rate of 50% of all new entries.

Due to historical reasons, some sectors (e.g., nursing) do not participate in the dual system; here, an established school-based system (regulated occupations) with mandatory internships is in place. These new entries are marked in dark grey. The light grey bars indicate the entries to the so-called transition system. This (mainly school-based) part of German IVET has been developed since the 1970s for those unskilled young persons, who failed in finding a place in the other two pillars in times of a lack of regular placements. Nowadays, a general lack of training offers does not exist anymore. In 2023, 73.444 regular apprenticeship places stayed empty, that is 13% of the total number (Autor:innengruppe Bildungsberichterstattung, 2024). Reasons for entering the so-called 'transition sector' are therefore manifold, e.g., a shortage of regular vocational education and training (VET) in a chosen region or sector, weak general knowledge, behavioral problems, or language barriers.

For citizens from non-EU countries, there are several specific preconditions to enter the German IVET system and start an apprenticeship. They need a formal recognition of certificates (e.g., school leaving certificate, vocational practice) and at least level B (1 or 2) in German language course with recognized certificate (e.g., Goethe Institut, Die Bundesregierung, 2024)[4]. Moreover, they must find a training company, sign a contract including minimum wage, apply for a visa and ensure accommodation. Training companies for instance can be contacted either online or directly, with a specific visa aiming to find an apprenticeship (Bundesamt für Justiz, 2024)[5].

Türkiye

Vocational education in Türkiye covers both formal and non-formal education. Formal education consists of public or private upper-secondary schools, mostly so-called Vocational and Technical Anatolian High Schools (VTAHs), a secondary-school equivalent of Vocational Training Centers (VTCs) as well as vocational schools, institutes and faculties at higher education level. According to Özer (2021), both pathways cover a four-year education. The VTAHs are rather academic oriented, whilst VTCs are more practice-based. The VTCs also include

---

[3]   https://www.gesetze-im-internet.de/bbig_2005/BJNR093110005.html
  [4]https://www.make-it-in-germany.com/en/study-vocational-training/training-in-germany/do-i-qualify/visa
[5]   https://www.gesetze-im-internet.de/aufenthg_2004/__17.html

apprenticeships, journeyman and mastership programs and mainly provide to the local labour market needs.

Figure 1
Distribution of New Entrants to the Three Sectors of the VET System from 2019 to 2023
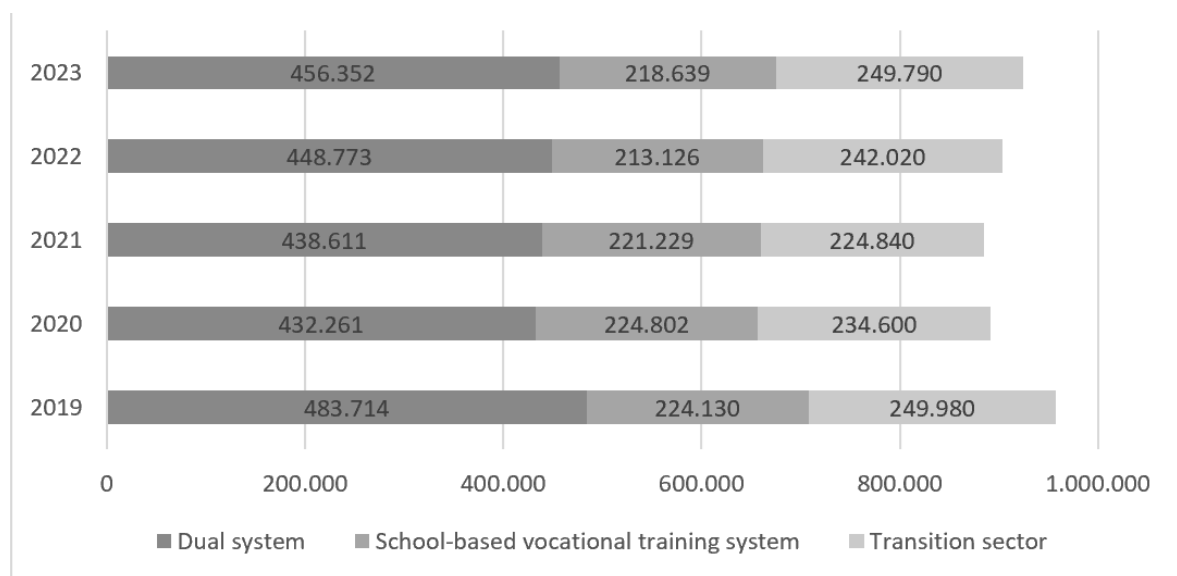
Note. Own compilation according to Autor:innengruppe Bildungsberichterstattung (2024)

There are around 1.5 million of students studying in VET at secondary education level, with 10% of them enrolled in VTCs (Özer, 2021).

The VET system in Türkiye aims to contribute to a reduction of youth unemployment and shows potential for integration of Syrian refugees in local labour markets. Tasli-Karabulut and Sancak (2024), moreover, see VET as an 'important strategy to facilitate refugees labour market integration in countries with collective VET systems such as Germany' (p. 404). Programs like the 'Vocational Training Programme for Employment' (MoNE) are supposed to create employment prospects for Syrian refugee and involved host communities (Çelik, 2022). In contrast, they portray the Turkish VET system as an 'un-collective,' state-led system, in which the state's dominance hinders other stakeholders in matching VET with the needs of businesses and workers (Tasli-Karabulut, 2022). This seems particularly problematic in the case of integrating refugees, as there are more actors involved in specific integration courses, which makes the lack of coordination at different levels more obvious (Tasli-Karabulut & Sancak, 2024).

Overall, VET in Türkiye is discussed to integrate refugees and youth at risk into labour market. The skilled labour discussion is rather related to academic tracks.

Due to emigration, Türkiye faces brain-drain in different industries. The Turkish Statistical Institute (TUIK, 2024) reports a rate of 2,0% of all higher education graduates in 2023.[6] Included were persons, who achieved undergraduate education in Türkiye and subsequently resided abroad for extended periods after graduation. TUIK also points out to information and communication technologies (6,8%), engineering, manufacturing and construction (4,4%), natural sciences, mathematics and statistics (2,6%) as mainly affected education and training

---

[6]   The Turkish Statistical Institute (TUIK) reports the statistical unit as follows: "For the reference year 2023, individuals who graduated at the higher education level within the 10-year period from 2008 to 2017 according to Council of Higher Education records, and who are Turkish citizens in 2023." (TUIK, 2024) Unfortunately, a total number of participants is not provided in the description of the data source.

fields. Finally, it mentions Germany with 17,5% as one of the top five target countries for work emigrants.

However, the Mesleki Eğitim Haritası (Turkish General Directorate of Vocational and Technical Education, 2024) lists electric, electronical services, information technologies and health services as the most preferred VET courses.

Overall, Tasli-Karabulut and Sancak (2024) summarize for the Turkish case a high number of work emigrants as well as a high number of refugees without a protective refugee status, which would result in a high number of refugees in the informal labour market (p. 404). Similarities between Türkiye and Germany in terms of labour market integration can be seen in the strategy to involve refugees. Differences can be mainly found in the position to either bind skilled workers (Türkiye) or attract skilled workers from abroad (Germany). The VET system in both countries is essential for fair and sustainable labour market integration.

3   Access and Accessibility in IVET

Access to education and work is crucial for labour market integration. As Kleinert and Jacob (2024) note, adequate education is essential for secure, living-wage employment. Educational attainment depends on individual effort and social background (Becker, 2017). Another issue is the match of education offers (including VET) and apprentices in different regions of a country. Both Türkiye and Germany exhibit strong links between socio-economic background and educational success, with a more pronounced effect in Germany (Güngör & Güngör, 2023; Mang et al., 2023). Related to VET, Germany shows remarkable regional differences regarding the fit of VET offers and apprentices. In a nutshell, the northern regions rather show unsuccessful searches for training places compared to more unfilled training places in the south-east (Bundesministerium für Berufsbildung [BIBB], 2024). With relation to Eurostat (2023), Ozdemir et al. (2024) Türkiye mention a school dropout rate of 26,7% in Türkiye and point out to a structural problem regarding the quality of VET on the one hand and career choice on the other hand, when arguing a "persistence of vocational high schools prioritizing university exam readiness alongside vocational training" (Ozdemir et al., 2024, p. 1013). Following Eranıl (2024), the main reason for dropout in upper secondary schools is academic failure and absenteeism.

Educational inequality (IEO) manifests at individual, institutional, and macro levels (Kleinert & Jacob, 2024). Germany's selective education system disproportionately affects young migrants, particularly in vocational education (VET), where access is challenging for disadvantaged families (Blossfeld, 2020). Enhancing accessibility structures is key to reducing educational inequality and improving integration outcomes.

Accessibility is closely linked to societal participation and capacity building (Kunze, 2021). The German Federal Centre for Accessibility defines it broadly, as encompassing inclusive design, removal of individual barriers, and reducing prejudices (Bundesfachstelle Barrierefreiheit [Federal Accessibility Unit], 2025). In Türkiye, national reforms emphasize accessibility, with the 2024–2028 strategy 'Everyone Should Have a Profession' promoting flexible learning, sectoral cooperation, and VET integration (European Commission, 2024). Bright (2020) highlights three key aspects of educational accessibility: teacher training, assistive technology, and affordability. Germany's legal framework covers transport, communication, facilities, and social services (Barrierefreiheitsstärkengesetz [Accessibility Reinforcement Act], BFSG).

While access refers to opportunities to engage in education, accessibility focuses on reducing barriers and adapting learning environments. This study examines factors influencing migrant integration into VET in Germany and Türkiye, exploring activities at various levels and identifying potentials for skills partnerships.

4 Method

The research design combines document analysis (e.g., policy papers, legal acts, apprenticeship regulations, and migration statistics) and 77 problem-centred interviews—40 in Germany and 37 in Türkiye (Kurz et al., 2009; Witzel, 2000). Experts from ministries, education providers, employers, and labour market intermediaries discussed access and accessibility. Table 1 presents an overview of the data.

Table 1
Sample Characteristics

	Employers	Employer organisations	Intermediaries	VET and HE	Political actors
Germany	8	5	6	17	4
Türkiye	19	-	1	14	3

Number of Interviews

The interviews were conducted between July 2024 and February 2025. Each interview lasted between 60 and 90 minutes and followed a catalogue of questions, which was slightly adapted to each group of interviewees. Germany, as a target country and Türkiye as a country of origin for work migration, focused on the following four main dimensions: (1) Demand and supply of skills and qualifications, (2) Relationships with education and training system, (3) Attracting and sustaining skilled workforce in the context of migration, and (4) Strategies for dealing with skills shortages caused by migration. For VET and HE sectors, the dimensions (5) Vulnerability of learners was added. All interviewees were also asked about the role of recognition tools, their own role in the recognition and education process, need for cooperation partners and support. For political actors, especially policies and policy interventions with focus on work migration were relevant. The analysis of the interviews was conducted top-down-bottom-up to refine the category system regarding access and accessibility to the VET system in both counties.

5 Access and Accessibility in Turkish and German IVET: Selected Findings

Access to IVET in Türkiye and Germany

The first research question is 'What hindering and facilitating factors exist with regard to the access to initial vocational education and training system of (future) migrant workers?'. The analysis of the interviews led to a number of factors, which determine access as chance or barrier.

Macro-Perspective: Country-Specific Context Factors

The *macro perspective on access* includes formal criteria (e.g., recognition of prior education), legal status, and **IVET** reputation and quality. Discrimination aspects are subsumed to the micro level. For the context of *Türkiye*, interviewee EP11_pub[7] describes formal access to IVET as follows:

> Our difference from other vocational schools is that there is no interruption in student registrations. […] Student registrations at the Vocational Education Centre continue uninterruptedly 365 days a year. […] More poor children from [region] villages and

---

[7] Turkish interviews within the sample are coded as Education Provider (EP). Private providers = EP_priv, public providers = EP_pub.

> rural areas who need jobs and want to start their lives as soon as possible become our students. (EP11_pub)

Access to Turkish IVET differs significantly between the public and private sectors. Private Organized Industrial Zone (OIZ) VET schools enforce strict selection criteria, including talent, industrial sector motivation, and parental employment in OIZ (World Bank, 2025). Entry into public IVET is primarily based on the LGS (High School Entrance Exam Score), the OBP (Secondary Education Success Score), or both (Numanoğlu et al., 2018), though requirements may vary by institution and are subject to frequent regulatory changes by the Ministry of National Education (MoNE), while private IVETs may impose additional entrance exams.

In *Germany*, there is theoretically not even a general school-leaving certificate needed to enter the IVET system (Bundesagentur für Arbeit [Federal Employment Agency], 2025). However, the recent report by the Autor:innengruppe Bildungsberichterstattung (Authors' group for education reporting) (2024) indicates that especially migrants are likely to drop out without a school leaving certificate and end up in the former described transition sector (Figure 2). The first two pillars compare the overall entries; among Germans, 22% enter the substitute system, while among non-Germans, 50% enter this lowest pillar of German VET.

The other pillars in Figure 2 refer to the various levels of school-leaving certificates and confirm this structural imbalance with respect to this.
According to the authors, this high number of non-Germans in the substitute system is basically due to Ukrainian youth who came as refugees from the war; many of them 'visit measures, aiming at learning German language and at vocational orientation' (Autor:innengruppe Bildungsberichterstattung, 2024, pp.176–177).

The main measure to close the gap between unskilled youth and the need for skilled workers is the substitute system drafted above; it aims at qualifying young persons for the apprenticeship system. Substitute measures usually last for one year, but many beneficiaries are still not able to start an apprenticeship afterwards (Autor:innengruppe Bildungsberichterstattung, 2024).

In focus of the interviews of the German case was, as expected, the skilled workers migration act (Fachkräfteeinwanderungsgesetz [Skilled Labour Immigration Act], FEG). One interviewee describes the new framework and points out to an access dilemma:

> […] we have countless access options in purely legal hypothetical terms […] Regardless of whether it's access to the labour market or the education system, a […] migrant needs to know the possibilities or that employers know the possibilities to manage this [options of education and work migration] on their own […]. (I16_Inter).[8]

Since the 2024 revision of the FEG, individuals from other countries can come to Germany as apprentices. In this relation, organisational aspects and, even more, language issues are mentioned as main barriers in the German context. Language requirements vary between companies and public authorities. Some companies have no specific language requirements, while others mandate at least a B-level certificate. A B-level certificate is also required to obtain an apprenticeship visa.

The bureaucratic expenditure behind getting access and the likely need for support are described exemplarily by interviewee I29:

---

[8]   Legend for the interviews: Intermediaries = Inter; Political actors = Pol; VET/HE actors = VET; Employers/Employer Organisations= Emp

[…] I think access is already given, […] but I think you always need someone to help organise it. […] You must know who to talk to about it, who can I write an e-mail to, who can I call, ideally in perfect German? […] That's exactly the point, that it's a bit bureaucratic with all these procedures and the participant could hardly organise it themselves. (I29_VET)

Figure 2

Distribution of New Entrants to the Three Sectors of the VET System in 2022 by School-based Education and Nationality in %
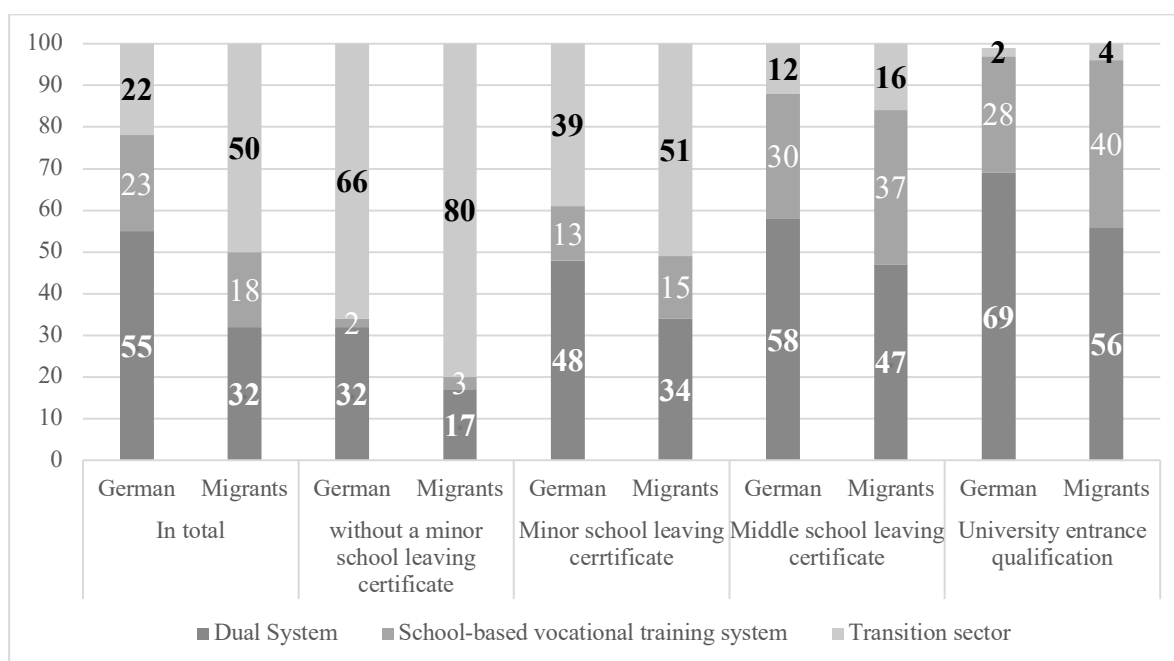
Note. Own compilation according to Autor:innengruppe Bildungsberichterstattung (2024)

The chosen sector and region in Germany can influence access to VET. High-demand sectors like plumbing and system catering face a shortage of apprentices, while others, like media design and animal care, have more demand than available training places (BIBB, 2024).

Macro-level factors show that Germany's legal conditions are rather open to migrants with educational aspirations. In Türkiye, the OIZ project in particular increases quality of education with strict admissions and gaining more successful students. Public schools (MESEMs) might potentially have lower IVET quality by accepting all students, also those with low academic success and potential drop-out. OIZ schools operate independently from official IVET schools and remain highly competitive.

The rapidly changing IVET system introduces new curricula without sufficient time to align qualifications with labour market demands, creating challenges in access and skill adaptation. Proposed solutions include guiding students into vocational education, improving workshop infrastructure, enhancing teacher qualifications, and implementing industry-aligned programs. Additionally, ensuring job opportunities for graduates is emphasized as a key measure (Güzen & Erbaş 2023). Germany's FEG program, while offering access to VET, is bureaucratic and difficult to navigate. In Türkiye, the readiness to confront challenges presents potential for improvement.

Meso-Perspective: Chances and Threats of Institutions

The *meso-perspective on access* focuses on institutional effects on migrant pathways, including geographic factors (e.g., distance between home and workplace), industry-VET school relationships, dropout risks (OECD, 2023b), apprenticeship availability, and support for disadvantaged students. In *Türkiye*, geographic factors influence migrant students, particularly in areas close to their countries of origin, like Syria. For Turkish students, locality also plays a role. EP1_priv (private VET) views the lack of mobility as problematic.

> Currently, our students usually come from [region] and the surrounding provinces. Maybe when we build a dormitory in the future, they may come from more distant areas. (EP1_priv)

Other IVET can already provide free or co-funded dormitories, if students document their need. According to the *German* Residence Act (§16a), migrant apprentices must prove accommodation to start their apprenticeship. Private providers have adapted their business models to this requirement. Migrant apprentices in Germany typically live with their families (72,3%; Deutscher Gewerkschaftsbund [German Trade Union Confederation], DGB, 2020) or in public dormitories if they are refugees (1,3%). Urbanization poses a challenge, as living costs are high in cities, while affordable housing is more available in rural areas. The share of apprentices without a residence permitt or those who changed status has stabilized since 2022 (Studthoff et al., 2024). Therefore, integration into regional social contexts is crucial for support. An example is the funding program 'Junges Wohnen' (young living) of the Bundesministerium für Wohnen, Stadtentwicklung und Bauwesen (Federal Ministry for Housing, Urban Development and C.[9] [BWSB], 2023).[10]

In *Türkiye*, additional assistance comes through various funding linked to public interests, as EP1_priv explains:

> We provide extra support to our students with poor economic conditions with the support of the state, the support of our Organized Industrial Zone, the support of our school's family union, and three separate supports. But we already support all students in this regard [...]. (EP1_priv)

Micro-Perspective: The Individual and its Learning and Living Conditions

The micro-perspective on access to IVET, finally, addresses individual factors. These are the suitability of the apprentices and the extent of vulnerability. Intersectional aspects of vulnerability are gender and racist discrimination.

In *Türkiye*, recruitment of female apprentices ('positive discrimination', EP1_priv) is forced by some VET institutions, as women are 'more effective and yield more efficient results' (EP1_priv). Interviewee EP13_pub describes a change in gender-biased mindsets.

> I work at a school where there are many female students. We can say that female students are more successful, especially in certain areas. We can also say that some of the usual clichéd things have changed. [...]. For example, 20 years ago, there was not a single female employee at [name of company]. Currently, apart from engineers and white-collar workers, girls were first included in blue-collar workers with a project implemented in 2008. There was a lot of hesitation when including girls with a joint

---

[10]   https://www.bmwsb.bund.de/SharedDocs/kurzmeldungen/Webs/BMWSB/DE/2023/04/junges-wohnen.html

project we implemented. In practice, it was seen that women can also be successful in the machinery and metal sector in summary. (EP13_pub)

In *Germany*, interviewee I23_VET contrasted first (mainly refugees) and second-generation migrants and stated, that the most vulnerable group is not the 'weak students' (I23_VET). Whilst these have ' difficulties getting into working life because of constraints that they don't really realise yet,' the real vulnerable students are those who don't have certain social skills. Like: I turn up on time. I do what I'm told' (I23_VET).

> We have a lot of students with a migration background, but it's the background. I can understand the bias of the companies from experience. But the migrants who have fled here, so to speak, because of economic issues and suchlike, that's not the group that has these problems. They want to. They want to work here, and they want to arrive here. They want to do their training and want to stay here in Germany. And those are the ones who integrate very well. (I23_VET)

Official data for Germany show that women are less likely to pursue a dual apprenticeship, instead enrolling in school-based occupations in care and education (BIBB, 2024). According to Gónzales and Peters (2021), two-thirds of care sector employees are female. They identify reasons for the high drop-out rate among care apprentices, as financial strain, family obligations, practice shock, identity crises due to the profession's negative image, and mental health issues. Notably, they describe women to have a stronger professional identification with care. Gender-related factors, including these drop-out criteria, limit women's access to apprenticeships. This is reflected in the establishment of targeted promotional activities, discussed in the next chapter.

Accessibility: Supporting Measures in Turkish and German IVET

The second research question was: What actions do Germany and Türkiye apply to create accessibility in their IVET systems? Both countries have implemented supporting measures that align with the dimensions of accessibility: (1) information, communication, and understandable language, (2) transport and facilities, and (3) social services in urban and rural areas. However, these dimensions were not equally addressed. The data revealed that daily teaching activities were primarily adapted for accessibility, impacting teaching, learning, and related processes. Other dimensions partly overlapped.

Information, Communication and Understandable Language

Turkish interviewee EP11 states, that there is no overall strategy and leaves open, whether the macro- or meso-level is addressed. EP11 rather describes school-related supporting measures and highlights the engagement of single actors:

> There is no strategy to follow the special conditions of the student and prevent them from dropping out of school. The individual efforts we make are a developed strategy. In fact, there should be a strategy for these, but there is no such thing, as you understand, we have teachers' boards, meetings and branch teachers' boards, but there is no system that will closely monitor them, we are trying to solve the problem with our own efforts. (EP11)

In *Germany*, the most important reference is the BBiG; it prohibits gender-, race- or age-related discrimination. At teaching level, the readiness of teachers and employers to use translation opportunities in work and learning environments can be seen as an aspect of accessibility. In some cases, this support is implemented at school level, not only carried out by single actors:

> Half and a year ago, we started a mentoring programme at our school to minimise the dropout rate that we have. And that means that we hold intensive discussions with the students, offer support in the form of learning coaching from guidance counsellors and simply more personal support than we had before. (I23_VET)

Transport and Facilities

In one example, a German VET school reports that they established a childcare offer within school:

> We also have a [...] training programme especially for single mothers. In recent years, we have also set up a kind of childcare programme here with people who look after the children here in the building during this time and have found that these women have virtually no opportunity to get into training anywhere else but here with us. (I31_VET)

With focus on mobility, one VET school reports a funded project for migrants in rural areas to achieve a driving licence:

> We bought in […] a programme […]. They [the refugees] were able to get a driving licence, the measure is called 'Mobile in the Skilled Trades'. Though it was only aimed at refugees, it should be looked at, because we have very poor bus and train connections here. So, we're very rural here, yes, and without a driving licence it's difficult to find a job. (I25_VET)

Another aspect, which can be ascribed to transport and mobility, is the offer of accommodation by employers, when recruiting apprentices, either locals or work migrants:

> Yes, nursing got its staff, its trainees, through good pay and official housing. Young women were able to leave home and had enough money and a flat. Those have always been important things. […] You can't talk about recruiting migrants, migrant or international carers without talking about housing. (I1_Emp)

It is notable, that most of the quotes related to teaching and learning conditions. Only few aspects addressed other dimensions of accessibility.

6 Discussion: Highlighting with Respect to Similarities and Differences

Regarding hindering and facilitating factors towards access to IVET for (future) migrant workers in both countries, there were similar and different factors found.

Similarities in Access and Accessibility

In terms of access, most similarities were found for the *meso- and micro-level*.

First, private and public schools have very different opportunities of acting. Private schools control access by self-defined selection criteria, while public schools are in charge of taking all students that are either registered by companies (Germany) or for instance sent by a private school (Türkiye). This aspect is in line with the still strong relation of socioeconomic resources also in vocational education opportunities (Güngör & Güngör, 2023; Mang et al., 2023). The access discrepancy between private and public sector can be considered as a hindering factor.

Second, VET schools in both countries, at least those that participated in the study, show great responsibility towards their more or less open social inclusion assignment. The individual commitment of teachers is highlighted in particular. This includes also the schools' engagement to solve IVET-related problems with cooperation partners in the region. In Germany, this would

include the chambers of commerce and crafts, as well. A facilitating factor can, thus, be seen in the commitment of actors in the school and its environment.

One main argument of defining groups as vulnerable is social behaviour, those students lack suitability with schools or apprenticing companies. In both countries, schools apply supporting measures (accessibility), such as mentoring or other formats of counselling. Different are the strategic programs at *macro-level*, but the estimations are similar, again: Strategic planning and associated reliable support programmes from the state are an obstacle to access in IVET in both countries.

In this research, the reduction of gender-related discrimination was reported to be faced through 'positive discrimination'. Hence, this argument shows a certain readiness to address this facet of discrimination but also highlights the enabling or hindering role of families (Blossfeld, 2020).

In Türkiye as well as in Germany, there are schools which provide accommodation with different conditions. Both countries provide support, either with funding measures or reduced prices. In Germany, the recruitment of migrant apprentices is legally linked to securing living space. This can be considered as a hindering factor, as apprentices must organise their accommodation from abroad or apply for a visa to organise this. A facilitating perspective would highlight the ensuring of an adequate standard of living.

Cultural integration is both relevant at *macro- as at micro-level*. It appears challenging when migrants live in rather isolated communities. This seems to apply to both countries, Türkiye and Germany. To foster cultural access, migrants need both safe spaces with familiar backgrounds and opportunities to engage in work and social life. This factor relates to the macro-level (distribution of migrants in the country according to available resources) as well as to the micro-level (create relations between locals, migrants and for instance diaspora). If present, interpersonal relations can be argued as a facilitating factor, while the distribution aspect rather shows space for development in both countries.

Related to the information, communication and understandable language aspect of accessibility, there are promising achievements. Teaching routines, active development of a professional support and integration attitude were reported and hold great potential to enhance social inclusion through innovative ideas in IVET. This can be discussed mainly as a facilitating factor. Next to individual support, the adaption of learning material and work tasks, which take place in both countries, and which range from easy language learning material, the use of the same words to describe tasks and to conduct preparation for exams can be considered as a core aspect of accessibility.

Another fair-looking aspect is the claim of handling multilingualism as resource to IVET and workplace. Recent research shows both a lack of appreciation and recognition opportunities (Zastrow, 2022).

Differences in Access and Accessibility

In both countries, national language skills are described as important for education and future workplaces. In Germany, the barrier for people coming from non-EU countries as work migrants is at first view higher than for those who came to the country as refugees. A closer look shows, that both groups must either achieve language levels mainly in the country of origin, or within Germany in integration courses. In Türkiye, the language level is not regulated that strict.

Also, in Türkiye, VET appears to be the 'second choice' due to structural conditions, such as preferred academic tracks making VET an option to those, who do not perform sufficiently to achieve higher academic tracks. The access to higher education is limited by assessments and those who don't perform sufficiently or later drop-out from private VET schools are sent to other (VET) schools. This leads to the risk of a quality reduction in public school, which

must work with a potentially more heterogenous target group than private providers and, thus, with a probably problematic public perception of vocational training. In opposite, the dual IVET in Germany is well-reputed and the dual system does (formally) not require preconditions.

7 Conclusion

The presented study aimed to explore the access and accessibility of IVET in Germany and Türkiye. Through document analysis and problem-based interviews, two research questions led the research: What hindering and facilitating factors exist with regard to the access to initial vocational education and training system of (future) migrant workers in Türkiye and Germany? What actions do Germany and Türkiye apply to create accessibility in their IVET systems? Hindering factors were found in the state of a VET school, as private schools have more opportunities to control the selection of applicants, while public schools are open to anyone.

Due to the open access of public schools, they further must deal with dropout and its prevention, which requires high engagement in accessibility terms. This leads to teachers' engagement as another problematic factor, for engagement is very personal and can only partly be influenced by the organisation context. This context is often described as unsteady. Strategic planning and the associated reliable support programs, whether at the regional or state level, can be a hindering factor if missing or a facilitating factor if available. Next to funding, interpersonal relations were identified as a further facilitating factor for cultural access, by supporting integration in work and everyday life. Still, legal aspects appear to be the most important factor, which challenges both countries, but in different ways. The FEG in Germany offers numerous options to access VET and the integration of already recognised refugees runs parallel. This requires highly specific knowledge from all actors involved. In Türkiye, a high dropout rate and only little integration of mainly Syrian refugees point out to existing difficulties especially at the transition between lower and upper secondary schools. In Germany, access is more strictly linked to language knowledge than in Türkiye. Regarding accessibility, IVET schools in both countries show engagement and creative solutions in overcoming challenges aiming integration and successful vocational education.

Overall, the research showed similarities and differences between Germany and Türkiye in terms of access and accessibility. A future development of skills partnerships requires a deep, mutual understanding of country-specific conditions to address the right aspects at the right starting point. For instance, cross-country supporting structures and a reliable funding seem important. Moreover, an agreement on reciprocal access conditions appears necessary to reduce the risk of failure or dropout and to enable an eased work migration between both countries. This would provide to the life reality of a great number of people, who live in two cultures.

The study is limited, as only actors in the institutional field of VET were involved, the perspective of apprentices or families for instance is missing. A contrasting of sectors was not made in this research, and the analysis took part in three languages which might have caused an overlooking of details. Future research could focus on different perspectives and sectors.

Relevant would also be an analysis on how access to VET could be improved and interesting would be an exploration on effective accessibility measures to improve the supporting systems in both countries as well as an analysis of best cases for partnership and curriculum development.

Acknowledgement

References

Autor:innengruppe Bildungsberichterstattung (2024). *Bildung in Deutschland kompakt 2024. Zentrale Befunde des Bildungsberichts* [Education in Germany compact 2024: Key findings of the education report] [Report]. wbv Publikation. https://www.bildungsbericht.de/de/bildungsberichte-seit-2006/bildungsbericht-2024/pdf-dateien-2024/bildungsbericht-2024-kompakt.pdf

Becker, R. (2017). Entstehung und Reproduktion dauerhafter Bildungsungleichheiten. [Emergence and reproduction of lasting educational inequalities] In R. Becker (Ed.), *Lehrbuch der Bildungssoziologie* (3rd ed., pp. 89–150). Springer Fachmedien. https://doi.org/10.1007/978-3-658-15272-7_4

Bell, L. A. (2016). Theoretical foundations for social justice education. In M. Adams & L. A. Bell (Eds.), *Teaching for diversity and social justice* (3rd ed., pp. 25–54). Routledge. https://doi.org/10.4324/9781315775852

Blossfeld, P. N. (2020). The role of the changing social background composition for changes in inequality of educational opportunity: An analysis of the process of educational expansion in Germany 1950–2010. *Advances in Life Course Research*, *44*, 100338. https://doi.org/10.1016/j.alcr.2020.100338

Bright, D. (2022). An integrative review of the potential of wireless assistive technologies and internet of things (IoT) to improve accessibility to education for students with disabilities. *Assistive Technology*, *34*(6), 653–660. https://doi.org/10.1080/10400435.2021.1956639

Bundesagentur für Arbeit (2024). Ausbildungswege im Überblick [Overview of training programmes]. https://www.arbeitsagentur.de/bildung/ausbildung/ausbildungswege-im-ueberblick

Bundesfachstelle Barrierefreiheit (2024). Barrierefreiheit. https://www.bundesfachstelle-barrierefreiheit.de/DE/Presse-und-Service/Glossar/Functions/glossar.html?nn=6540b11e-002e-4279-bfdd-86d8a37ecdde&lv2=4f7b66d9-16eb-4bbe-89db-39ea578516c6

Bundesinstitut für Berufsbildung (BIBB) (Ed.) (2022). *Datenreport zum Berufsbildungsbericht 2022. Informationen und Analysen zur Entwicklung der beruflichen Bildung* [Data report on the vocational education and training report 2022: Information and analyses on the development of vocational education and training]. https://www.bibb.de/datenreport/de/datenreport_2022.php

Bundesinstitut für Berufsbildung (BIBB) (Ed.) (2024): *Datenreport zum Berufsbildungsbericht 2024. Informationen und Analysen zur Entwicklung der beruflichen Bildung.* [Data report on vocational education and training report 2024: Information and analyses on the development of vocational education and training]. https://www.bibb.de/datenreport/de/189191.php

Bundesministerium für Wohnen, Stadtentwicklung und Bauwesen (BWSB) (2023). *'Junges Wohnen'. Bezahlbaren Wohnraum für junge Menschen schaffen* ['Young living'. Creating affordable housing for young people]. https://www.bmwsb.bund.de/SharedDocs/kurzmeldungen/Webs/BMWSB/DE/2023/04/junges-wohnen.html

Çelik, Ç. (2022). *Access to education report*. Refugee Council of Turkey (TMP). https://turkiyemultecikonseyi.org/uploads/TMK%20YAYINLARI/ACCESS%20TO%20EDUCATION%20REPORT-FINAL.pdf

Clemens, M. A. (2015). Global Skill Partnerships: A proposal for technical training in a mobile world, *Journal of Labor Policy (IZA)*, *4*(2). https://doi.org/10.1186/s40173-014-0028-z

Deutscher Gewerkschaftsbund (DGB) (2020). *Wie wohnst du aktuell und wie würdest du gerne wohnen?* [How do you currently live, and how would you like to live?]. Statista. https://de.statista.com/statistik/daten/studie/1203107/umfrage/wohnsituation-von-azubis-in-deutschland/

Eranıl, A. K. (2024). School dropout causes in Turkish education system (2009-2022): A pareto analysis by grade level. *Kuramsal Eğitimbilim Dergisi* [Journal of Theoretical Educational Science], *17*(2), 451–477. http://doi.org/10.30831/akukeg.1291174

Eurostat (2023). *Early leavers from education and training by sex and labour status.* https://doi.org/10.2908/E-DAT_LFSE_14

Fendel, T., & Ivanov, B. (2024). Gute Arbeitsmarktintegration trotz bürokratischer Hürden und Diskriminierung. *IAB-Kurzbericht*, *21*. https://doku.iab.de/kurzber/2024/kb2024-21.pdf

Garcia González, D., & Peters, M. (2021). *Ausbildungs- und Studienabbrüche in der Pflege – ein integratives Review* [Training and study drop-outs in nursing - an integrative review]. Bundesinstitut für Berufsbildung. https://www.bibb.de/dienst/publikationen/de/17573

Güngör Akçay, A., & Güngör, A. (2023). PISA 2018 Sonuçları Bağlamında Türkiye'deki Eğitimde Fırsat Eşitliğinin Bölgeler Temelinde Analizi [Analysis of educational opportunity equality in Turkey based on regions in the context of PISA 2018 results]. *Bartın Üniversitesi Eğitim Araştırmaları Dergisi*, *7*(2), 176–194. https://dergipark.org.tr/tr/download/article-file/2742542

Güzen, B., & Erbaş, Y. H. (2023). Problems and solution proposals of vocational and technical education in secondary education institutions. *Sakarya University Faculty of Education Journal*, *23*(1), 82–104. https://doi.org/10.53629/sakaefd.1280501

Kleinert, C., & Jacob, M. (2024). Bildungschancen: Zugang zu Bildung [Educational opportunities: Access to education]. In P. Böhnke & D. Konietzka (Eds.), *Handbuch Sozialstrukturanalyse* (pp. 1–34). Springer VS.

https://doi.org/10.1007/978-3-658-39759-3_28-1

Kunze, C. (2021). Nutzerorientierte und partizipative Ansätze in Gestaltungs- und Aneignungsprozessen von teilhabefördernder Technik [User-orientated and participatory approaches in design and appropriation processes for technology that promotes participation]. In M. Schäfers, & F. Welti (Eds.), *Barrierefreiheit – Zugänglichkeit – Universelles Design. Zur Gestaltung teilhabeförderlicher Umwelten* (pp. 133–142). Verlag Julius Klinkhardt. https://doi.org/10.35468/5856

Kurz, A., Stockhammer, C., Fuchs, S., & Meinhard, D. (2007). Das problemzentrierte Interview [The problem-centered interview]. In R. Buber & H. H. Holzmüller (Eds.), *Qualitative Marktforschung* (pp. 463–475). Gabler. https://doi.org/10.1007/978-3-8349-9258-1_29

Mang, J., Müller, K., Lewalter, D., Karstorff, T., Müller, M., Ziernwald, L., Tupac-Yupanqui, A., Heine, J.-H., & Köller, O. (2023). Herkunftsbezogene Ungleichheiten im Kopmetenzerwerb. In: D. Lewalter, J. Diedrich, F. Goldhammer, O. Köller, & K. Reiss, PISA 2022. Analyse der Bildungsergebnisse in Deutschland [PISA 2022. Analysing educational outcomes in Germany] (pp. 163–198). Waxmann. https://www.pedocs.de/volltexte/2024/28666/pdf/Lewalter_et_al_2023_PISA_2022.pdf

Luciano, S. A., & Schimpf, M. (2021). Triple Win Programme – Recruiting nurses from abroad sustainably. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. https://www.giz.de/en/downloads/Factsheet_TripleWin_2021_en_.pdf

Mayer, M., & Clemens, M. (2021). Fachkräftemigrationsmonitor. Fachkräfteengpässe von Unternehmen in Deutschland, Trends zum Zuzug ausländischer Fachkräfte und die Situation ausländischer Erwerbstätiger am deutschen Arbeitsmarkt [Skilled Labour Migration Monitor. Skilled labour shortages at companies in Germany, trends in the influx of foreign skilled workers and the situation of foreign workers on the German labour market]. Bertelsmann Stiftung. https://doi.org/10.11586/2020082

Mesleki Eğitim Haritası (2024). Türkiye genelinde meslek öğrencisi istatistikleri [Statistics of vocational students in Türkiye], https://meslekiegitimharitasi.meb.gov.tr/ogrenci.php

Numanoğlu, K. V., Suna, H. E., & Tanberkan, H. (2018). Türkiye'de Meslekî ve Teknik Eğitimin Görünümü [The outlook of vocational and technical education in Turkey]. Ministry of National Education (MoNE). https://mtegm.meb.gov.tr/meb_iys_dosyalar/2018_11/12134429_no1_turkiyede_mesleki_ve_teknik_egitimin_gorunumu.pdf

Organisation for Economic Co-operation and Development (OECD) (2023a). *Working towards dual intent integration of Ukrainian refugees*. OECD Policy Responses on the Impacts of the War in Ukraine. OECD Publishing. https://doi.org/10.1787/6b4c16f7-en

Organisation for Economic Co-operation and Development (OECD) (2023b). Taking stock of education reforms for access and quality in Türkiye. *OECD Education Policy Perspectives*, *68*. https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/04/taking-stock-of-education-reforms-for-access-and-quality-in-turkiye_8ef9c5a2/5ea7657e-en.pdf

Organisation for Economic Co-operation and Development (OECD) (2024). *Education at a Glance 2024: OECD Indicator*s. OECD. https://www.oecd.org/en/publications/education-at-a-glance-2024_c00cad36-en.html

Ozdemir, N. K., Kemer, F. N. A., Arslan, A., & Yıldırım, A. (2024). A qualitative study of unveiling school dropout complexity in Türkiye. *Child Indicators Research*, *17*, 1001–1021. https://doi.org/10.1007/s12187-024-10116-7

Özer, M. (2021) A promising opportunity for the integration of Syrian refugees in Turkey: New targets in accessing the labor market through vocational Education and Training. *Bartın University Journal of Faculty of Economics and Administrative Sciences*, *12*(23), 239–251. https://doi.org/10.47129/bartiniibf.938396

Statistisches Bundesamt (2024). *Anzahl der Ausländer aus der Türkei in Deutschland von 2001 bis 2023* [Number of Foreigners from Turkey in Germany from 2001 to 2023]. https://de.statista.com/statistik/daten/studie/152911/umfrage/tuerken-in-deutschland-seit-2001/

Studthoff, A., Thomann, B., Niediek, S., & Shahin, S. (2024). Einwanderung in die Ausbildung: Möglichkeiten und Herausforderungen der gezielten Gewinnung, Vorbereitung und Integration von Auszubildenden aus Drittstaaten [Immigration into training: Opportunities and challenges of targeted recruitment, preparation and integration of trainees from third countries]. Bundesinstitut für Berufsbildung. https://www.bibb.de/dokumente/pdf/Studthoff_Einwanderung_Ausbildung.pdf

Tasli-Karabulut, V. (2022). State-led vocational education and training in Turkey through the lens of capability approach: Strategically important but not commonly shared. *Journal of Vocational Education & Training*, *76*, 537–555. https://doi.org/10.1080/13636820.2022.2042723

Tasli-Karabulut, V., & Sancak, M. (2024). Vocational education and training: A pathway for refugees' integration in the labour market? Lessons from Syrian refugees in Tarsus, Turkey. *Industrial Relations Journal*, *55*, 401–424. https://doi.org/10.1111/irj.12442

Witzel, A. (2000). Das problemzentrierte Interview [25 Absätze] [The problem-centred interview [25 paragraphs]]. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, *1*(1), 22. https://www.qualitative-research.net/index.php/fqs/article/view/1132/2519

World Bank Group (2025). Turkey Organized Industrial Zones Project. https://projects.worldbank.org/en/projects-operations/project-detail/P171645

Zastrow, L. (2022). Mehrsprachigkeit als Ressource beim Übergang von der Schule zum Beruf. Eine explorative Analyse von Stellenanzeigen hinsichtlich des Gebrauchswerts von Sprachkenntnissen im Tükischen und Russischen [Multilingualism as a resource in the transition from school to work. An explorative analysis of job advertisements regarding the utility value of language skills in Turkish and Russian.]. Bundesinstitut für Berufsbildung (BIBB). https://www.bibb.de/dienst/publikationen/en/download/18193

Biographical Notes

Dr Ida Kristina Kühn is a postdoctoral researcher at the Institute Technology and Education (ITB) and lecturer for educational sciences at the University of Bremen. Her research focus is on internationalisation of VET service providers, teaching and learning in vocational education and integration of disadvantaged groups.

Dr Andreas Saniter is a senior researcher and the international research coordinator at the Institute Technology and Education (ITB) University of Bremen. His research interest are potentials and barriers for cross-country mutual learning and linking science and VET.

Dr Kıymet Selvi's works are mainly related to "Curriculum and Instruction." Regarding the field of education, she has worked on topics such as ICT, e-learning, distance education, self-directed learning, social impact assessment, philosophy of education, phenomenological philosophy, phenomenological pedagogy, curriculum development and evaluation, and material design in VET.

Dr Ayşe Dilek Keser is an independent multi-disciplinary researcher currently working for a Horizon Europe project at Ankara University. Her fields of interests are English language teaching, educational technology, university-sector collaboration, and migration.

Postponing Training: A Strategy for Dealing with the Tension Between Producing and Training in Swiss Dual VET Programmes

Lamamra, Nadia

nadia.lamamra@hefp.swiss, Swiss Federal University for Vocational Education and Training SFUVET, Research & Development Division

Wenger, Matilde

matilde.wenger@sfuvet.swiss, Swiss Federal University for Vocational Education and Training SFUVET, Research & Development Division

Abstract

Context: On-the-job trainers play a crucial role in the Swiss dual vocational education and training system. Since in-company training is predominant, these individuals are responsible for a significant portion of the apprentices' supervision. As both professionals and training coordinators, on-the-job trainers often encounter various challenges, such as the tension between production and training. This challenge is reflected in their limited time to fulfil their training responsibilities. Consequently, on-the-job trainers implement strategies to address this issue, which may include postponing training.

Approach: Drawing from qualitative and quantitative data, our contribution examines the strategies developed by on-the-job trainers to deal with the tension between production and training.

Findings: Several strategies have been identified: *time filler*, *compulsory extra tuition*, and *postponing training* on a weekly, monthly, or annual basis.

Conclusions: Postponing training to more favourable times is an operational strategy that does not hinder productive work. However, it fundamentally calls into question the organisation of the dual system.

Keywords

on-the-job trainers, vocational education and training, dual VET, tension production-training, training strategies

1 Introduction

In Switzerland, two out of three young people leaving compulsory schooling begin initial vocational education and training (IVET) (Federal Statistical Office [FSO], 2023). Most youth engaged in the VET system (90%) enter dual training, where apprentices attend theoretical classes one or two days a week at a vocational school and train three or four days a week in a training company under the responsibility of a *trainer* (State Secretariat for Education, Research and Innovation [SERI], 2022). Regional differences have to be mentioned: in the German-speaking regions, dual VET is followed by the great majority of apprentices, while in Latin

Switzerland[1], up to a third of young people attend full-time schools (FSO, 2025). This article looks at the company component of dual VET, and in particular on-the-job trainers who work with apprentices, and the challenges they face. It focuses on the time issues (in terms of shortages and fragmentation) and more specifically on the strategies used to deal with.

1.1 On-the-Job Trainers: A Key Figure in Dual Vocational Education and Training

Under the dual apprenticeship system, companies - private or public - can decide to train apprentices. In this case, they must register with a cantonal vocational training department/office and appoint a reference person to supervise the in-company apprenticeship and pass on vocational knowledge to one or more apprentices. These on-the-job trainers (OJT) work alongside the apprentices several days a week throughout their training, making them a key figure in dual VET (Forster-Heinzer, 2020; Masdonati & Lamamra, 2009). In terms of status, in most cases the OJTs role is in addition to the employee and/or manager of a company's status, as people who train apprentices are first and foremost workers. This additional "charge" of training apprentices can give rise to several specific constraints, including a marked tension between productive and formative logic (Lamamra et al., 2019; Wenger & Lamamra, 2023).

1.2 The Tension between Production and Training: A More Marked Reality for On-the-JobTrainers

A key issue in the dual system is the tension between two sometimes antagonistic logics, production and training (Moreau, 2003). This is particularly salient for on-the-job trainers (Lamamra et al., 2019). On the one hand, the productive logic of companies imposes itself on OJTs, whether they are employees or employers who have to deliver a certain volume of work within a given timeframe. On the other hand, their role requires OJTs to fulfil training objectives in parallel with their productive activity. They not only have to pass on professional knowledge and know-how to apprentices but also check that they have acquired it on a regular basis (Gross et al., 2020). In particular, they have to set time aside to support apprentices' learning, to show them tasks, but also to give them the opportunity to practice and make mistakes, and finally to monitor their gradual autonomy in the activity (Billett, 2009). The coexistence of these two logics can lead to tensions, as OJTs are "torn between" activities of different kinds (Bahl, 2013), which give them different roles within the company. This tension can become even more acute depending on how the training companies view their apprentices: when they are perceived as future employees, training may take second place, with the productive dimension of the apprentice's activity being given priority. Conversely, if the company sees apprentices as learners, greater attention will be paid to training and its pedagogical aspects (Eraut, 2004; Fuller & Unwin, 2010). This organizational context therefore directly influences the way OJTs engage with training (Besozzi, 2023). A sort of continuum can be drawn between the production-centred vision and the training-oriented vision of the training companies (Lamamra & Besozzi, 2019), also reflected in the resources that they are prepared to invest in training apprentices, in terms of staff, facilities, but above all time given.

1.3 Lack of Time and OJTs Strategies

The tension between producing and training is mainly illustrated by time issues, with OJTs having to organise themselves to free up the space needed to train apprentices and pointing to the recurring problem of lack of time. In addition to this first aspect, split time is another issue (Lamamra et al., 2019; Losa & Filliettaz, 2018). Indeed, the double function (productive worker

---

[1] Latin Switzerland refers to the French- and Italian-speaking regions of Switzerland.

and trainer) involves a time, and activities split (Bahl, 2013; Lamamra et al., 2019;). Faced these imperatives, trainers put in place various strategies to fulfil their mission (Baumeler & Lamamra, 2019): first, *self-training*, in which apprentices are required to train themselves by trying, making mistakes and trying again, possibly by watching experienced colleagues or more advanced apprentices. In this model, OJTs shift the responsibility of training onto their apprentices. However, this productivity-oriented training model can *ultimately* prove costly in terms of time and money, as the apprentice has to carry out certain tasks alone, without supervision, and risks making mistakes. The second strategy identified is the *time filler* (Baumeler & Lamamra, 2019). Here, OJTs spend some time during the day - during breaks or between two clients - explaining tasks or professional gestures to apprentices. This strategy shows a certain commitment to their training function, and at the same time a submission (or sometimes an adherence) to the primacy of production and their role as trade professionals. The third strategy consists of *compulsory extra tuition* (Baumeler & Lamamra, 2019): OJTs organise to train apprentices outside normal working hours, either at the end of the day or at weekends. In the latter case, the legislation regulating work (Labour Law, VET laws and ordinances, Code of Obligations) is not necessarily complied with, which is problematic both for OJTs and for apprentices (Baumeler & Lamamra, 2019). In addition to these three strategies, some occupational sectors are adopting others, such as seasonal training (Gagnon, 2007). This involves the annualization of training in response to production imperatives: periods of high or low activity, customer affluence, weather constraints (Wenger & Lamamra, 2023).

The aim of this article is to highlight how the tension between producing and training influences the organisation of training in companies, by examining the postponement logic implemented by OJTs in certain professional sectors. This logic, developed on a weekly, monthly, seasonal or even annual basis, appears to be a way of addressing the primacy of production and/or lack of time. It also seems relevant to study this strategy to better understand the everyday life of OJTs.

2 The Project

The research project to which this contribution relates focuses on the challenges and issues faced by OJTs, as well as their needs, interests and availability terms of continuing education.

2.1 Project Methodology

The first stage of the project consisted of individual interviews with representatives of professional associations, company managers, OJTs and apprentices. Semi-structured interviews were conducted in the German-speaking part of Switzerland, face-to-face or by videoconference. An interview framework of around twenty questions was used as a basis for the interviews, recorded with the consent of the participants. Summary notes were taken and then coded and recorded in a table containing the main points of the different answers. An initial thematic content analysis was carried out, highlighting topics considered to be the most salient in terms of continuing education needs for OJTs. The second stage consisted of several additional interviews with OJTs in Latin Switzerland. A new interview framework was developed, focusing more on OJTs day-to-day life, challenges and needs, particularly in relation to continuing education. This data underwent thematic analysis and was linked to data from the German-speaking region, informing a questionnaire survey. The third stage of the project involved a questionnaire survey. Conducted online, the questionnaire was sent by most of the Swiss cantons, the Swiss

Union of Arts and Crafts and the Swiss employers' association to the training companies directly or to the Organisations of the world or work[2] , which in turn forwarded it to their member companies. The questionnaire was sent to OJTs and to employers of companies training apprentices. The survey was structured into several blocks: continuing education opportunities related to OJT's function; more general training opportunities, elements enabling the concrete design of courses (formats, methods, periods and other characteristics); socio-demographic information and structural information.

2.2 The Participants

The qualitative component involved 98 interviews (84 in German-speaking Switzerland, 14 in French-speaking Switzerland) with OJTs, with or without employer status[3]. All professional sectors and company sizes were represented (see Appendix A). In quantitative terms, 5,068 respondents, mainly OJTs (3/4 of the participants), but also company managers (with or without a training function), constitute the sample. All regions, professional sectors and company sizes were represented.

3   Results

Time issues appear throughout the corpus, in both qualitative and quantitative data. Whether from missing time or split time's perspective, it reflects the main form that the tension between producing and training takes in the daily lives of OJTs. The strategies used to resolve the tension between producing and training also shed light on this particular issue.

3.1 Strategies developed by OJTs to deal with the Time Issues

As mentioned above, various strategies applied by trainers have been identified in the literature (Baumeler & Lamamra, 2019). One of these is *time filler training*: this involves "taking advantage" of quieter moments or breaks to train apprentices. One operations agent explains that he plans sessions with his apprentices during the lunch break, so that he can "optimise" his break. A pastry-chef incorporates training areas during breaks, allowing apprentices to write their training diaries and he to read them. One retail manager explains that she has "techniques" for managing training time and moments, namely during the morning (outside busy periods), when she can devote the most time to apprentices. These results confirm that this strategy can be found in various sectors and companies' sizes, and also subject to different constraints. They also highlight the limits (particularly legal) of such a strategy for dealing with production-training tension. Using breaks and rest periods for training not only contravenes the legal frameworks governing apprenticeships and salaried work but can also be harmful to apprentices and OJTs health (Duc & Lamamra, 2022).

Another strategy identified from the interviews is *compulsory extra tuition* (Baumeler & Lamamra, 2019). For example, one landscape gardener said that she makes herself available to her apprentices from 5 pm, i.e. when they return from the worksites, to discuss any difficulties related to the training

---

[2]   They are umbrella organisations representing each sector of activity. They are generally structured at federal level, but more rarely at regional or cantonal level. Under this label, employers organisation, employees organisations or even trade unions are involved.

[3]   Apprentices and representatives of professional associations were also interviewed in the German-speaking part of Switzerland. However, their responses have not been included in our analyses, as the focus here is on OJTs.

> Normally we avoid overtime, but anyway - [...] if we see that he [the apprentice] is panicking and doesn't understand anything, we stay until he's confident for his test or exam. (Helena, OJT landscape gardener).

In this extract, she points out that not respecting working hours is something that goes without saying. According to her, it allows her to show her availability and create a trust relationship with apprentices. Above all, it makes it possible to offer them support without having an impact on their productive work. In doing so, she extends the apprentices' working hours as well as her own, which becomes considerable. She also makes a point of being present from 6am, before they set off on site.

Another construction OJT explains that he comes to the office every Saturday morning for "support classes", i.e. to help his apprentices with their homework. He explains

> You have to make one or two sacrifices to make them understand, to make things better. (Mehdi, OJT mason/bricklayer)

Such an organisation underlines the strong commitment of OJTs, agreeing to this "sacrifice". Above all, it highlights the fact that it is impossible to provide supervision and support in the time granted for the activities as a whole.

The first strategy (*time filler*) can also be found on a less occasional basis, when training is organised on a weekly basis, according to the more or less quiet days. Some sectors, such as retail, structure training times according to the workload, as one trainer explains

> For example, on Saturdays, it's very rare that we have time with the apprentices, because that's when people go out more, so... (Ivana, OJT retail manager)

The strategies also depend on sectors specificities, company sizes and on-the-job trainers involvement.

3.2 Postponing Training Another Way to Deal With the Constraints

A new strategy emerged in our corpus: postponing training, i.e. organising training on a deferred basis according to the imperatives of productive work, linked to specific constraints (off-peak or overloaded periods) or weather conditions. This postponement can take place over different periods of time, and can be referred to as weekly, monthly or annualised training management. In sectors characterised by irregular rhythms (peak periods in the catering industry, high season in the hotel and retail sectors, holiday periods or sales periods in the retail sector), anticipating busy periods and, conversely, off-peak periods, makes it possible to organise training on a seasonal basis.

When asked if they felt they had enough time to look after apprentice-related tasks, some OJTs working in the green trades said:

> In winter, there's more time to study plants or anything else (Franck, OJT/manager landscape gardener horticulturist)

Sectors dependent on climatic conditions adapt their training programmes accordingly to a seasonal basis.

However, the latter are also experiencing last-minute postponements, more akin to the strategy of *time filler* described above:

For example, if it's raining and the apprentices stay here [don't go out to the sites], we go to the break room and study together, or sometimes we go to the garden centre or a nursery and study the plants, I give them tips and tricks. (Helena, OJT landscape gardener)

For this OJT, rainy days are an opportunity to make progress in training apprentices, particularly on the more theoretical aspects of the occupation.

One operations agent explained that if the weather was bad, he would allow his apprentices to complete their training documents during working hours. These aspects are also found in the German-language interviews. The weather's vagaries therefore represent "unhoped-for" opportunities to free up time that would otherwise be taken up by productive tasks.

In short, a variety of training in the interstices can be seen: training organised according to off-peak periods (during the day, over the week, the month, the season or the year), training organised according to weather conditions (predictable, because it is a 'bad' season for green jobs, or unpredictable). Apart from improvisations linked to the vagaries of the weather, this training in the interstices could be planned in advance, whereas the strategy illustrated in the literature is more akin to a reactive phenomenon.

3.3 Willingness to Follow Continuing Education (Results from Questionnaire Survey)

Time management for training apprentices was not addressed directly in the questionnaire survey, but it can be read through the availability for following continuing education courses indicated by OJTs. In this respect, Chi-2 analysis cross-referencing the preferred months with the sectors of activity has made it possible to highlight the favourable or unfavourable periods for continuing education, and by extension for training apprentices (see Appendix B)1

Table 1
Most selected months for continuing education

Sector	1st choice	2nd choice	3rd choice
Agriculture	February	January	November
Industry	February	Indifferent	March
IT	February	Indifferent	March
Construction	February	January	March
Trade	February	March	January
Hotels	February	November	January
Admin	Indifferent	November	March
Health-Education	November	February	March

Taking all the responses together, it would appear that, overall, OJTs are more available in certain months (see Table 1). This is particularly the case for February, March and November, which are relatively quiet months for training, as apprentices do not have exams or other important deadlines. In some sectors specifically, these months correspond to the low season (for example, in the hotel and catering industry, but also in commerce). It can be noted that sectors most affected by seasonal or meteorological hazards - i.e. agriculture and construction - stand out from the others in that their responses fluctuate widely, indicating that availability is particularly high in the winter months and very low in the summer.

Conversely, the summer months and December were the least popular with respondents (see Table 2). On the one hand, this is a period marked by non-negotiable training issues, i.e. the exam period (June), but also the period when new apprentices start apprenticeship (July, August) and, for some sectors, the combination with a high season (hotels and restaurants or agriculture, forestry and landscaping). On the other hand, it is the time of the annual holidays (in some sectors, such as construction, even a period when compulsory holidays are set). December is also one of the months with the lowest number of employees, in five of the eight sectors considered. Many factors come into play: the end of calendar year, related deadlines and the closing of accounts in many sectors; the end of semester in the VET school and the training follow-up that this may entail in the company; and Christmas and New Year holidays period.

Table 2

Least selected months for continuing education

Sector	Second-best choice	Second last choice	Last choice
Agriculture	October	August	July
Industry	December	August	July
IT	June	August	July
Construction	September	June	July/August
Trade	Indifferent	December	July/August
Hotels	December	August	July
Admin	December	August	July
Health-Education	December	August	July

Another noteworthy result concerns the "indifferent period" option, selected to a greater or lesser extent depending on the sector: it was the second most popular option in the industry and IT sectors, and even the most popular in the administration sector. Hence, sectors that are less subject to seasonal fluctuations (high/low season), variations in work volume (busy/heavy periods) or weather conditions, are a higher flexibility for training times.

The answers as to when it is best to take training therefore depend to a large extent on the type of activity and the specific conditions in which it is carried out. Our results highlight the very considerable heterogeneity between sectors. From the information on OJTs readiness to take part in continuing education, it is possible to extrapolate their availability to train apprentices. In fact, the periods in certain sectors when it seems unthinkable to take part in continuing education are probably also too busy to provide apprentices with optimum support. The significant annual variation observed in readiness to follow courses is mirrored in readiness to train. This extrapolation is valid for periods when the difficulty in taking ongoing training is linked to a peak in production activity (high season or "good" season) or management activity (accounts closing or project deadlines), but probably not for situations where the lower availability to take training is linked to important periods for apprentice training (exams or welcoming newcomers). On the contrary, these periods could correspond to a heavier training load, with OJTs supporting exam preparation (in particular by having certain training content repeated, reworking certain tasks, etc.) and making themselves available for welcoming new apprentices (welcome days or weeks). Despite these specific cases, results complement the findings on time management, but above all provide a better understanding of the strategies developed by OJTs, in particular that of postponing training.

4 Discussion and Conclusion

4.1 Seasonal Strategies reflecting the Primacy of Production Logic

The seasonal strategies put in place to cope with production-training tension underline the primacy of the production logic over the training logic in our results (Lamamra & Duc, 2021). Indeed, OJTs adapt apprentices' training to the company needs, either by not training on days of the week when the workload is particularly heavy, when there are more customers, or during periods when activity is at its peak, particularly when it is dependent on the seasons, or by training during slack periods in terms of activity or customers, or when it's raining.

4.2 Planned versus "Reactive" Interstices

Another aspect to be noted in our results concerns the so-called *time filler* strategy (Baumeler & Lamamra, 2019). While the literature reports strategies that seem to be 'improvised', implemented reactively, on the spur of the moment, depending on the reality of the activity, in this corpus some of the forms described above seem to be more 'planned', taking into

account weekly, monthly or even annual workloads, as well as seasonal requirements. This form of the *time filler* strategy, aimed at anticipating training times in the long term, clashes with the training organisation as conceived by the dual system.

4.3 A Temporal Organisation of Training that questions the Dual Structure

Formally, the training plans governing dual VET stipulate that apprenticeships at vocational schools and in companies must coincide, particularly in terms of time (Federal Law on Vocational Training of 13 December 2002 [LFPr]). The vocational skills learnt at school should also be covered in the training company during the same period (usually the same semester). Although this is often difficult and is a major challenge for the dual system[4] , our results show that this parallel learning is sometimes almost impossible. In fact, our data show a very different reality in the field, with some training content being dealt with asynchronously between the two training locations, largely because of constraints linked to the production logic of the training companies. The results therefore call the dual system into question. Shouldn't the training organisation be rethought in depth, considering the temporal constraints that make up in-company training?

4.4 Conclusion

The aim of this article was to highlight the way in which the tension between producing and training influences the training organisation in companies, when it takes place on a weekly, monthly, seasonal or even annual basis. Postponing training emerged as a frequently chosen option. This result has highlighted as a national level and for companies of various sizes the importance of the tension between producing and training, the varieties of strategies used to face this major constraint, and the strong commitment of OJTs. Indeed, their strategies reveal the desire to "do their job well", i.e., to fulfil their mission as trainers despite everything. Their training mission, the preparation of future professionals, the transmission of their occupation and the perpetuation of the dual system are important to them, as part of the sense given to their function.

This strong motivation to train despite the constraints can sometimes bring them to opt for strategies (*time filler* and *compulsory extra tuition*, Baumeler & Lamamra, 2019) showing their limits, in legal terms, but also in terms of health at work. First, the double mission of producing and training already impacts health by creating stressful environments, both for OJTs and apprentices. Second, the lack of time to train prevents OJTs to transmit general health knowledge, out of security measures (Duc & Lamamra, 2022). Third, using certain strategies participate to increase fatigue, and also risks at work.

The *postponement of training* identified here seems to be a more effective strategy. In fact, it allows productive work to be carried out and does not jeopardise the company's economic activity, while allowing the OJTs to fulfil their mission. It therefore offers them a way out of the contradiction in which the dual system places them: providing production and training at the same time. Finally, it allows them to protect themselves, to preserve their health: they do not have to endlessly extend their working days or give up their breaks to fulfil their training mission. In doing so, they also protect apprentices' health. Postponing training therefore appears to be a viable solution for the dual system, even though it calls into question its very foundations.

---

[4]   The link between training locations is a recurring issue in the dual system (Sauli et al., 2021; Losa & Filliettaz, 2018; Sappa & Aprea, 2018; Sauli, 2021).

References

Bahl, A. (2013). Führungskräfte unter erschwerten Bedingungen: Empirische Einblicke zur Teilhabe des ausbildenden Personals in Wirtschaftsorganisationen. [Leadership under difficult conditions: Empirical insights into the participation of training staff in business organisations]. In S. M. Weber, M. Göhlich, A. Schröer, C. Fahrenwald, & H. Macha (Eds,), *Organisation und Partizipation. Beiträge der Kommission Organisations-pädagogik (pp. 209-217)*. Springer VS.

Baumeler, C., & Lamamra, N. (2019). Micro firms matter: How do they deal with the tension between production and training? *Journal of Vocational Education & Training*, *71*(3), 464-481. https://doi.org/10.1080/13636820.2018.1518922

Besozzi, R. (2023). Swiss in-company trainers: Multiple ways to train and socialize apprentices. *Swiss Journal of Educational Research, 45* (1), 2-14. https://doi.org/10.24452/sjer.45.1.1

Billett, S. (2009). Modalities of participation in work: The constitutive duality of learning through work. In M. Durand, & L. Filliettaz (Eds.), *Travail et formation des adultes (pp. 37-63)*. Presses Universitaires de France.

Duc, B., & Lamamra, N. (2022). Apprentices' health: Between prevention and socialization. *Safety Science* [online], 147. https://doi.org/10.1016/j.ssci.2021.105584

Eraut, M. (2004). Deconstructing apprenticeship learning: What factors affect its quality? In R. H. Mulder, & P. F. E. Sloane (Eds.), *New Approaches to Vocational Education in Europe: The Construction of Complex Learning-Teaching Arrangements (pp. 45-57)*. Symposium.

Forster-Heinzer, S. (2020). Effects of perceived in-company trainers' ethos on apprentices' vocational and organizational identification: an empirical study with cook and automotive apprentices. *Vocations and Learning, 13* (1), 71-90. https://doi.org/10.1007/s12186-019-09230-3

Fuller, A., & Unwin, L. (2010). Workplace Learning and the Organization. In M. Malloch, L. Cairns, K. Evans, & B. N. O'Connor (Eds.), *The Sage Handbook of Workplace Learning (pp. 46-59)*. Sage.

Gagnon, C. (2007). Arrimage des pratiques éducatives d'enseignants et de formateurs en entreprise en contexte d'alternance. Études de cas en formation professionnelle agricole. *Recherches qualitatives, 27* (1), 141-190. https://doi.org/10.7202/1085360ar

Gross, V., Berger, J.-L., Wenger, M., & Sauli, F. (2020). Motivating styles in dual, initial vocational education and training. *Journal of Vocational, Adult and Continuing Education and Training*, *3*(1), 67-88. https://doi.org/10.14426/jovacet.v3i1.126

Masdonati, J., & Lamamra, N. (2009). La relation entre apprenti-e et personne formatrice au cœur de la transmission des savoirs en formation professionnelle. *Revue suisse des sciences de l'éducation, 31*(2), 335-353. https://doi.org/10.24452/sjer.31.2.5098

Moreau, G. (2003). *Le monde apprenti*. La Dispute.

Lamamra, N., & Besozzi, R. (2019). Former en entreprise : les pratiques éducatives au cœur du monde du travail. *Revue Suisse de Sociologie, 45*(3), 317-336. https://doi.org/10.5281/zenodo.5775619

Lamamra, N., & Duc, B. (2021). Une perspective décentrée sur l'apprentissage en situation de travail : les conditions d'exercice des personnes formatrices en entreprise. Éducation et socialisation. Les Cahiers du CERFEE, (62). https://doi.org/10.4000/edso.17040

Lamamra, N., Duc, B., & Besozzi, R. (2019). Au cœur du système dual : les formateurs et formatrices en entreprise. Résultats d'une recherche et pistes d'action pour les acteurs de la formation professionnelle. HEFP.

Losa, S., & Filliettaz, L. (2018). "Negotiating one's legitimacy as a learner across training contexts: examples from apprentices in dual training." In L. Bonoli, J.-L. Berger, & N. Lamamra, *Enjeux de la formation professionnelle en Suisse. Le "modèle" suisse sous la loupe (pp. 294-322)*. Seismo.

FSO (2023). "Secondary level II: educational choices

FSO (2025). Entries into vocational education and training by ISCED field of education, 2023. https://www.bfs.admin.ch/bfs/en/home/statistiken/bildung-wissenschaft/personen-ausbildung/sekundarstufe-II/berufliche-grundbildung-lehrverhaeltnisse.html

Sappa, V., & Aprea, C. (2018). Professional learning between school and company: challenges, models and individual conceptions. In L. Bonoli, J.-L. Berger, & N. Lamamra, *Enjeux de la formation professionnelle en Suisse. Le "modèle" suisse sous la loupe (pp. 267-293)*. Seismo.

Sauli, F. (2021). The collaboration between Swiss initial vocational education and training partners: perceptions of apprentices, teachers, and in-company trainers. *Empirical Research in Vocational Education and Training, 13* (1), 1-22. https://doi.org/10.1186/s40461-021-00114-2

Sauli, F., Wenger, M., & Berger, J.-L. (2021). Supporting apprentices' integration of school-and workplace-based learning in Swiss initial Vocational Education and Training. *Research in Post-Compulsory Education, 26*(4), 387-409. https://doi.org/10.1080/13596748.2021.1980660

SERI (2022). Vocational education and training in Switzerland. Facts and Figures.

Wenger, M., & Lamamra, N. (2023). Les besoins et préférences en matière de formation continue des personnes formatrices d'apprenti-e-s. Analyses de l'enquête en ligne – Rapport final. HEFP.

Biographical Notes

Dr Nadia Lamamra is a professor at the SFUVET. As a sociologist, her research interests are on-the-job trainers' situation, gender issues, school-to-work transition, apprentices' occupational health and safety. She favors qualitative methods (interviews and observations).

Dr Matilde Wenger is senior researcher at the SFUVET. Her main topics are on-the-job trainers's challenges and needs; dual VET quality; dual apprentices' role stress. Her research is based on social psychology, eudcational and social sciences. She favours mixed methods.

Appendices

Summary table of participants in individual interviews

Username	G	L	Status	Sector	Inner size
Mehdi	M	F	OJT	Construction and mining	Medium
Michele	M	I	OJT	Industry and trades (excluding construction)	Medium
Jessika	F	I	OJT	Trade and transport	Medium
Lucrezia	F	I	OJT	Construction and mining	Medium
Enzo	M	I	OJT	Agriculture, forestry and livestock	Medium
Carmen	F	I	OJT	Hotels, restaurants and personal services	Medium
Aurélie	F	F	OJT	Hotels, restaurants and personal services	Medium
Lidia	F	F	OJT	Agriculture, forestry and livestock	Medium
Valérie	F	F	OJT	Management, administration, banking and insurance and legal professions	Medium
Lorenzo	M	I	OJT	Hotels, restaurants and personal services	Medium
Helena	F	F	OJT	Agriculture, forestry and livestock	Medium
Inès	F	F	OJT	Health, education, culture and scientific professions	Medium
Ivana	F	F	OJT	Trade and transport	Medium
Carole	F	F	OJT	Health, education, culture and scientific professions	Medium
Luigi	M	G	OJT	Trade and transport	Small
Jonas	M	G	OJT	Industry and trades (excluding construction)	Small
Roman	M	G	OJT	Hotels, restaurants and personal services	Large
Samuel	M	G	OJT	Construction and mining	Small
Boris	M	G	OJT/own.	Industry and trades (excluding construction)	Large
Loris	M	G	OJT	Industry and trades (excluding construction)	Small
Francis	M	G	OJT	Health, education, culture and scientific professions	Micro
Oscar	M	G	OJT	Health, education, culture and scientific professions	Micro
Anita	F	G	OJT	Trade and transport	Micro
Dejan	M	G	OJT	Industry and trades (excluding construction)	Medium
Adel	M	G	OJT	Industry and trades (excluding construction)	Large
Bernard	M	G	OJT	Industry and trades (excluding construction)	Small
Greta	F	G	OJT	Technical and IT	Small
Linda	F	G	OJT	Industry and trades (excluding construction)	Large
Angela	F	G	OJT	Health, education, culture and scientific professions	Small
Loris	M	G	OJT/own.	Industry and trades (excluding construction)	Small
Kenza	F	G	OJT/own.	Hotels, restaurants and personal services	Micro
Yvonne	F	G	OJT	Trade and transport	Large
Hubert	M	G	OJT	Industry and trades (excluding construction)	Small
Leyla	F	G	OJT	Hotels, restaurants and personal services	Small
Christopher	M	G	OJT	Agriculture, forestry and livestock	Micro
Florian	M	G	OJT	Agriculture, forestry and livestock	Micro
Marius, Fabio	M	G	OJT	Industry and trades (excluding construction)	Large
Bruno	M	G	OJT	Health, education, culture and scientific professions	Large
Anna	F	G	OJT	Technical and IT	Medium
Andreia	F	G	OJT	Health, education, culture and scientific professions	Micro
Eva, Maria	F	G	OJT	Health, education, culture and scientific professions	Small
Chiara	F	G	OJT	Hotels, restaurants and personal services	Medium

Conrad	M	G	OJT/own.	Agriculture, forestry and livestock	Micro
Marlene	F	G	OJT	Hotels, restaurants and personal services	Small
Eric	M	G	OJT	Industry and trades (excluding construction)	Medium
Amalia	F	G	OJT	Health, education, culture and scientific professions	Small
Franz	M	G	OJT	Industry and trades (excluding construction)	Small
Silke	F	G	OJT	Hotels, restaurants and personal services	Medium
Manfred	M	G	OJT	Industry and trades (excluding construction)	Large
Manuela	F	G	OJT	Hotels, restaurants and personal services	Small
Claude	M	G	OJT	Industry and trades (excluding construction)	Large
Aslan	M	G	OJT	Industry and trades (excluding construction)	Large
Vincent	M	G	OJT/own.	Hotels, restaurants and personal services	Micro
Ralf	M	G	OJT/own.	Agriculture, forestry and livestock	Micro
Alexander	M	G	OJT/own.	Industry and trades (excluding construction)	Micro
Lars	M	G	Own.	Trade and transport	Small
Harold	M	G	Own.	Industry and trades (excluding construction)	Small
August	M	G	OJT/own.	Construction and mining	Small
Franck	M	G	Own.	Agriculture, forestry and livestock	Micro
Lukas	M	G	Own.	Industry and trades (excluding construction)	Large
René	M	G	Own.	Construction and mining	Small
Winfried	M	G	Own.	Industry and trades (excluding construction)	Small
Mathias, Ivan	M	G	OJT/own.	Industry and trades (excluding construction)	Large
Jacqueline	F	G	OJT/own.	Health, education, culture and scientific professions	Micro
Klaus	M	G	OJT/own.	Industry and trades (excluding construction)	Small
Otto	M	G	Own.	Trade and transport	Micro
Imelda	F	G	Own.	Industry and trades (excluding construction)	Medium
Andreas	M	G	OJT/own.	Industry and trades (excluding construction)	Small
Ulla	F	G	Own.	Industry and trades (excluding construction)	Large
Jörg	M	G	OJT/own.	Industry and trades (excluding construction)	Small
Nora	F	G	OJT/own.	Health, education, culture and scientific professions	Small
Davide	M	G	OJT/own.	Industry and trades (excluding construction)	Small
Johannes	M	G	Own.	Technical and IT	Small
Jürg	M	G	OJT/own.	Trade and transport	Micro
Mark	M	G	Own.	Industry and trades (excluding construction)	Large
Andri	M	G	Own.	Health, education, culture and scientific professions	Small
Yanis	M	G	OJT/own.	Construction and mining	Small
Emma	F	G	Own.	Trade and transport	Large
Dieter	M	G	OJT/own.	Construction and mining	Small
Norbert	M	G	Own.	Industry and trades (excluding construction)	Small
Felix	M	G	Own.	Hotels, restaurants and personal services	Small
Karl	M	G	Own.	Agriculture, forestry and livestock	Micro
Ludwig	M	G	Own.	Agriculture, forestry and livestock	Micro
Brandon	M	G	Own.	Health, education, culture and scientific professions	Large
Yuri	M	G	Own.	Health, education, culture and scientific professions	Micro
Emanuel	M	G	Own.	Health, education, culture and scientific professions	Small
Maurice	M	G	Own.	Hotels, restaurants and personal services	Medium
Ulrike	F	G	Own.	Industry and trades (excluding construction)	Large
Erika	F	G	OJT/own.	Health, education, culture and scientific professions	Small
Odile	F	G	Own.	Health, education, culture and scientific professions	Small
Rosa	F	G	OJT/own.	Health, education, culture and scientific professions	Micro
Frank	M	G	OJT/own.	Agriculture, forestry and livestock	Micro
Alfred	M	G	Own.	Industry and trades (excluding construction)	Small
Renate	F	G	Own.	Hotels, restaurants and personal services	Medium
Julius	M	G	Own.	Industry and trades (excluding construction)	Large
Lorenz	M	G	OJT/own.	Industry and trades (excluding construction)	Small
Ursula	F	G	OJT/own.	Trade and transport	Micro
Hugo	M	G	Own.	Industry and trades (excluding construction)	Large

Note. OJT=On-the-job trainers; Own.=Owners; Company sizes: Micro=1-9 employees, Small=10-49 employees, Medium=50-249 employees, Large=250+ employees. G = Gender, L = Language

Favourite months by business sector (numbers and percentages)

	Agri (n=150)	Indu (n=585)	Info (n=415)	Constr (n=841)	Comm (n=324)	Hot (n=341)	Admin (n=1'028)	He-Te (n=1'309)	χ^2
January – 31%	89	170	120	359	121	134	159	383	248***
	59%	29%	29%	43%	37%	39%	15%	29%	
February – 41%	91	232	165	442	144	151	297	510	1401***
	61%	40%	40%	53%	44%	44%	29%	39%	
March – 37%	44	206	149	345	127	121	358	499	n.s.
	29%	35%	36%	41%	39%	35%	35%	38%	
April – 27%	23	142	115	196	99	97	327	367	33***
	15%	24%	28%	23%	31%	28%	32%	28%	
May – 24%	22	129	91	118	91	73	301	384	95***
	15%	22%	22%	14%	28%	21%	29%	29%	
June – 18%	24	100	67	69	78	54	218	268	81***
	16%	17%	16%	8%	24%	16%	21%	20%	
July – 6%	12	40	33	29	34	30	72	72	30***
	8%	7%	8%	3%	10%	9%	7%	5%	
August – 8%	14	45	41	29	34	38	86	99	36***
	9%	8%	10%	3%	10%	11%	8%	8%	
September – 23%	20	141	98	99	91	55	261	384	115***
	13%	24%	24%	12%	28%	16%	25%	29%	
October – 27%	19	144	107	141	91	100	329	409	90***
	13%	25%	26%	17%	28%	29%	32%	31%	
November – 37%	59	193	149	271	111	144	385	536	27***
	39%	33%	36%	32%	34%	42%	37%	401%	
December – 13%	56	76	68	140	49	43	101	139	106***
	37%	13%	16%	17%	15%	13%	10%	11%	
Indifferent – 34%	24	212	150	247	73	87	400	489	80***
	16%	36%	36%	29%	23%	26%	39%	37%	

*Note. * : p < .05 ; ** : p < .01 ; *** : p < .001 ; n.s. not significant.* Agri=Agriculture, forestry and livestock occupations; Indu=Industry and arts and crafts occupations (except construction); Info=Technical and computer occupations; Constr=Construction and mining occupations; Comm= Commercial occupations and transport and traffic occupations; Hot= Hotel, restaurant and personal services occupations; Admin=Management, administration, banking and insurance occupations and judicial occupations; Hea-Te=Health, teaching and cultural occupations and scientific occupations.

Maid in the Making: Interrogating the Role of Vocational Training Institutions in the Domestic Work Labour Migration Industry from Kenya to the Gulf states

Mählck, Paula

paula.mahlck@edu.su.se, Stockholm University, Sweden

Abstract

Context: This exploratory paper focuses on the role of vocational training institutions in the Kenyan domestic worker labour migration industry to the Gulf states. It is currently estimated that 300,000 Kenyan women work as domestic workers in the Gulf states, although the number is likely to be underestimated.

Approach: This ethnographic research consists of fieldwork in three different schools and interviews with students, teachers, directors and stakeholders involved in the domestic worker labour migration from Kenya to the Gulf states. The analytical framework consists of labour migration theory, black feminism and critical pedagogy for understanding how women who are enrolled in pre-departure training, mandatory for migrating to the Gulf states, negotiate various steps in the migration chain.

Findings: The findings point to the various ways women express agency. More specifically, they learn to become a docile and malleable workforce while simultaneously articulating various strategies for coping and, at times, resisting attempts to inferiorise and exploit them.

Keywords

gender, migration, domestic work, Kenya, Gulf states

1 Introduction

There is a growing recognition that various intermediaries—such as staffing agencies, multinational corporations, and local brokers—have a significant impact on labour migration dynamics. In this context, educational institutions such as vocational training schools are becoming increasingly important in practice but have so far attracted little research attention in labour migration research (Killias, 2019). This paper proposes that to gain a comprehensive understanding of global labour migration (circular or long-term) we must investigate how these intermediaries contribute to shaping the regulatory frameworks that govern labour migration and how subjects negotiate these complex frameworks. In this regard, these intermediaries not just facilitate the crossing of borders for migrants; they also engage with government bodies. In their research Axelsson et al. (2022) post that labour migration rules are continuously created and modified through the exchanges between intermediaries and the state. Axelsson et al. label these exchanges: 'Regulatory spaces' (2022:595).

This is an exploratory paper which is part of an ongoing research project on the Kenyan domestic worker labour migration industry to the Gulf states (Formas 2021-00984) (Mählck,

2025). It is currently estimated that 300,000 Kenyan women work as domestic workers in the Gulf states, although the number is likely to be underestimated. It is a highly vulnerable workforce, and oppressive work conditions and various forms of violence, physical, psychological, and sexual, are frequently reported in public media. Because of this, the Kenyan state banned the bilateral agreements with various states in the Middle East in 2014. However, new agreements have been put in place in 2019. A novelty in the new agreements is the pre-departure training of domestic workers, which is made mandatory. Yet very little is known about the training conditions or the schools' role and function in the migration chain.

By interrogating formal, state-initiated, pre-departure training of Kenyan women who are about to embark on domestic work labour migration to the Gulf states, this paper highlights that vocational training of domestic workers occurs in a context where power dynamics play a crucial role. More specifically, this paper will analyze how women training to become domestic workers navigate and negotiate power dynamics during their pre-departure training, which takes place in learning institutions governed and controlled by the state and other intermediaries such as brokers and agencies.

2   Toward a Feminist and Decolonial Theoretical Framework for Analysing the 'Regulatory Spaces' of Domestic Worker Labour Migration Chains

While being in the middle of a research process, this paper explores the possibility of applying the concept of 'Regulatory spaces' (Axelsson et al., 2022) in the analysis of the domestic worker labour migration industry between Kenya and the Gulf states. A focus on 'Regulatory spaces' implies interrogating the power dynamics between intermediaries and the state and how these dynamics co-produce the conditions of labor migration. The 'Regulatory spaces' perspective moves beyond a solely macro-level understanding of migration chains. It challenges the notion that the state is either the primary actor responsible for or, conversely, rendered obsolete in migration and mobility studies, as suggested by much of the research on globalization processes that emphasizes fluidity and mobility of people, capital and information. Instead, this perspective underscores the importance of exploring the negotiations that occur among various actors, including states. Additionally, the explicit focus on spatiality in the 'Regulatory spaces' perspective adds significant value to the emerging field of educational studies through spatial perspectives (Larsen & Beech, 2014; Mählck, 2016) which until now have not focused on vocational training in labour migration. A spatial perspective emphasizes the understanding of space that moves beyond place and instead how place/space is constructed through a continuum of social relations. From this perspective, it is possible to analyse locations and design of educational institutions as built-in pedagogical instructions (Mählck, 2024). In this paper, I depart from black pedagogical feminism (hooks, 2004), which sees pedagogies as a social relation which is co-produced between subjects and between subjects and the context for action. Following this line of thought, the next section will outline theoretical concepts that will be used for analyzing how women students negotiate these instructions.

Central in the analysis will be examining the meaning-making processes of women students, their strategies for coping, and, at times, their acts of resistance - essentially, how they may 'Unlearn' (Mählck, 2024) to become 'preferred' migrant domestic workers. Unlearning is a theoretical concept that emphasizes the agency of subjects such as seeing, thinking, and doing things in ways that are usually not done. I here insert an example of Unlearning; when domestic workers emphasise the hard, difficult and delicate labour of taking care of a household and the pride they take in doing this work in the best possible way, they Unlearn the view of domestic and care work as low-skilled and low-valued work. While processes of learning differently have been discussed in Western philosophical contexts, in particular Biesta (2017) suggests that learning differently can be understood as a praxis of resistance, it has also been taken up in African decolonial Feminisms, notably in the philosophical work of Syliva Tamale (2020). In

her work Tamale, draws from Paulo Freire's concept of 'Concentisation' to theorize how the shared experience of a history of colonialism and slave trade informs resistance practices of contemporary African women. Through empirical educational research Mählck (2024) develops the concept of 'Unlearning' for researching how contemporary domestic workers in Dar es Salaam, Tanzania Unlearn their expatriate employers' attempt to diminish them and sometimes dehumanise them. In this prior research, the domestic workers' processes of Unlearning referred to refusing to sign contracts that they could not read or contracts that had been manipulated to suit the employer's needs. In other words, the domestic workers Unlearned processes that would otherwise result in lowering the value of their labour and of them as workers and human beings.

In a context of power and privilege where domestic workers could lose their job simply because they cooked the food in the wrong way, the domestic workers in Dar es Salaam also developed learning practices of coping. Here, coping moves away from a static condition of maintaining equilibrium, but instead highlights how coping is not still standing. Learning to cope involved the hard work of learning to labor to survive under conditions of precarity and sometimes violence.

In the research presented in this paper, the explicit focus is on the processes of meaning-making of Kenyan women training to take up labour as a domestic worker in the Gulf states, Unlearning and learning to cope, will contribute with new knowledge to the complex and contradictory processes of the production of 'Regulatory spaces' in the domestic worker labour migration industry from a gender and decolonial perspective and stressing the agency of women workers.

3   Data and Methodology

The paper draws from extensive fieldwork in three schools offering pre-departure training in the Nairobi area. The schools represent different ownership structures. The fieldwork was carried out in November 2023; another round is planned for March 2025. Data consists of education policies, course curricula, individual interviews (N=17) and group interviews (N=6) with students. Information interviews with teachers, directors, owners of schools and other actors in the migration chain have also been conducted (N=7). Moreover, participant observation in classrooms as well as taking part in various course modules is also part of the data collection. Data is currently being processed, and guiding principles are African feminist decolonial fieldwork methods (Nhemachena et al., 2016) and feminist sociological method for researching the everyday in institutional contexts (Coockburn, 2020; Mählck, 2024; Smith 1989, 2005).

4   Preliminary Results

The preliminary results point to close connections between different intermediaries that make up the regulatory spaces of the domestic work labor migration. One example of such complex power dynamics is the difficulties in discerning ownership of vocational training institutions. Another is the relationship between brokers and vocational institutions, which is particularly delicate and difficult to investigate.

The schools are located on the outskirts of Nairobi, often in poorer and rural areas. Typically, the schools are gated compounds with guards navigating the entrance or exit of the schools. When they are not in class, the women eat in large cafeterias and sleep in large and crowded dormitories, leaving very little room for personal space. Frequently the women complained about not receiving enough food or food which lacked meat, vegetables and fruits. From a spatial perspective, and as developed in previous research, Mählck (2024) has analyzed the location and design of houses as built-in pedagogical instructions, hence extending educational research beyond the analysis of literature, curricula or processes of learning. In the research

discussed in this paper, the schools transmit a built-in instruction of the value given to women who are training to become migrant domestic workers. Furthermore, when asked about the presence of guards and high fences around the schools, managers often stated that they needed to protect the women. A deeper examination of this concern reveals the diverse interests of various stakeholders, with comments like "we need to protect our investments" illustrating how women are viewed within the labor migration chain.

The women are predominantly young, between 21-30 years old, in few cases up to 42 years old. The majority are single mothers. Being family providers, combined with a lack of employment opportunities, was the main driver for their decision to migrate, despite the various difficulties of labor migration being well known to them. There is a great variation in how the women learn and negotiate the content of courses, mainly because of differences in their prior educational background, ranging from Higher Education degrees to having very poor education in reading and writing in English and/or in their mother tongue. Against this backdrop, the most vulnerable students are preparing coping strategies for meeting the demands of schools, which demand written assignments in English to graduate. They are also narrating coping strategies in relation to future employers. In particular, the women are preparing for how they will negotiate expectations of having formal skills in cleaning, cooking, and caring in a context that is largely unknown to them, moreover, under conditions of not being able to understand the language of their employers and, at times, not being able to read and write at a level that is expected.

The risks involved in the labour migration were well known to the women and the majority expressed fear of being exposed to violence or even being killed. However, some women also expressed processes of Unlearning, for example by emphasizing what they thought they could teach their employers about Kenya and Kenyan culture, hence challenging the understanding of domestic workers as victims or as passive. Moreover, resisting processes of inferiorizing Kenyan culture vis-a-vi the receiving country. Another preliminary example which points at processes of Unlearning, was the emphasis women placed in staying in contact once they had arrived so they would be able to share information on work conditions, salaries and to support each other if they were exposed to violence or harassment. At predeparture training they had also learned that they could contact the agency or the Kenyan embassy and report any misconduct on the behalf of the employer. This narrative stands in contrast with previous research which has portrayed domestic workers as a particularly isolated workforce, being difficult to organize due to the nature of the work, which is taking place in private households. Domestic workers have, historically and today a long history of organizing for better work conditions in the region, sometimes, as in Tanzania, even before other laboring groups (Mählck 2024). Moreover, the UN Domestic Workers Convention of C 189 which aim is to ensure domestic workers rights was ratified in many countries in the Global South, for example Argentina in 2014, long before countries in the Global North, for example Sweden, which ratified the convention in 2019. Here I am suggesting that the women's narratives point to how they Unlearn the subject position of belonging to a workforce unable to organize or knowing how to fend for themselves.

While the women narrate how they prepare for traveling and remain in the Gulf states during the ascribed period, very few narrate the necessary steps they would undertake to return to Kenya. Again, the role of intermediaries is crucial; here in terms of being less visible in women's return narratives. The question remains, if and how the other authorities of the labor migration chain will meet the women's aspirations of shaping the 'Regulatory spaces' of the labor migration chain in the direction of their interest; that is, for a safe labor migration to and from the Gulf states and decent work conditions while there.

These preliminary results point at the complex entanglement of actors co-constructing the Regulatory spaces of the domestic worker labour migration industry between Kenya and the Gulf states. In particular, the involvement of women domestic workers in negotiating these

spaces challenges the view of women domestic workers as passive. What remains to be done is to dig deeper into the complexities and nuances of the current data, to triangulate the findings with new fieldwork as well as finetuning the analytical framework and research methods of this multimethod and multilayered ethnographic research.

References

Axelsson, L., Hedberg, C., Pettersson, N., & Zhang, Q. (2021). Re-visiting the 'black box' of migration: state-intermediary co-production of regulatory spaces of labour migration. *Journal of Ethnic and Migration Studies, 48*(3), 594–612. https://doi.org/10.1080/1369183X.2021.1978285

Biesta, G. (2017). Interrupting the Politics of Learning. In K. Illeris (Ed.), *Contemporary Theories of Learning. Learning Theorists … In Their Own Words* (2nd ed., pp.243–259). Routledge.

Coockburn, C. (2020). Standpoint theory. In K. Fakier, D. Mulinari, & N. Räthzel (Eds.). *Marxist-feminist theories and struggles today: essential writings on intersectionality, labour and ecofeminism* (pp. 9-22). Zed Books.

Mählck, P. (2016). Academics on the move? Gender, race and place in transnational academic mobility. *Nordic Journal of Studies in Educational Policy*. NordSTEP, *2*, 29784. http://dx.doi.org/10.3402/nstep.v2.29784

Mählck, P. (2024). *Domestic Work in Postcolonial Tanzania. Gender, Learning and Unlearning*. Bloomsbury. https://www.bloomsburycollections.com/monograph?docid=b-9781350277069

Mählck, P. (2025, January 20). Work at any Cost? An Ethnographic interrogation of the domestic worker labour migration industry between Kenya and the Gulf states. Research Project. https://www.su.se/english/research/research-projects/work-at-any-cost-domestic-worker-migration-industry-from-kenya-to-the-gulf-states

hooks, b. (2004). Teaching Community. A Pedagogy of Hope. Routledge.

Killias, O. (2018). Follow the Maid: Domestic Worker Migration in and from Indonesia. Nias Press.

Larsen, M. A., & Beech, J. (2014). Spatial theorizing in comparative and international education research. *Comparative Education Review*, *58*(2), 191-214. https://doi.org/10.1086/675499

Nhemachena, A., Mlambo, N., & Kaundjua, M. (2016). The notion of the "field" and the practices of researching and writing Africa: towards decolonial praxis. *Africology: The Journal of Pan African Studies*, *9*(7), 15-36.

Smith, E. D. (1987), The Everyday World as Problematic: A Feminist Sociology. Northeastern University Press.

Smith, E.D. (2005) Institutional Ethnography. A sociology for people. Rowman & Littlefield.

Tamale, S. (2020). *Decolonization and Afro-Feminism*. Daraja Press.

Biographical Notes

Paula Mählck is an Associate professor of Sociology of Migration and Ethnicity. Department of Education, Stockholm University. Her research is directed towards gender and race discrimination in Higher Education and, lately, on domestic work migration in East Africa. She has been the PI and co-researcher of several research council-funded projects. Latest book: *Domestic Workers in Postcolonial Tanzania: Gender, Learning and Unlearning*. OA: https://www.bloomsburycollections.com/monograph?docid=b-9781350277069

Third Sector Organizations as VET Providers: Two Case Studies in Spain

Marhuenda-Fluixá, Fernando

fernando.marhuenda@uv.es, University of Valencia

Abstract

Context: This paper describes and analyses two organizations in the Third Sector of Social Action in Spain that provide vocational education and training (VET) for vulnerable young people. Approach: We have examined French sociological sources, such as the sociology of conventions and Dubet's work on the decline of modernity, to identify patterns of stability and change in discourse and practice within these organizations, with a particular focus on the impact of joining the Spanish Association of Second Chance Schools in the past decade.

Findings: We identify commonalities in both organizations; however, there are also differences related to their organizational legal status and the methods they use to select staff, with the mission of the organization being particularly relevant in case 2.

Conclusions: We observe a decrease in political involvement among staff in case 1, while in case 2, it is maintained, albeit with some tensions, where there is greater stability but also at the expense of internal conflict. A stronger sense of ownership of the association is evident in case 2. Both organizations are facing a generational transition in the coming years that should be planned to ensure their institutional identities are preserved.

Keywords

vocational education and training, second chance schools, organizational identity

1 Introduction

We are conducting research on the changing role of Third Sector of Social Action in the provision of Vocational Training in Spain along recent decades, with funding from the Ministry of Science and Innovation. It is a four-year research project, and we have already covered its first half.

Our focus of inquiry in this contribution tries to uncover the changing discourses and practices of vocational training provision of two organizations that promote Second Chance Schools (one of them an association and the other a foundation, one spread along the country while the other one remains a small local organization) and the extent to which they are being able to maintain their own mission and identity or these have been diluted in the networks in which they are linked and the wider model developed by the Spanish Association of Second Chance Schools.

2 Context

The Third Sector of Social Action in the country finds its modern origins in the political transition to democracy in the 1970s, where many citizenship-promoted initiatives were initiated with three foundations: a) political and local roots organized themselves to address social needs in a context in which the public administrations were not ready to solve or were incapable of doing so; b) religious orders from the Catholic Church engaged in providing educational support, formal and non-formal, in marginalized areas and with populations in the poor suburbs of the fast-growing cities; and c) the late start-up of public social services administered by municipalities in the early and mid 1980s.

Along the 1980s and 1990s, the basis for the current Welfare State in Spain were set (Marhuenda-Fluixá & Abiétar, 2014), not without conflict and trouble caused by a combination of decentralization and lack of funding and expansion, where non-profit organizations played a major role as they were already established as relevant service providers and had gained the respect of the population they served, given the insufficient attention and support that the public administrations were able to provide. These decades witness a combination of three related processes: a) increasing professionalization, that has an impact upon the voluntary basis of the non-profit sector; b) trend towards specialization in the provision of services, one of which is vocational training that is established as a recognized sector of its own; and c) a growing dependency upon external funding, first provided by the unemployment budget, then by the European Social Fund when Spain joined the European Communities in 1986. Only recently ESF has paid attention to the role of non-governmental organizations in the provision of VET (Markowitsch et al., 2024).

With the turn of the century and the Great Recession in 2008 (Martínez-Morales & Marhuenda-Fluixá, 2021), the Welfare State is subject to severe crisis of its possibilities and coverage, as well as a delegitimating process, resulting in a mixed model of management of public services and a progressive privatization. Vocational training provision and management is subject to this conflict and tensions, while there is a process of regulation, that would take shape in a Law 43/2015, passed in 2015, and institutionalization, gaining recognition as service and training provider (Fundación Luis Vives, 2011). The case of Spain in addressing dropout and providing educational pathways for youth out of the system through non-formal VET is relevant for the combination of vocational qualifications and social support as ways to promote social inclusion by applying educational measures out of the education system (Marhuenda-Fluixá & Martínez Morales, 2019).

The Financial Crisis in 2008 causes an increase in social vulnerability, while the public administration cannot guarantee social support and cohesion (Foessa, 2014, 2019). There is a need for the non-profit organizations to search for alternative funding mechanisms, before the lack of capacity of the citizens supporting the sector and the retreat of the State due to austerity policies. The rise of the social economy plays a relevant role in assisting these organizations, which were already well-established actors undergoing a severe legitimation crisis (Subirats 2010; Peña López et al., 2013). The sector tries to recover its political foundations and strengthens networking activities to gain visibility and impact (Arnanz et al., 2017), among which we can witness the grounding of the Spanish Association of Second Chance Schools.[1].

While overcoming the effects of the economic crisis, the Covid-19 pandemic as well as the Russian invasion of Ukraine (already initiated in 2014) contribute to a complex situation where precarization expands and reaches vocational trainers too (Marhuenda-Fluixá & Molpeceres-Pastor, 2020), while there is a move within organizations towards emphasizing the qualification

---

[1] The research group Transicions established at UV has a cooperation agreement with this Association since 2016 to facilitate research and mutual assistance.

role before the social function that they have. This movement is aligned with the consolidation and renewal of the collective agreement ruling working conditions in the Third Sector of Social Action and with vocational training recognized as one of the four areas among the services they provide: social and labor integration is one of the missions of the Third Sector, together with psychosocial and health intervention[2]. The Law 3/2022 that updates regulations on Vocational Education and Training in the country recognizes, for the first time, that non-profit organizations can be legitimate actors providing vocational training. In parallel, there are dynamics of cooperation and differentiation among social institutions, agencies and social movements (Arnanz et al., 2019; Mora & Lorenzo, 2021).

3   Theory and Research Question

Therefore, along the past decades, the Third Sector of Social Action has developed programs of Vocational Training that have been relevant in the provision of Vocational Training for marginalized population (Marhuenda-Fluixá & Martínez-Morales, 2019) and with a particular focus upon people with disabilities (Bengoetxea & Fajardo, 2020), and these have become well-established initiatives within the Social Economy (Chaves & Vañó, 2023). Vocational training has become an axis to combat social exclusion even though the role of employment in social inclusion and the role of training in educational and social policies is not anymore what it may have been 40 years ago.

This increasing recognition of vocational training provided by non-profit organizations happens while the Modernity program has entered a severe crisis with a profound impact upon employment (Castel, 2009) and education and training (Dubet, 2010a, 2010b) and what Dubet (2006) names the 'work upon others', including social work, nursing and education occupations. The organizations of the Third Sector in Spain providing VET find themselves amidst these crisis and tensions.

In our analysis we take into account three dimensions that converge in the Third Sector of Social Action providing vocational training (Molpeceres et al., 2024): a) the changing notions of socio-educational intervention that are linked to its institutionalization and professionalization, as well as the expansion of activation policies that tend to lay most responsibility on the individual him/herself (Montalba-Ocaña & Marhuenda-Fluixá, 2024); b) the weakening impact of employment as a cornerstone for social inclusion and to achieve adult citizenships status, while it is being displaced and replaced by employability discourses and even self-entrepreneurship, all of which have an impact upon qualification and training policies and practices (Bernad et al., 2022); and c) the changing role of participation and citizenship too, particularly related to the ways in which the public and the private spheres are intertwined.

This contribution will address the first of these three dimensions, attempting to tackle how non-profit organizations have shaped their discourses and practices to adapt to these activation policies and how these are reconstructed to allocate them within their own mission and organizational identities.

4   Method

We have prepared a database with more than 60 non-profit organizations offering vocational training in one Spanish region according to different variables, including a) geographical scope, b) year they were established, c) population profile that gets the attention of the organization,

---

[2]   Resolución de 18 de octubre de 2022, de la Dirección General de Trabajo, por la que se registra y publica el Convenio colectivo de acción e intervención social 2022-2024. BOE n. 259, 28 October 2022, pp. 147673 - 147738

d) legal status of the organization, e) civic basis of the organization, f) size (of employed workers, voluntary workers and trainees), g) kind of funding sources, h) focus of their vocational intervention, i) occupational sectors in which they provide training and j) networks to which they belong.

We have preselected a dozen organizations attempting to maximize differences. Among them, there are two Second Chance Schools, and these are the two that will be addressed in this contribution as case studies, where we draw upon in-depth interviews with staff and volunteers and analysis of documentation of their practice and the discourse, they have produced to explain themselves.

5 Results

Here below, we describe both cases and explain the extent to which these organizations are being able to keep their own institutional identity or whether they are adapting their discourse and practice to the model provided by the Spanish Association of Second Chance Schools (Marhuenda-Fluixá & Chisvert-Tarazona, 2022; Martínez-Morales, 2021).

What are the changing notions of socio-educational intervention and how are they linked to its institutionalization and professionalization? Has the expansion of activation policies laid most responsibility on the individual him/herself? We attempt to tackle how these second chance schools have shaped their discourses and practices and whether they have adapted them to these activation policies and how these are reconstructed to accommodate their mission and organizational identity.

5.1 Case 1

The first organization was first established in 1991. Locally promoted by a group of professionals committed to the social and educational promotion of a deprived area in the suburbs of a large city, it was first conceived as a combination of pre-vocational workshops for young people who had not finished compulsory schooling, aged 14 at the time. These workshops took place in a municipal building that was abandoned, and this group of people, members of a state-wide Foundation, arranged for a long-term use assignment by the municipality, where they are still located. Already in 1994, they were entitled by the regional administration of education to prepare young people for the Graduate in Secondary Education.

Professionals in this institution are members of a larger international Foundation, and they have similar workshops and initiatives in other cities in the country, although they work with full autonomy and professionals are accountable before their local groups. In 2015, this Foundation contributed to the setting up of the Spanish Association of Second Chance Schools[3] and in 2017 case 1 become an accredited second chance school, while other social and educational resources of the Foundation in the city and the area did not apply for this process.

Its mission being the integral promotion of adolescents and young adults in the quarter where they are located, along the years they have received young people from all over the city and its surroundings, particularly since in 2020 the new system of Youth Day Care Centres applied and the institution did not longer take decisions on incoming youth, that was assigned by the public administration.

There have been four different managers in the past seven years, this indicating problems in the management of the organization and also an indicator of tensions within. Furthermore, there has been a large renewal of staff in the organization in these past years, several of them opting out to become teachers in the formal VET system while others have applied for leaves.

---

3   https://www.e2oespana.org

While quality policies in the institution, implemented almost a decade ago, contribute to an increasing professionalization that has come along with better working conditions, there is a decrease in the involvement of professionals and voluntary staff.

Regarding its affiliation to the second chance school model, there seems to be certain detachment in recent times, because of the takeover of staff that tends to limit its contribution to the particular programs for which they are hired rather than to the development of the whole organization. This has come with another recent detachment, that of the preparation for Graduate in Secondary Education exams, this implying a fracture in the history of the organization.

While prior to the Covid-19 lockdown the Foundation arranged for its different second chance schools in the country to develop their own model, several of the staff involved in that development work no longer in the organization and the model has not been explained to the new staff.

5.2 Case 2

The second organization was first established in 1993. It was also locally promoted by a group of professionals committed to the social and educational promotion of vulnerable young and adults, and these professionals had decided to leave another organization in which they worked and with which they showed discrepancies related to the aims and the ways to achieve them. They decided to establish an association, and it remains so nowadays.

Soon after setting up the association, it had three locations in different deprived suburbs of a large urban area, and these have remained so until nowadays, in a way that allows to develop individualized pathways along these three locations, where ages and profiles of attendants vary according to age and educational needs: soft skills and personal development through pre-vocational workshops in one of them; accredited vocational training in the second one and search for work in the third one.

In 2016, this association facilitated the setting up of the Spanish Association of Second Chance Schools and in 2017 case 2 become an accredited second chance school, with the particularity that all three locations are part of the accredited school as a whole.

Because of being an association, the democratic and participative roots are very alive and the involvement of the staff in decisions is very high, which results in two clear signs. On the one side, there is a strong commitment with the direction of the institution and the new staff is raised in this democratic culture, through strong selection mechanisms and also a well-known identity of the organization not only in the city but also in the country, causing professionals to want to join it. On the other side, democracy does not mean uniformity, and there can be strong debates around which direction should the organization take, and this is a motive of conflict around values, the culture of the organization but also with a clear impact upon the organizational climate, that sometimes suffer from this situation.

However, the association, being local, is clearly identified with the second chance school model and therefore most members are committed to its development and securement. This includes engaging in research activities but also contributing to political lobbying both at the local, regional and national level.

6 Discussion

We will finalize our contribution by focusing on the commonalities as well as the differences among both cases. Having been established very close in time, in different locations in large cities, their political engagement and motivation to transform not only the lives of individuals but also the neighbourhoods where they are located have been clear since the very beginning, despite political engagement has decreased in case 1 whereas it has been sustained in case 2, where more voluntary engagement of professional staff can be perceived. Perhaps there is a

greater sense of ownership in the association than in the Foundation. The local roots are strong in both cases anyhow, and they are also shown in the links they establish to secondary and VET schools in their areas, although they act more as service providers to these schools than achieve to send their youth back to those schools despite their efforts.

Among the differences, it is outstanding the weight of the Foundation behind case 1, to the extent that it has received funding from the European Social Fund, while that is not even a possibility under consideration in case 2. Nevertheless, both share many funding sources in common, be they public (local and regional) or private. However, the efforts to achieve private funding in the case of the association are much larger, as they do not have the backing of the Foundation behind them.

Strong differences can be found regarding the role of the second chance school in their identity, which is blurred in case 1 while outstanding in case 2, even though this is not without internal tensions.

While we could confirm a clear line of stability along these more than thirty years of both institutions, chance can also be appreciated and the question around the takeover of managers in the organizations, now that the original staff is coming close to retirement age, might become a relevant issue to address in order to guarantee their institutional mission.

Acknowledgements

References

Arnanz, E., Barba, C., & Sánchez, C. (2017). Por una nueva ciudadanía. Incidencia política y Tercer Sector: confluencias para el cambio educativo. Esplai.

Arnanz, E., Valls, N., Ruiz, E., & Aliaga, J.A. (Coords.) (2019). *Juventud y participación política: compromiso de transformación social*. Esplai.

Bengoetxea, A., & Fajardo, G. (Coords.) (2020). La inclusión sociolaboral de colectivos vulnerables en las empresas de economía social. *CIRIEC-España. Revista jurídica de economía social y cooperativa*, (36).

Bernad, J.C., Molpeceres, M.A., & Martínez, I. (2022). La resignificación de los discursos sobre el trabajo. *Andamios, 19*(59), 367-388. https://doi.org/10.29092/uacm.v19i50.985

Castel, R. (2009). La crisis de la cohesion social. Escuela y trabajo en tiempos de incertidumbre. Fundació Bofill.

Chaves, R., & Vañó, M.J. (Eds.) (2023). Dos decenios de actividad universitaria en economía social, cooperativismo y emprendimiento desde el Instituto Universitario IUDESCOOP. CIRIEC.

Chaves, R.; Juliá, J.F., & Monzón, J.L. (Dirs.) (2019). *Libro blanco del cooperativismo y la economía social valenciana*. Generalitat Valenciana-Ciriec.

Dubet, F. (2006). El declive de la institución. Profesiones, sujetos e individuos en la Modernidad. Gedisa.

Dubet, F. (2010a). Crisis de la transmisión y declive de la institución. *Política y Sociedad, 47*(2), 15-25.

Dubet, F. (2010b). Decadència de la institució escolar i conflictes entre principis. Fundació Bofill.

Foessa (2014). VII Informe sobre exclusión y desarrollo social en España. Fundación Foessa.

Foessa (2019). VIII Informe sobre exclusión y desarrollo social en España. Fundación Foessa.

Fundación Luis Vives (2011). Modelos europeos en la evolución del Tercer Sector Social. Fundación Luis Vives.

Law 2/2022, de Ordenación e Integración de la Formación Profesional.

Law 43/2015, del Tercer Sector de Acción Social.

Markowitsch, J.; Scharle, A., & Csillag, M. (2024). The role of NGOs in up- and reskilling: Exploring ESF+ supported initiatives in Austria, Italy, Slovenia and Spain. Social Innovation Initative.

Marhuenda Fluixà, F., & Martínez Morales, I. (2019). Transformación de la formación para el trabajo desde la educación no formal: Evolución y retos. *Revista de Estudios de Juventud*, *124*, 167-185.

Marhuenda-Fluixá, F., & Abiétar, M. (2014) Sozialpädagogische Dienste in Spanien: Zwischen Privatisierung des Wohlfahrtsstaats und Förderung der zivilgesellschaftlischen Initiativen. In J. Csoba, G. Grasshof & F. Hamburger (Eds.), *Soziale Arbeit in Europa. Diskurse der Sozialarbeit, Europäisierung, soziale Bewegungen und Sozialstaat* (pp. 46-63). Wochenschau.

Marhuenda-Fluixá, F., & Chisvert-Tarazona, M.J. (Coords.) (2022) *Resultados del modelo de las escuelas de segunda oportunidad (E2O) acreditadas en España*. Asociación Española de Escuelas de Segunda Oportunidad.

Marhuenda-Fluixá, F., & Molpeceres-Pastor, M.A. (2020) Training for Work at the Margins of the Projective City. In T. Rachwal (Ed.), *Precarious Places. Social, Cultural and Economic Aspects of Uncertainty and Anxiety in Everyday Life* (pp. 51-71). Springer. https://doi.org/10.1007/978-3-658-27311-8_4

Martínez-Morales, I. (Coord.) (2021) La formación en las escuelas de segunda oportunidad (E2O) acreditadas en España: perfil, trayectoria y condiciones de éxito de los y las jóvenes. Ministerio de Educación y Formación Profesional.

Martínez Morales, I., & Marhuenda Fluixá, F. (2022). Redefining Education and Work Relations: VET Overcoming the Financial Crisis in Spain. In M Malloch, L Cairns, K Evans, & B N O'Connor (Edss),*The SAGE Handbook of Learning and Work* (pp. 602-619). SAGE Publications Ltd. https://doi.org/10.4135/9781529757217.N38

Molpeceres, M.A.; Martínez-Morales, I.; Zacarés, J.J, & Marhuenda Fluixá, F. (2024). Navigating between welfare and workfare: Constraints and challenges for social work institutions providing inclusion through employment. In J. Mali, V. Flaker, D. Kergel, & I. Martínez-Morales (Eds.), *The Breakthrough of the social* (pp. 181-213). Tirant lo Blanch.

Montalba-Ocaña, C., & Marhuenda Fluixá, F. (2024). Reconsidering active employment policies and the mission of non-for-profit organizations in Spain. In J. Mali, V. Flaker, D. Kergel and I. Martínez-Morales (Eds.), *The Breakthrough of the social* (pp. 215-239). Tirant lo Blanch.

Mora, S., & Lorenzo F.J. (2021). Hibridación relacional del Tercer Sector de Acción Social en la última década. Entre la movilización y las redes vecinales comunitarias. *CIRIEC-España, Revista de Economía Pública, Social y Cooperativa* (103), 171-196. https://doi.org 10.7203/CIRIEC-E.103.21476

Peña-López, I., Zubero, I., Giménez, C., & Arnanz, E. (Coords.) (2013). *Ciudadanía y ONG. El nuevo papel del Tercer Sector ante el cambio de época*. Esplai.

Subirats, J. (Dir.) (2010). *Ciudadanía e inclusión social*. Esplai.

Biographical Notes

Dr Fernando Marhuenda Fluixá is a professor of Didactics and School Organization at the University of Valencia, member of the board of VETNET and coordinator of the research group Transicions www.uv.es/transicions

Towards a New Governance of VET? The Role of Dualiza Bankia Foundation in the Adoption of Dual VET in Spain

Martínez-Izquierdo, Luis

luismartinez@ugr.es, University of Granada

Torres Sánchez, Mónica

motorres@uma.es, University of Malaga

Abstract

Context: Spain adopted Dual VET in the aftermath of the Great Recession and EU pressures, beginning with Royal Decree 1529/2012. A decade later, Organic Law 3/2022 institutionalized Dual VET as the general framework for vocational training provision. Throughout this process, foundations outside official governance have actively promoted its expansion. This paper analyzes Dualiza Bankia's role in these efforts and its interactions with traditional VET actors.
Approach: The study employs Reflexive Thematic Analysis on qualitative data from 20 Dualiza Bankia texts and 10 semi-structured interviews with senior stakeholders from national, Andalusian, and Basque governance levels, including government, business, trade unions, and educational centres.
Findings: The findings highlight Dualiza Bankia's strategy, driven by its founding bank Bankia, to position itself as a main actor in transferring Dual VET to Spain. The foundation has pursued a broad agenda, including awareness-raising, program implementation, financial support, training, and alliance-building. However, its reception varies: while the business sector praises its efforts, governments and trade unions remain skeptical, despite valuing activities such as advisory services, data dissemination, and report production.
Conclusions: Dualiza Bankia (and its founding bank, Bankia) has acted as a policy transfer entrepreneur in Spain's adoption of Dual VET, promoting and supporting a model introduced by Royal Decree 1529/2012. It has emerged as a new, externally driven actor influencing governance beyond formal institutions. While no comparable national foundation is noted in the international literature, its work parallels that of Central European organizations promoting Dual VET globally.

Keywords

Education policy-making, vocational education and training, dual apprenticeship, policy transfer.

1   Introduction

The aftermath of the Great Recession (2008–2014) exposed significant vulnerabilities in the productive systems of Southern Europe, intensifying pre-existing challenges such as high youth unemployment (Eurostat, 2008, 2011). In response, the European Union (EU) high-

lighted the limitations of school-based Vocational Education and Training (VET) models prevalent in the region, contrasting them with the perceived effectiveness of Dual VET systems in countries like Germany and Switzerland, which were often praised as benchmarks of excellence (European Commission, 2012, pp. 5–6). This critique, combined with EU-driven policy recommendations, encouraged countries including Spain, Greece, Italy, and Portugal to initiate reforms aimed at introducing or expanding Dual VET as a strategic measure to address these challenges.

In Spain, the shift toward Dual VET gained momentum with the approval of Royal Decree 1529/2012, which provided a legal framework for this modality and decentralized its implementation to the Autonomous Communities. While this decree marked a formal starting point, some Autonomous Communities, such as the Basque Country, had already undertaken experimental initiatives prior to 2012, reflecting an early commitment to integrating Dual VET into their educational strategies. Over the subsequent decade, the expansion of Dual VET evolved from a supplementary option to a central feature of the Spanish VET system, culminating in the adoption of Organic 3/2022, which established Dual VET as the general framework for intermediate and higher vocational training.

The governance and dissemination of Dual VET in Spain have been shaped by a complex network of actors, including traditional stakeholders such as national and regional governments, business associations, and chambers of commerce. However, the growing prominence of Dual VET has also opened the door for new players to influence its trajectory. Notably, private foundations have emerged as key proponents of this educational model, contributing resources and expertise to its promotion and implementation. Among these, Fundación Bertelsmann and Dualiza Bankia (now Caixabank Dualiza) stand out for their sustained efforts. Fundación Bertelsmann, operating independently within the broader Bertelsmann Stiftung group, launched its initiatives in Spain in 2013. Similarly, Dualiza Bankia began its work in dual VET in 2013 under its former parent institution, Bankia, which formalized these activities with the establishment of the foundation in 2016.

This paper examines the role of Dualiza Bankia in the broader adoption of Dual VET in Spain, framing it as an example of educational policy transfer (Phillips & Ochs, 2004; Steiner-Khamsi, 2003). It examines how the foundation contributed to disseminating the concept and practices of Dual VET, collaborated with governance actors, and supported implementation efforts, based on an analysis conducted across three contrasting contexts: the central level, Andalusia, and the Basque Country. These regions illustrate different approaches to Dual VET. Andalusia adopted the modality following the 2012 national Royal Decree 1529/2012. Conversely, the Basque Country was a pioneer in experimenting with small-scale initiatives, such as the *Ikasi eta Lan* program in 2007–2008, later expanding these efforts through the *Hezibi* program in 2012.

2 Theoretical Framework

2.1 The 'Who' in Educational Policy Transfer: Foundations as Policy Transfer Entrepreneurs

Policy transfer refers to the use of knowledge about policies, institutions, or ideas from one context in another (Dolowitz & Marsh, 2000). In the study of educational policy transfer, Steiner-Khamsi (2003, p. 170) highlights the importance of addressing the question: "Who were the agents of transfer?" Addressing the theoretical ambiguity noted by Li and Pilz (2021, p. 2) regarding the diversity of approaches in policy transfer studies, this research integrates frameworks from Dolowitz and Marsh (2000), Roberts and King (1991), and Stone (2012).

Dolowitz and Marsh (2000) identify political entrepreneurs as key actors in policy transfer, highlighting their role in advocating for lessons from other contexts, disseminating ideas, and

engaging in transnational networks. Roberts and King (1991) further classify the activities of policy entrepreneurs into intellectual (e.g., identifying gaps and disseminating ideas), strategic (e.g., planning long-term action), and mobilization activities (e.g., securing support, lobbying, and executing pilot projects). Stone (2012) expands this framework, introducing the concept of "policy transfer entrepreneurs", which includes think tanks, business coalitions, NGOs, and philanthropic foundations. These actors concentrate their efforts on their activities on "soft transfer," diffusing and promoting the intellectual frameworks that underpin policies through funding, coalition-building, consultancy, and research (Stone, 2012).

2.2 Promoting Dual VET beyond Official Governance Structures

Evidence on the role of non-official actors, such as foundations, in advancing Dual VET remains limited. In the Spanish context, Barroso-Hurtado et al. (2021) highlight the active participation of foundations in the dissemination of Dual VET on social media. Other studies have identified their role in fostering coordination between businesses and schools and in providing advisory support to SMEs (Echeverría & Martínez, 2018, pp. 193–194; Sanz de Miguel et al., 2022, p. 53). At the international level, the literature provides limited but growing evidence, mostly concerning German, Austrian, and Swiss organizations supporting the adoption of Dual VET in countries across all continents, particularly in developing contexts. For instance, in Costa Rica, German agencies provided technical support, facilitated tripartite dialogues between government, trade unions, and employers, and helped implement pilot projects under formal bilateral agreements (Schmees & Láscarez-Smith, 2024). These efforts included the development of training materials for electricians and campaigns to engage employers.

In Mexico, German actors played a key role in regulatory processes, linking businesses and educational institutions, and promoting Dual VET through informational events and media campaigns (Vogelsang et al., 2022; Wiemann & Fuchs, 2018). In Serbia, Austrian organizations contributed by advising on regulatory frameworks and launching pilot initiatives (Langthaler & Top, 2023). Similarly, Swiss efforts in Nepal focused on technical support through a cooperation project involving Swiss development agencies and local institutions to design and implement vocational training programs (Bolli et al., 2023).

3 Methodology

This study aims to analyze the role played by Dualiza Bankia from its inception to the approval of Organic Law 3/2022, as well as how this role is perceived by traditional VET governance actors at the central, Andalusian, and Basque levels. To this end, a qualitative research design was adopted, combining document analysis (Bowen, 2009) and semi-structured interviews (Adeoye-Olatunde & Olenik, 2021). Document analysis was used to collect and interpret 20 documents (e.g., reports, guides) produced by Dualiza Bankia between 2012 and 2022, with a focus on its role and interactions with traditional VET governance actors during the adoption of Dual VET in Spain.

Additionally, 10 semi-structured interviews were conducted between December 2022 and April 2023 with senior representatives of traditional VET governance actors (governmental, business, trade union, and educational sectors) at the national level in Spain, as well as in Andalusia and the Basque Country. Table 1 presents an overview of the interviewees' categories and territorial scope. Participants were selected by their respective organizations, and their positions have been anonymized to ensure confidentiality.

Table 1

Interviewed Actors

Category	Scope		Acronym
Ministry of Education (ME) - Regional Ministry of Education (RME)	Central level (CL) (2018-2022)		ME1 ME2
	Autonomous Community (AC)	Andalusia (period 2013-2020)	RME-A
		Basque Country (period 2012-2022)	RME-BQ
Trade unions (TU)	CL		TU-C
	AC	Basque Country	TU-BQ
Employers' Confederation (EC)	CL		EC-C
	AC	Andalusia	EC-A
		Basque Country	EC-BQ
Education Centres (VC)	CL (+ Andalusia included)		VC-C
	AC	Basque Country	VC-BQ

The collected data were analyzed using Reflexive Thematic Analysis (Braun & Clarke, 2021), which involves familiarizing with the data, systematically coding relevant content, identifying patterns to generate themes, refining these themes, and integrating them into an analytical narrative. Data collection and analysis were supported by Zotero and NVivo software tools.

4   Results

4.1 Bankia's Background in Promoting Dual VET Before the Creation of Fundación Dualiza Bankia (2013–2015)

Since 2013, Bankia has systematically supported Dual VET in Spain. That year, it signed agreements with the regional governments of Valencia and La Rioja to promote Dual VET and boost company participation (Bankia, 2014, p. 106), including scholarships, outreach activities, and mentor training.

In 2014, Bankia reaffirmed its commitment to Dual VET as a strategy to improve youth employability amid the economic crisis (Bankia, 2015, p. 165). It expanded agreements, partnering with the regional governments of Cantabria, Murcia, Catalonia, Castilla y León, Castilla-La Mancha, and Galicia, as well as private entities, to support Dual VET projects and elevate VET's status in Spain. Like the 2013 agreements, these collaborations included scholarships, mentor training, and innovation in training approaches. That year, Bankia also participated in the Dual VET Forum organized by Grupo Siena, gathering 200 stakeholders, and financially sponsored the first National Vocational Education Congress, organized by FP Empresa, the largest national association of VET centres, under the theme *"The Path of Basic and Dual VET"*.

In 2015, Bankia expanded agreements with regional governments and private entities, signing a new collaboration with the Extremadura government. That year, it launched the DUAL+ Knowledge and Innovation Center (Centro de Conocimiento e Innovación Dual+) with Fundación Bertelsmann (Bankia, 2016) and became the first bank to implement its own Dual VET program, the *Bankia Dual Training Program*, for Advanced VET students in Banking and Finance in Madrid and Valencia (Bankia, 2017). Bankia also continued financially supporting FP Empresa's annual VET congress, where Dual VET remained a key focus

4.2 Origin of Fundación Dualiza Bankia, Objectives Established at Its Creation, and Operating Strategies

In 2016, Bankia prioritized Dual VET promotion within its *Society* line in the *2016–2018 Responsible Management Plan* (Bankia, 2019). To institutionalize this commitment, it established *Fundación Bankia por la Formación Dual*, publicly known as *Dualiza Bankia* (Bankia, 2017, p. 148). Since its inception, the foundation has received consistent financial support, including €3.8 million for Dual VET projects in 2016 and €2 million in 2018 (Bankia, 2017, p. 149, 2019, p. 193).

Initially, its objectives focused on: (1) promoting and disseminating Dual VET to enhance its social value and economic impact, (2) fostering collaboration between public administrations, educational institutions, and businesses, (3) encouraging research and innovation for new projects and pilot programs, and (4) supporting career guidance and entrepreneurship (Bankia, 2017). In 2019, Dualiza Bankia expanded its goals to include developing modern organizational structures for Dual VET in society and businesses, as well as evaluating and disseminating project outcomes (Dualiza Bankia, 2019a, p. 5).

Dualiza Bankia defines its mission as "acting as a bridge between different societal actors" (Dualiza Bankia, 2019a, p. 7). Aligned with this, it collaborates with public administrations, businesses, business confederations, and educational institutions (Dualiza Bankia, 2021), including FP Empresa, the Ministry of Education, regional and local authorities and the Spanish Chamber of Commerce (Dualiza Bankia, 2019b, p. 12).

A key partner has been FP Empresa. Dualiza Bankia acknowledges their "close collaboration, working toward a common goal, promoting VET from complementary yet different perspectives" (Dualiza Bankia, 2021, p. 7). Together, they have developed initiatives such as the *Dualiza Grants* program and organized nine editions of the National VET Congress.

Dualiza Bankia also collaborates with Fundación Bertelsmann, whose vice president sits on Dualiza Bankia's board. This partnership has driven initiatives like the *Dual+ Knowledge and Innovation Center* and *Dualiza Challenges* to foster innovation in Dual VET. Additionally, Dualiza Bankia is part of the *Alianza para la FP Dual*, a collaborative alliance led by Fundación Bertelsmann, with its director actively involved in governance.

The foundation has also established strong ties with business organizations, including the national employers' confederation (CEOE), regional business confederations, and the Spanish Chamber of Commerce. Since 2019, it has signed agreements with all Spanish Autonomous Communities. Furthermore, Dualiza Bankia collaborates with the Ministry of Education, contributing to the *VET Modernization Plan* (Ministerio de Educación y Formación Profesional, 2020) and promoting initiatives to "raise awareness of VET's benefits and advantages" (Dualiza Bankia, 2020, p. 12).

4.3 Dissemination Activities for Dual VET Developed by Dualiza Bankia

Dualiza Bankia has pursued a broad agenda to promote Dual VET, focusing on awareness-raising, program implementation, financial support, and training for key stakeholders.

Regarding awareness-raising, one of its key initiatives is the National VET Congress, organized annually since 2014 with FP Empresa, where Dual VET remains a central theme. By 2023, the event had reached its ninth edition, bringing together political, business, and educational representatives. Its objective, as stated in the first edition, has been "to create a debate from different perspectives, leading to concrete proposals for designing a VET model that improves economic competitiveness and employment" (FP Empresa & Bankia, 2014, p. 2). Although international cases have rarely been included, except for a 2018 presentation on Canadian VET (FP Empresa & Dualiza Bankia, 2018), the event has primarily focused on showcasing best practices from Spain and giving voice to Spanish stakeholders.

At the local level, the *Dualiza Meetings* facilitate dialogue between educators and businesses to address regional challenges. In 2018, *Dualiza Meeting Extremadura* gathered 70 participants, while 2019 events in Albacete, Burgos, and Tarragona engaged over 300 (Dualiza Bankia, 2019b). The foundation also organizes Dual VET fairs with the Chamber of Commerce, connecting students with companies and showcasing best practices. The first, held in Granada (2019), attracted 150 companies and nearly 500 students, featuring advisory sessions, workshops, and corporate success stories (Dualiza Bankia, 2019b).

Beyond events, Dualiza Bankia disseminates information through publications and its website. Its *Basic Guide for Implementing Dual Vocational Training in Companies* (2017) details the model's benefits, regulatory framework, and implementation steps. In 2018, it launched *www.dualizabankia.com*, a platform for debate and information, serving as a voice for students, teachers, and professionals (Bankia, 2019, p. 194).

Financial support is another pillar of its strategy. The *Dualiza Grants*, introduced in 2018 with FP Empresa, fund projects emphasizing innovation, territorial impact, sustainability, and knowledge transfer (Dualiza Bankia, 2019b, p. 13). Between 2019 and 2021, the *SANEC Scholarships* supported Dual VET students in healthcare, in collaboration with institutions like La Fe Research Institute and Incliva Biomedical Research Institute.

Furthermore, Dualiza Bankia has also facilitated the development of Dual VET programs. In 2015, Bankia became the first Spanish bank to implement its own Dual VET program, training Advanced Diploma students in Banking and Finance in Madrid and Valencia. Since then, the foundation has acted as a bridge "between entities that need each other but are unaware of it" (Dualiza Bankia, 2019b, p. 18). One example is a pilot program launched to address skilled labor shortages in Castilla y León's pork industry, which later expanded to Navarra and Aragón with support from the National Pork Producers Cluster (Dualiza Bankia, 2022, p. 23).

Training has been another key focus, with workshops for company tutors and technical advisors in La Rioja, Valladolid, Madrid, and Soria (2019), a program with the Canary Islands government (2021), and tutor training in Murcia, La Rioja, Castilla y León, and Zaragoza (2022) (Dualiza Bankia, 2022, p. 23).

Finally, innovation and research play a central role in Dualiza Bankia's strategy (Bankia, 2019). The *Dualiza Challenge*, launched in 2018, fosters innovation by engaging students, teachers, and professionals in company projects (Bankia, 2019, p. 193). The *Knowledge and Innovation Center* and *Vocational Education and Training Observatory*, developed with Orkestra–Basque Institute of Competitiveness, provide data and research on Dual VET in Spain. The observatory tracks key indicators, regional comparisons, and sectoral trends (Dualiza Bankia & Orkestra, 2020, p. 8), complemented by annual reports since 2020. The Knowledge and Innovation Center has also produced publications such as *VET Analysis: Dual VET and the Draft Law – Current Situation and Challenges* (Dualiza Bankia et al., 2021) and *Changes in Professional Profiles and VET Needs in Spain: A 2030 Perspective* (Dualiza Bankia et al., 2022), exploring topics like Dual VET adoption in Europe, employment outcomes, and implementation challenges in Spain, including gender parity and student satisfaction (Dualiza Bankia et al., 2021).

4.4 Evaluation of Dualiza Bankia' Role by Traditional Governance Actors in VET

The thematic analysis of interview data with relevant actors reveals both positive and negative assessments of Dualiza Bankia's work. Among the positive evaluations, employers' confederations express strong satisfaction with the foundation's contributions, describing it as "outstanding, top marks with honors" (EC-C). Actors who provided positive assessments highlight three main areas of Dualiza Bankia's contributions: (i) public campaigns to promote Dual VET, (ii) advisory services and training activities, and (iii) the production of reports and data analyses on the development of Dual VET in Spain. Regarding the latter, representatives from national,

Andalusian, and Basque business confederations, along with the central trade union, emphasize the foundation's capacity to generate in-depth reports and data-driven insights. The representative of the Basque employers' confederation even asserts that, through the Knowledge and Innovation Center and the VET Observatory, Dualiza Bankia provides "very significant and powerful information" (EC-BQ).

In relation to advisory services, the national association of VET centers notes that some centers benefited from consultancy services thanks to Dualiza Bankia's experience with its pioneering programs in Valencia and Madrid. Here the use of "some" is particularly relevant, as this distinction will later serve as the basis for less favorable assessments.

Finally, regarding efforts to promote Dual VET, both the national association of VET centres and Ministry of Education representatives acknowledge that dissemination initiatives and networking events have increased visibility and fostered discussion. While they do not see these activities as decisive for Dual VET expansion, they recognize their role in generating momentum for change.

Regarding critical assessments, some actors voiced reservations or maintained a neutral stance toward Dualiza Bankia's involvement in the adoption of Dual VET. These include representatives from the Ministry of Education, the Andalusian Ministry of Education, the central trade union, the national association of VET centers, and a Basque stakeholder. The main concerns raised by these actors revolve around two key aspects: the foundation's limited or negligible influence on other stakeholders and the adoption process, and the overlap between its interests and those of the business sector.

When examining the theme of limited or no influence, representatives from the Ministry of Education, the Andalusian Ministry of Education, the central trade union, the national association of VET centres and Basque stakeholders consistently downplay the role of Dualiza Bankia in shaping their perspectives during the adoption of Dual VET. The Ministry of Education representative asserts that "although Dualiza Bankia invited ministry officials to events and meetings, these interactions did not translate into any meaningful influence" (ME2). Likewise, the representative from the national association of VET centres acknowledged that some schools received advisory support from Dualiza Bankia, but given the vast scale of the VET system, its overall impact remained limited. In the Basque Autonomous Community, actors emphasize that the region had already developed its own Dual VET model and addressed challenges internally, making external contributions unnecessary. The Basque Ministry of Education representative further reinforced this view, comparing external assistance from Dualiza Bankia to a standardized solution that would never work for the region's specific needs.

Regarding the second theme (alignment with business interests), concerns arise from the Andalusian Ministry of Education, the Basque trade union, and the Basque Association of VET Centres. While the latter warns that this approach may shift the focus away from student-centered education, the trade union and the representative of the Ministry of Education, takes a stronger position, arguing that Dualiza Bankia promotes a business-first narrative. The representative of the trade union cautions that "it is very dangerous where these foundations' conclusions might lead" (TU-BQ) as they frame corporate needs as the fundamental priority in education, something that, in their view, "is neither appropriate nor desirable" (TU-BQ). She further argues that if it were up to these foundations, there would be no historians, psychologists, philosophers, or professionals in the humanities at all. Instead, the education system would only produce the kinds of professionals that serve business interests, such as engineers, Big Data specialists, telecommunications experts, and programmers. To counterbalance this, the representative of the Andalusian Ministry of Education underscores the role of public education, while the Basque trade union representative stresses the need for union involvement in policy-making.

5   Discussion and Conclusion

This paper highlights that Dualiza Bankia has been one of the actors with the most intense agenda in promoting and disseminating Dual VET in Spain. This finding aligns with the analysis by Barroso-Hurtado et al. (2021), who emphasize the leading role of Spanish foundations in promoting Dual VET on social media. The research findings lead to the conclusion that the Dualiza Bankia Foundation has acted as a policy entrepreneur, specifically a policy transfer entrepreneur (Stone, 2012). However, unlike Stone's original definition, which focuses on international policy transfer, Dualiza Bankia Foundation has operated at the national level in promoting Dual VET. Notably, the true policy entrepreneur in this case is Bankia, later CaixaBank, the bank that founded and owns the foundation.

The evidence aligns with three of the four types of policy entrepreneurship activities theorized by Roberts and King (1991, p. 168). Regarding intellectual activities, Bankia's strategic decision to systematically promote VET, particularly Dual VET, stemmed from these efforts. Early agreements with the regional governments of the Valencian Community and La Rioja, initially focused on scholarships, and the foundation's role in organizing the first editions of the National VET Congress with FP Empresa also reflect this category.

Regarding strategic activities (Roberts & King, 1991, p. 168), this study highlights key developments such as the creation of the Dualiza Bankia in 2016 and the establishment of strategic priorities, including the promotion and dissemination of Dual VET, fostering research and innovation, and enhancing collaboration between public administrations, educational institutions, and businesses (Bankia, 2017).

For mobilization and implementation activities, evidence spans all three subtypes. First, pilot initiatives, such as the collaboration with the Federation of the Swine Sector of Castilla y León, illustrate early experimentation. Additionally, Dualiza Bankia's partnerships with key VET actors, particularly FP Empresa, demonstrate its systemic integration efforts. Lastly, its lobbying agenda includes implementation guides, Dualiza Meetings, nine editions of the National VET Congress (up to 2023), agreements with all Spanish Autonomous Communities (2019), the launch of the Vocational Education and Training Observatory, and the Dualiza Grants program.

At the international level, no national foundation-led initiatives of this scale have been documented, though similarities exist with policy transfer strategies of Central European agencies. Several European organizations have played a crucial role in establishing Dual VET programs abroad, often sector-specific, as seen in Serbia and Costa Rica (Schmees & Láscarez-Smith, 2024, p. 55). Beyond pilot projects, Central European agencies have also engaged in capacity-building, such as CAMEXA's business-education partnerships in Mexico (Wiemann & Fuchs, 2018, p. 380) and HELVETAS's long-term technical assistance in Nepal (Bolli et al., 2023, p. 196), resembling Dualiza Bankia's advisory and support services within different national frameworks.

Regarding advocacy, parallels can be drawn with German cooperation agencies' campaigns in Mexico, which used media and informational events to promote Dual VET (Vogelsang et al., 2022, p. 655). While those efforts were more narrowly focused, Dualiza Bankia's approach integrates research, networking, and dissemination. Similarly, its guides, digital resources, and best practice initiatives align with KAS and GIZ efforts in Costa Rica, including training programs for Dual VET instructors and specialized educational materials, such as those for electrician training (Schmees & Láscarez-Smith, 2024, p. 55).

In terms of its influence on other actors within the network, the business sector provides the most positive assessment of the foundation's work. In contrast, progressive actors such as the Andalusian and central governments during the period under analysis, trade unions, and those focused on student interests, like the Basque association of educational centres, express

reservations due to the foundation's ties to the banking sector, positioning themselves as counterweights to any attempt to align the system too closely with business interests. However, governmental actors at both the central and Andalusian levels recognize that the foundation's dissemination of the Dual VET concept, along with its support structures and implementation-oriented activities, helped generate momentum for change within the VET system and in broader society, particularly at a time when any form of support, however limited, was crucial.

The national association of educational centers, located in a central position within the governance network, acknowledges that the foundation's influence on implementation has been very limited, mainly due to the sheer scale of the VET system in Spain. In the Basque Country, most actors deny any influence from the foundation; except for business representatives, who find Dualiza Bankia's reports useful. The foundation is not considered a relevant partner, as Basque stakeholders explicitly reject the need for external support, relying instead on their internal governance structures.

In conclusion, Dualiza Bankia and its founding bank, Bankia, have acted as policy entrepreneurs in the process of adopting Dual VET in Spain. Rather than introducing the concept, their efforts have focused on disseminating and consolidating it after its initial arrival through Royal Decree 1529/2012, while also developing support structures and assisting in implementation. Throughout this process, they have engaged continuously with actors across all levels of the VET governance network, influencing not only how these actors conceptualize Dual VET but also how they operate. This reflects a form of influence on traditional governance structures exercised by a newly established and externally driven actor.

Reference

Adeoye-Olatunde, O. A., & Olenik, N. L. (2021). Research and scholarly methods: Semi-structured interviews. *Journal of the American College of Clinical Pharmacy*, *4*(10), 1358–1367. https://doi.org/10.1002/jac5.1441

Bankia. (2014). Informe anual Bankia 2013.

Bankia. (2015). Informe anual Bankia 2014.

Bankia. (2016). Informe anual Bankia 2015.

Bankia. (2017). Informe anual Bankia 2016.

Bankia. (2019). Informe anual Bankia 2018.

Barroso-Hurtado, D., Arroyo-Machado, W., & Torres-Salinas, D. (2021). Formación Profesional Dual: Evolución de red de actores en Twitter. *Educación XX1*, *24*(2), 209–230. https://doi.org/10.5944/educxx1.28136

Bolli, T., Kemper, J., Parajuli, M. N., Renold, U., & Thapa, B. K. (2023). Drivers and barriers of implementing a dual VET programme in Nepal. *Asian Education and Development Studies*, *12*(2/3), 195–207. https://doi.org/10.1108/AEDS-08-2022-0111

Bowen, G. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, *9*, 27–40. https://doi.org/10.3316/QRJ0902027

Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. SAGE Publications, Limited. https://books.google.es/books?id=25lpzgEACAAJ

Dolowitz, D. P., & Marsh, D. (2000). Learning from abroad: The role of policy transfer in contemporary policy-making. *Governance*, *13*(1), 5–23. https://doi.org/10.1111/0952-1895.00121

Dualiza Bankia. (2017). *Guía básica para implantar la Formación Profesional Dual en la Empresa*. https://www.xabec.es/v1/wp-content/uploads/2017/10/GuiaFPDUALempresasbankia.pdf

Dualiza Bankia. (2019a). *Resumen de actividad 2019*. https://www.caixabankdualiza.es/recursos/doc/portal/2020/08/25/memoria-de-actividades-2019.pdf

Dualiza Bankia. (2019b). *Resumen de actividad 2019*. https://www.caixabankdualiza.es/recursos/doc/portal/2020/08/25/memoria-de-actividades-2019.pdf

Dualiza Bankia. (2020). *Resumen de actividad 2020*. https://www.caixabankdualiza.es/recursos/doc/portal/2020/08/25/memoria-de-actividades-2019.pdf

Dualiza Bankia. (2021). *Resumen de actividad 2021*. https://www.caixabankdualiza.es/recursos/doc/portal/2020/08/25/memoria-de-actividades-2019.pdf

Dualiza Bankia. (2022). *Resumen de actividad 2022*. https://www.caixabankdualiza.es/recursos/doc/portal/2020/08/25/memoria-de-actividades-2019.pdf

Dualiza Bankia, Fundación CEOE, & Homs, O. (2022). Cambios en los perfiles profesionales y necesidades de Formación Profesional en España. Perspectiva 2030.

Dualiza Bankia, Moso, M., Albizu, M., Mondaca, A., & Gamboa, J. P. (2021). *FP Análisis. La FP dual ante el proyecto de ley: Situación actual y retos* (Observatorio de la, Ed.).

Dualiza Bankia, & Orkestra. (2020). *Observatorio de la Formación Profesional en España. Informe 2020.* https://doi.org/10.13140/RG.2.2.25612.13448

Echeverría, B., & Martínez, P. (2018). Strategies to improve the implementation of Apprenticeship Training in Spain. *Ekonomiaz*, *94*(2), 178–203.

European Commission. (2012). Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. Rethinking education:Investing in skills for better socio-economic outcomes. https://www.cedefop.europa.eu/en/content/rethinking-education-investing-skills-better-socio-economic-outcomes

Eurostat. (2008). The euro area (EA16) seasonally-adjusted unemployment rate in February 2008.

Eurostat. (2011). The euro area (EA16) seasonally-adjusted unemployment rate in January 2011.

FP Empresa, & Bankia. (2014). Programa del I Congreso Nacional de Formación Profesional. Perspectivas de futuro. La vía de la FP básica y dual.

FP Empresa, & Dualiza Bankia. (2018). Programa del V Congreso Nacional de Formación Profesional. Somos lo que hacemos.

Langthaler, M., & Top, P. (2023). The role of social dialogue in the transfer of the dual system of vocational education and training: The case of Serbia (73; ÖFSE Working Paper Series). https://www.econstor.eu/handle/10419/273407

Ley Orgánica 3/2022, de 31 de Marzo, de ordenación e integración de la Formación Profesional, Pub. L. No. Ley Orgánica 3/2022, BOE-A-2022-5139 43546 (2022). https://www.boe.es/eli/es/lo/2022/03/31/3

Li, J., & Pilz, M. (2021). International transfer of vocational education and training: A literature review. *Journal of Vocational Education & Training*, *0*(0), 1–34. https://doi.org/10.1080/13636820.2020.1847566

Ministerio de Educación y Formación Profesional. (2020). *Plan de modernización de la Formación Profesional. Formando profesionales para el futuro.* https://www.lamoncloa.gob.es/serviciosdeprensa/notasprensa/educacion/Documents/2020/220720-Plan_modernizacion_FP.pdf

Phillips, D., & Ochs, K. (2004). Processes of educational borrowing in historial context. In D. Phillips & K. Ochs (Eds.), *Educational Policy Borrowing: Historical perspectives* (pp. 7–23). Symposium Books Ltd.

Real Decreto 1529/2012, de 8 de Noviembre, por el que se desarrolla el contrato para la formación y el aprendizaje y se establecen las bases de la formación profesional dual. (2012).

Roberts, N. C., & King, P. J. (1991). Policy entrepreneurs: Their activity structure and function in the policy process. *Journal of Public Administration Research and Theory: J-PART*, *1*(2), 147–175.

Sanz de Miguel, P., Serra, J. A., Caballero, M., & Barrientos, D. (2022). Social partners' involvement in dual vocational education and training (VET): This project has received funding from the European Commission Employment, Social Affairs and Inclusion DG. Grant number: VS/2020/0145 a comparison of Greece, Spain, Poland and Portugal. Zenodo. https://doi.org/10.5281/zenodo.6669891

Schmees, J. K., & Láscarez-Smith, D. (2024). "Training – Made in Germany" – Hecho en Costa Rica. La transferencia del aprendizaje dual desde la perspectiva de los actores estatales y paraestatales de Costa Rica. *Innovaciones Educativas*, *26*(40), Article 40. https://doi.org/10.22458/ie.v26i40.4944

Steiner-Khamsi, G. (2003). Transferring education, displacing reforms. In *Discourse formation in comparative education* (pp. 155–187). Lang.

Stone, D. (2012). Transfer and translation of policy. *Policy Studies*, *33*(6), 483–499. https://doi.org/10.1080/01442872.2012.695933

Vogelsang, B., Röhrer, N., Pilz, M., & Fuchs, M. (2022). Actors and factors in the international transfer of dual training approaches: The coordination of vocational education and training in Mexico from a German perspective. *International Journal of Training and Development*, *n/a*(n/a). https://doi.org/10.1111/ijtd.12279

Wiemann, J., & Fuchs, M. (2018). The export of Germany's "secret of success" dual technical VET: MNCs and multiscalar stakeholders changing the skill formation system in Mexico. *Cambridge Journal of Regions Economy and Society*, *11*. https://doi.org/10.1093/cjres/rsy008

Biographical Notes

Dr Luis Martínez Izquierdo is a Doctor of Educational Sciences working in the Department of Pedagogy at the University of Granada, Spain, and a member of the "Educational Policies and Reforms" research group. His research focuses on vocational education and training, comparative education, policy transfer, and education policy.

Dr Mónica Torres is an Associate Professor of Educational Science at the Department of Theory and History of Education at the Faculty of Education of the University of Malaga, Spain. One of her research interests focuses on politics of vocational education and the current implementation of the dual VET in Spain. Additionally, she is leading a research project aimed at exploring the dual modality in the vocational training of early childhood educators in Andalusia.

Development of the Vocational Education and Training System in Extreme Conditions: The Case of Ukraine

Melnyk, Sergii

smelnikukr@gmail.com, State Scientific Institution "Institute of Educational Analytics", Ukraine

Lytvynchuk, Andrii

litvinchuk.andrew@gmail.com, State Scientific Institution "Institute of Educational Analytics", Ukraine

Abstract

Context: The aim of the research is to analyze the state of the national labour market in Ukraine, including the alignment of the volume and sectors of workforce training with labour demand and supply at international, national, regional, and local levels, as well as the impact of labour migration flows and volumes. In Ukraine, this issue is further complicated by the aftermath of the pandemic, long-standing challenges related to employment and qualifications, and the new realities brought about by military aggression from a neighboring authoritarian regime in Russia. The research was significantly constrained by the lack of official statistical data – due both to the impossibility of data collection under war conditions and to the classified nature of many indicators.

Approach: The methodological basis of the research involved a comprehensive analysis of all available sources, including relevant international and national publications, operational data from the State Employment Service, and estimates of labour demand and supply by occupation, qualification, and region. In-depth sociological surveys and structured interviews were conducted with key stakeholders – leading employers, providers of educational services, representatives of central and regional authorities, and social partners at national and regional levels.

Findings: Despite significant and ongoing losses to the country, economy, and population, the research reveals emerging positive trends starting from 2023 across employment, the labour market, and the fields of education and qualifications. The survey results indicate a growing awareness among stakeholders – employers, education providers, and policymakers – regarding the importance of aligning interests in the labour market. Notable developments include improvements in vocational training, recognition of the need for more flexible and modern educational approaches, and a shift toward systemic transformation in adult learning and reskilling.

Conclusions: Key recommendations include harmonizing the National Qualifications Framework with best EU practices; consolidating educational institutions into clusters, corporate universities, hubs, and international centres; abandoning outdated and bureaucratic models in education content and delivery; and creating an independent, transparent system for assessing the quality of educational services and the recognition of professional qualifications. The results of the study are proposed for use in drafting legislative, regulatory, and methodological initiatives, as well as launching targeted awareness campaigns among key decision-makers.

Keywords

vocational education and training system, VET institutions, labour market of Ukraine, VET stakeholders

1 Introduction

Recent history shows that, unfortunately, no one is safe from natural (climate changes, earthquakes, other disasters), social (sudden massive increase in the number of refugees, migrants and displaced persons) and political (civil wars, conquests, liberation wars and conflicts) cataclysms. The example of Ukraine is a clear confirmation of that fact.

Emergency events (often completely unexpected) have a profound and destructive impact on the government, population, and economy of a country in general, and on most institutional components and processes in particular. This fully applies to the labour market and the professional training for employment. It should be noted that the research of the theoretical aspects of the impact of war on society and the main spheres of its life included mainly ancient and older military conflicts and their areas of influence. These general considerations of the nature and extent of the impact appear and are perceived to be quite convincing.

2 Literature Review

A significant body of academic literature explores the effects of warfare on employment, education, and institutional systems. While some studies focus on the Balkan conflicts of the 1990s (Wilmer, 2004), the majority examine guerrilla warfare in South America and armed conflicts across various African regions (Kapferer & Bertelsen, 2009). The theoretical implications of the United States' "war on terror" following the attacks of 11 September 2001 have also been widely discussed (Curtis, 2006). Among the most comprehensive contributions to this discourse is the seminal three-volume history of the Second World War, particularly its third volume (Dembitskyi et al., 2022; Geier & Tooze, 2015).

Nevertheless, the conceptual frameworks and empirical findings derived from these cases are of limited applicability to the context of Russia's full-scale military aggression against Ukraine, particularly in terms of understanding the adaptation of Ukraine's employment and vocational education systems to wartime realities. In this regard, the experience of Israel appears to be the most relevant comparative example. As analyzed by the Observatory of Democracy, Israel's education system – spanning from early childhood to higher education – is deeply integrated into national security strategy. It functions as a foundational non-military component, aiming to build civic, intellectual, and military resilience in the face of ongoing existential threats.

Within the Ukrainian academic context, research on the adaptation of the labour market and educational services – particularly vocational education and training (VET) – to the conditions of martial law and the COVID-19 pandemic includes a number of contributions by the author in collaboration with the Institute of Educational Analytics under the Ministry of Education and Science (Melnyk, 2022, 2023, 2024; Melnyk et al., 2023; Tūtlys et al., 2021).

Since Ukraine's independence, the VET sector has experienced profound – and often unpopular – reforms associated with the transition from a planned to a market-based economy. These reforms entailed substantial restructuring of legal, financial, institutional, and methodological frameworks. Between 1991 and 2021, the number of VET institutions declined from 1,246 to 711 (a 43% reduction), while the number of enrolled students fell from 643,400 to 246,900 – a 2.6-fold decrease. Annual first-year enrolment shrank from 377,400 in 1991 to 127,900 in 2020.

The full-scale invasion of Ukraine by the Russian Federation in February 2022 has exacerbated existing challenges. As of 1 February 2025, 183 out of 665 functioning VET institutions

(27.9%) had been either severely damaged (171) or completely destroyed (12) (Освіта під загрозою, 2024).

Despite these extraordinary circumstances, Ukraine's labour market, educational providers, institutional leadership, and workforce have demonstrated remarkable resilience. Economic and professional activities have continued across multiple sectors, testifying to the adaptability and determination of the Ukrainian people. Understanding the nature and scope of this resilience, and the conditions that enabled it, formed the core objective of the present study.

This research examines the dynamics of the Ukrainian labour market and vocational education sector under conditions of military conflict. It focuses on the shifting balance between qualification demand and supply, access to vocational education, inclusion of vulnerable groups, and the mechanisms of learner selection and retention. The study was conducted within the framework of the first implementation year of the Horizon Europe project 101132435 – SKILLS4JUSTICE (Topic: HORIZON-CL2-2023-TRANSFORMATIONS-01-03, Skills Partnership for Sustainable and Fair Migration) (SKILLS4JUSTICE, 2024; SKILLS4JUSTICE – Ukraine, 2024).

3   Methods

The methodological framework of this study integrates a wide array of analytical tools and approaches tailored to the unique socio-economic conditions of Ukraine during wartime. Given the profound disruption caused by Russia's full-scale military aggression since 2022, conventional research methodologies had to be adapted to accommodate the extreme volatility of indicators and trends, many of which became obsolete or incomparable with the pre-war period.

The study employed the following research methods:

1. Analysis of available data sources, including both domestic and international sources;
2. Statistical methods, such as comparative, descriptive, and time-series analysis;
3. Sociological methods, including structured interviews, surveys, and focus group discussions.

Standard methodological designs had to be modified due to the bifurcation of Ukraine's development into two distinct phases: pre-2022 and the wartime period. Many pre-war strategies, indicators, and benchmarks were no longer applicable due to drastic declines in GDP, employment, and living standards – in some cases, by one-third to one-half.

The following country-specific adaptations were implemented:

1. Statistical and bibliometric analyses focused on the period from early 2022 to mid-2024.
2. For comparative analysis, such as employment and educational attainment levels, historical data from previous years (but not earlier than 2014) were considered.
3. Labour demand and surplus by sector were determined using an original methodology based on current operational data from the State Employment Service of Ukraine (Melnyk, 2024).
4. Four standard international questionnaires were adapted to reflect the Ukrainian wartime context. Adjustments included the redefinition of categories such as labour migrants, refugees, IDPs, and pre-2022 emigrants. Approximately 20-25% of each questionnaire was expanded with additional questions on: the impact of war on workforce development and employability; use of female labour in hazardous conditions; return migration of refugees; enterprise relocation; and the role of digitalization in adapting education and work environments during wartime.

To assess labour market relevance of qualifications, a 17-question instrument was developed and grouped into five thematic blocks. Respondents were selected from 3-5 economic

sectors (e.g., ICT, energy, finance, and healthcare). Criteria included company size (SMEs, digital/freelance enterprises), market position (industry leaders, major labour consumers), and regional coverage or decentralized structures.

A separate 19-question tool was developed for educational service providers, grouped into seven thematic blocks. Selection criteria for higher education institutions included diversity in type (e.g., national, municipal, private), breadth of academic programs, regional representation, and faculty-level respondents. For vocational training institutions, the focus was on multidisciplinary programs, relevance to regional economic needs, and institutional reputation among learners and employers.

A broad range of national and regional policymakers and labour market intermediaries were surveyed, with attention to education, employment, migration policy, and stakeholder co-ordination. The total sample included 76 experts:

- 22 company representatives from five key sectors: manufacturing (12), ICT (5), utilities (3), and financial services (2). Notably, manufacturing and ICT accounted for 77.2% of enterprise respondents.
- 12 educational institutions: six universities and six vocational schools/colleges.
- 14 policy stakeholders and social partners: seven from each group.
- Additionally, 35 enterprise-level stakeholders were interviewed to explore digitalization in work and adult learning contexts, especially during crisis conditions such as war and pandemic.

This comprehensive methodological framework provided a robust foundation for analysing the current state of Ukraine's labour market and qualification system in times of war, and for identifying strategic pathways for resilience and transformation.

4 Results

The sociological survey and expert interviews revealed several important findings regarding the state of the labour market, vocational and higher education systems, and the impact of war-related disruptions on employment and training in Ukraine.

Employers generally reported a sufficient supply of labour in certain qualification areas, which, under the current wartime circumstances, can be considered a relatively positive development. However, at least 53 occupations are currently in shortage, and this trend is evident across all sectors of economic activity, not only within enterprises. Regional labour markets experience considerable difficulties in attracting qualified workers for a wide range of positions, particularly those requiring on-site presence and rapid recruitment. While some regional education systems had successfully adapted to changing labour market needs prior to the war, the evacuation and relocation of vocational and higher education institutions due to hostilities have severely undermined this responsiveness. Employers also indicated a persistent need to update training programs and strengthen cooperation with educational institutions to ensure the relevance and applicability of acquired qualifications.

Educational service providers noted that most of their graduates find employment successfully after completing their studies. Curricula and educational standards are regularly reviewed and adapted in accordance with national guidelines, regional economic needs, and labour market fluctuations. Nevertheless, several issues persist. Among these are the lack of unified indicative educational programmes for certain qualifications or professions, difficulties in organising internships under martial law, and insufficient funding for the development of modular or partial qualifications. At the same time, educational institutions reported actively collaborating with local employers and business associations to enhance the relevance of training content.

Such cooperation plays a critical role in improving employment prospects and long-term career development for graduates. The average dropout rate across vocational and higher education institutions over the past five years was reported to be low, ranging between 4.0% and 6.0%.

Experts representing public authorities and social partner organisations at national and regional levels emphasized that the consequences of forced displacement and labour migration caused by the war have created a serious and ongoing challenge for Ukraine's labour market. Current employment policies are largely focused on reintegrating military veterans into the workforce, which enjoys broad societal and institutional support. However, support for other vulnerable or displaced groups remains insufficiently developed. Respondents underscored the growing importance of the National Qualifications Framework (NQF), particularly as it becomes more aligned with international and regional standards. They also stressed the urgent need for reliable, dynamic, and disaggregated labour market statistics. According to these experts, the education system must respond more rapidly and flexibly to the evolving needs of employers, particularly in terms of emerging skills and competencies. Furthermore, they advocated for assigning employers a leading role in the development of professional standards, with active involvement from educational institutions in the co-design of programmes and curricula. In their view, Ukraine's accelerated transition to a system based on professional standards is both justified and achievable.

Regarding the impact of digitalisation, experts noted that the COVID-19 pandemic significantly contributed to a productive shift toward the use of digital tools in the workplace. This transformation has enabled employees to perform work tasks more efficiently, particularly under the severe constraints of wartime. Since the onset of the war, both workers and educators have increasingly adopted and mastered digital technologies, devices, and software solutions. Online learning and remote work have become widespread across all sectors, and the country has witnessed significant progress in the digitalisation of various domains, particularly document management, financial services, online education, and simulation-based assessments.

Finally, the study found that despite the enormous challenges posed by the war, Ukraine's vocational education and training (VET) system has maintained a considerable degree of resilience. As of 1 September 2024, the number of VET institutions had declined only slightly, from 694 in 2021 to 655 institutions, representing a decrease of 5.4%. During the same period, student enrolment dropped by 24,500 individuals, or 9.1% (from 243,820 to 219,320), while the number of personnel employed in the VET sector fell by 2,900 persons, or 9.2% (from 31,460 to 28,560). These figures suggest that, despite notable reductions, the VET system has retained its core capacity to function and contribute to national socio-economic recovery.

Several key factors explain the relative stability and resilience of Ukraine's VET system, despite the destruction or damage of nearly one-third of vocational institutions due to the ongoing war. One of the primary drivers was the rapid adaptation of national legislation at the onset of the full-scale invasion, which enabled individuals to access budget-funded vocational education and training multiple times throughout their lives.

Another contributing factor was the extensive experience that both instructors and students had gained in remote learning during the COVID-19 pandemic. This facilitated the swift transition to distance and hybrid learning models. Additionally, the growing interest among men in vocational education-motivated by the opportunity to obtain deferrals from military mobilisation – further boosted enrolment. This trend was particularly pronounced among those with previous experience in industrial work.

Labour market dynamics also played a critical role. Employers, especially in the defence sector, demonstrated high demand and offered competitive wages for workers in shortage occupations. This demand stimulated interest in vocational programmes directly aligned with labour market needs.

Table 1

Vocational education institutions in Ukraine in 2020-2024: institutions, students, staff

	Years				
	2020	2021	2022	2023	2024
Dynamics of the number of vocational education and training institutions in Ukraine, 2020-2024 (units)	711	694	670	664	655
Dynamics of the number of vocational education and training students in Ukraine, 2020-2024 (persons)	240701	243825	230474	225194	219327
Dynamics of the number of vet institution staff in Ukraine, 20202024 (as of the beginning of the year, persons)	31859	31457	30201	29441	28558

Note. Source: SSI "Institute of Educational Analytics" of the Ministry of Education and Science of Ukraine, official annual administrative reporting.

The decentralisation reform implemented between 2016 and 2020, which transferred most VET institutions under the governance of regional authorities, contributed to institutional flexibility and responsiveness. These institutions became more agile in tailoring programmes to regional labour market demands, introducing new and in-demand training areas, and recognising prior learning – both formal and informal.

Another notable trend is the increasing share of adults among VET graduates. As of September 1, 2024, adults constituted 21.0% of all graduates – nearly double the figure from a decade earlier. Employment rates among graduates remained high, with 76.7% working in jobs related to their field of study.

The relocation of some VET institutions, along with part of their student and staff populations, from frontline areas to safer regions also helped to preserve educational continuity. Furthermore, access to vocational training became more inclusive, supported by coordinated efforts from the state, regional authorities, international partners, and volunteer organisations. Special training programmes were developed for war veterans, persons with disabilities, internally displaced individuals of working age, and other vulnerable groups.

Finally, a growing integration between VET institutions and defence training units has emerged. This includes simplified educational standards, more diverse training formats and equipment, and flexible staffing approaches – though many details of such cooperation remain classified due to wartime restrictions.

The research conducted within the framework of Project 101132435 – SKILLS4JUSTICE, under the Horizon Europe call HORIZON-CL2-2023-TRANSFORMATIONS-01-03 "Skills Partnership for Sustainable and Fair Migration", in particular the sociological survey and expert interviews, allows us to draw several general conclusions:

- The war has significantly accelerated decision-making processes, prompting rapid changes in legislation, training durations, and administrative procedures. The labour market has adapted by prioritising proven and recognised professional skills, short-cycle training formats, and highly motivated individuals – both on the demand and supply sides.
- Simultaneously, the gap between vocational education and training (VET) institutions and the labour market has narrowed substantially. Under such circumstances, the responsibility for decision-making regarding personnel training – at levels 3 to 5 of the NQF/EQF – has effectively shifted toward regional authorities, professional associations, volunteers, and local governance structures. A genuine decentralisation of educational management is taking place.

- Practices developed during the COVID-19 pandemic, including distance learning, simulator-based assessment, access to a wide array of programmes and curricula, and thematic digital content available on educational platforms, have proven to be highly relevant and continue to play a crucial role under wartime conditions.
- Despite the numerous demographic and socio-economic challenges posed by war and displacement, the outflow of labour migrants and refugees has also contributed to easing the pressure on VET institutions and increased competition among applicants. This, in turn, has prompted quality improvements and more targeted educational offerings.
- The demand for professional qualifications has shifted markedly toward skills necessary for the Armed Forces and related support systems, the restoration of war-affected territories (including demining, environmental recovery, housing reconstruction, and infrastructure repair), and social, physical, and psychological rehabilitation of veterans and civilians.
- The private sector– particularly small and medium-sized enterprises established over the past 10-15 years – has demonstrated resilience, adaptability, and flexibility. These businesses have shown the capacity to continue, reorient, or relocate their operations while retaining and recruiting staff under difficult conditions.
- Adult learning – especially its non-formal and informal components – has moved to the forefront of the education and training ecosystem. International partners have played a vital role not only by supporting the rehabilitation of damaged VET infrastructure but also by introducing innovative approaches and training methodologies, particularly for veterans and forcibly displaced adults.
- An important future resource for the development of the VET system in the post-war period will be returning refugees who have gained valuable work, teaching, or training experience abroad and who are ready to reintegrate into the national economy.
- Notably, nearly all structural barriers that previously restricted women's access to traditionally male-dominated professions have been dismantled. This is largely due to male mobilisation and subsequent labour shortages, and the shift has been actively supported by the state, employers, and volunteer organisations.

5   Conclusions

The trends outlined above indicate that both the labour market and the vocational education and training (VET) sector in Ukraine are undergoing rapid and flexible transformations in response to wartime challenges. These shifts require continuous adaptation and the application of innovative approaches by employers, employees, and educational institutions alike. In light of the urgent need to align VET with the post-war reconstruction agenda, several key proposals merit attention.

First, there is a pressing need to harmonise the National Qualifications System (NQS) with leading EU models. This includes a comprehensive reform aimed at adopting modern practices in the forecasting, planning, assessment, allocation, and utilisation of qualifications across labour markets.

Second, a strategic consolidation of VET institutions is recommended, based on a cluster model and involving the establishment of corporate universities, educational hubs, and international centres of excellence. Such a structure would enhance institutional resilience, resource efficiency, and quality assurance.

Third, it is essential to move away from outdated and bureaucratic approaches to curriculum design and pedagogy. In both wartime and post-war contexts, particular attention should be given to transforming adult education to make it more responsive, modular, and inclusive.

Fourth, a new, autonomous, and transparent system for internal and external quality assurance must be created. This system should cover the evaluation of educational services and ensure fair and reliable processes for the recognition and awarding of professional qualifications.

Finally, the findings of this study – as well as subsequent research – should be actively incorporated into the development of draft legislation, regulatory frameworks, and methodological guidance. Dissemination through targeted information campaigns and policy dialogue with national stakeholders will be critical to securing the necessary political and institutional support.

References

Curtis, N. (2006). *War and social theory: World, value, and identity*. Palgrave Macmillan. https://doi.org/10.1057/9780230501973

Dembitskyi, S., Zlobina, O., Kostenko, N., Golovakha, Y., & Makeiev, S. (Ed.) (2022). *Ukrainian society in wartime*. Kyiv, Institute of Sociology of the National Academy of Sciences of Ukraine. https://i-soc.com.ua/assets/files/monitoring/maket-vijna...2022dlya-tipografiivse.pdf

Geier, M., & Tooze, A. (Eds.). (2015). The Cambridge history of the Second World War. Volume III. Total war: Economy, society and culture. Cambridge University Press.

Kapferer, B., & Bertelsen, B. (Eds.). (2009). *Crises of the state: War and social upheaval*. Berghahn Books. https://www.jstor.org/stable/j.ctt9qcr0d

Melnyk, S. (2022). Ukraine: A late and iterative institutionalization. In V. Tūtlys, J. Markowitsch, S. Pavlin, & J. Winterton (Eds.), *Skill formation in Central and Eastern Europe* (pp. 341-368). Peter Lang. https://www.peterlang.com/document/1264724

Melnyk, S. (2023). Vocational and technical education and training in the conditions of postwar reconstruction of Ukraine: Challenges and strategic directions. *5th International VET Conference Crossing Boundaries*, Kaunas, Lithuania, 25-26 May 2023. https://vetnetsite.org/wp-content/uploads/2023/05/cb-2023-s.-melnyk.pdf

Melnyk, S. (2024). The functioning of the vocational and technical education system of Ukraine in the war and post-war periods: From stagnation to development. Ukraine – *Berufsbildung, Zeitschrift für Theorie-Praxis-Dialog*. https://www.zeitschrift-berufsbildung.de/archiv/95-ukraine

Melnyk, S., Oleksiuk, O., Tūtlys, V., & Bukantaitė, D. (2023). COVID-19 and war implications for skill formation in Ukraine. In K. Evans, A. Ostendorf, & C. K. Permpoonwiwat (Eds.), *Resilience of vocational education and training in phases of external shock: Experiences from the corona pandemic in Asian and European skill eco systems* (pp. 150-173). Innsbruck University Press. https://doi.org/10.15203/99106-116-8-09

Observatory of Democracy. (n.d.). *Освіта, що укріплює національну безпеку: Досвід Ізраїлю для України*. https://od.org.ua/osvita-sho-ukriplyue-nazionalnu-bezpeku/SKILL PARTNERSHIPS FOR SUSTAINABLE AND JUST MIGRATION PATTERNS (SKILLS4JUSTICE). (n.d.). https://skills4justice.eu/

Tūtlys, V., Bukantaitė, D., Melnyk, S., & Anužis, A. (2021). The institutional development of skills formation in Lithuania and Ukraine: Institutional settings, critical junctures and policy transfer. *Research in Comparative and International Education*, *16*(4), 405-432. https://doi.org/10.1177/17454999211057448

Wilmer, F. (2004). The social construction of man, the state and war: Identity, conflict, and violence in former Yugoslavia. Routledge. https://doi.org/10.4324/9780203800843

Melnyk, S. (2024). Методичні підходи щодо визначення обсягів потреби регіону в робочій силі на короткотермінову перспективу. https://smelnikukr.com/all_materials/

Освіта під загрозою. (n.d.). *Освіта під загрозою*. Retrieved February 1, 2025, from https://saveschools.in.ua/

Проєкт «Skill Partnerships for Sustainable and Just Migration Patterns» (SKILLS4JUSTICE) – Ukraine. (n.d.). https://horizon.iea.gov.ua/

Biographical Notes

Dr Sergii Melnyk is Head of Sector at the SSI "Institute of Educational Analytics" (Ukraine). His expertise includes aligning vocational training with labor market needs and developing the National Qualifications System. He is a member of the European Pact for Skills.

Dr Andrii Lytvynchuk is Director of the SSI "Institute of Educational Analytics" (Ukraine). His work focuses on ICT in education. He also specializes in education policy, digital transformation, econometric forecasting, statistical analysis, and education financing.

The Relationship Between Vocational Expectations and School Adjustment in Initial Vocational Training

Mičiulienė, Rita

rita.miciuliene@vdu.lt, Vytautas Magnus University, Institute of Educational Research

Kovalčikienė, Kristina

kristina.kovalcikiene@vdu.lt, Vytautas Magnus University, Department of Psychology

Abstract

Context: Choosing a future profession during middle and later adolescence is a crucial task for young people. However, observational data indicate that many students in initial vocational education make hasty decisions regarding their study programs, often focusing solely on short-term career goals. For several years, vocational training institutions in Lithuania have experienced a significant dropout rate, with about one-fifth of students leaving each year. Researchers suggest that these withdrawals are often linked to poor decision-making regarding vocational career prospects and to difficulties in adapting to a new educational institution. It was found that institutional adjustment is a strong predictor of whether learners remain enrolled or drop out. Consequently, this paper examines the issues of vocational expectations and adaptation within vocational training institutions, considering factors such as gender and age group.

Approach: A comparative-correlational study was conducted involving 377 students from 29 VET institutions across the country. The study compared the vocational expectations and adjustments of two groups of initial vocational education students: those who completed 10th grade and those who completed 12th grade, as well as males and females. The research sought to identify correlations between these variables.

Findings: The descriptive statistics revealed relatively high vocational expectations and good adaptation within the school environment. Parametric statistical methods indicated a moderately strong positive correlation between vocational expectations and adjustment in vocational education and training institutions, as well as some noticeable differences based on gender and age. Significant gender differences were found: females reported higher vocational expectations and demonstrated better academic adjustment in vocational schools. The study also confirmed that older students (post-grade 12) have higher professional expectations than their younger counterparts in primary vocational education (post-grade 10). This aligns with their superior personal, emotional, and institutional adaptation. In contrast, the data showed that younger students in primary VET have lower vocational expectations and poorer school adaptation.

Conclusions: More investigation is needed to determine whether students with lower vocational expectations enter VET without clear, defined goals or if their expectations change throughout their education. Practical recommendations underline the importance of taking care of the well-

being of younger trainees, providing timely and targeted information and addressing other aspects that lead to the development of adequate expectations, which may also determine vocational adjustment.

Keywords

initial vocational education and training, school adjustment, students, vocational expectations.

1 Introduction

Making initial career choices and transitioning from general education to vocational education and training (VET) is a crucial step in young people's career path (Karacan-Ozdemir & Ayaz, 2022; Volodina & Nagy, 2016). Volodina and Nagy (2016) found that vocational interests were the strongest predictors of transition from general education to vocational school. Furthermore, vocational expectations significantly influence students' future learning behaviours (Elffers & Oort, 2013), their perceptions of knowledge and skills gaps, academic achievement (Negru-Subtirica & Pop, 2016), career adaptability and aspirations (Basler & Kriesi, 2019; Jokštaitė & Pociūtė, 2014), as well as impact their occupational opportunities (Beal & Crockett, 2010). Research has also shown that poor career decisions can increase anxiety during the learning process, potentially leading to a lower level of adjustment to educational institutions (Jokštaitė &Pociūtė, 2014) and even cause students to drop out of school (Böhn & Deutscher, 2022; Beilmann & Espenberg, 2016).

Numerous educational researchers consider students' adjustment to educational institution as a significant outcome in its own right (Credé & Niehorster, 2012). They have investigated a broad range of factors that may predict or correlate with students' adaptation to the school environment. These factors encompass educational aspirations and professional expectations, academic expectations and self-efficacy (Campos et al., 2022), personal characteristics and experiences of stress (Feld et al., 2011), as well as autonomy, social support, and academic commitment (Lopez-Angulo et al., 2021). Additionally, the dynamics of teacher-student relationships (Longobardi et al., 2016) and levels of academic achievement (van Rooij et al., 2017) also play a critical role.

Most studies concentrate on specific occupational choices, often related to academic paths, or they examine the correlations and predictors of various variables. There is a greater emphasis on the challenges of adapting to higher education, such as universities and colleges. However, comparatively few studies have explored the context of vocational education and the vocational expectations tied to it (Tyson, 2016; Elffers & Oort, 2013). Therefore, this paper aims to shed light on the connections between students' vocational expectations in initial vocational training and their adjustment within a vocational training institution. Prior to delving deeper, this study will clarify the variables involved.

1.1 Vocational Expectations

The first vocational (or occupational) decision made at the end of general education has a significant long-term impact on an individual's life, academic opportunities, and career choices (Wüst, 2015). Choosing a specific profession at this stage presents one of the challenges encountered during the adolescent developmental phase (Kepalaitė, 2013), which is particularly sensitive for learners. In the literature, expectations are described as a mental state associated with the anticipation of future events, which, in turn, shapes an individual's behaviour. These expectations can be linked to motivational constructs similar to goals or "future selves" (Strauss et al., 2012), representing a hopeful anticipation of self-fulfilment directed toward a long-term

perspective. Therefore, expectations refer to the occupations or careers that young people believe they are likely to achieve, based on a realistic assessment of their self-concept and the conditions of the job market (Perry & Raeburn, 2017).

In this study, it is crucial to distinguish between two types of expectations. The first type refers to how much individuals anticipate their future job will align with their ideal job as they envision it. The second type concerns how prestigious they expect their future job to be regarded in society (Urbanavičiūtė, 2009). Expectations about the ideal job reflect the personal value an individual associates with their future career and are linked to intrinsic motivating factors. In contrast, expectations regarding a prestigious job emphasize the social value of a career as recognized by the individual's environment or society, which corresponds to extrinsic motivating factors. Evaluating the negative aspects of a job may influence perceptions of performance and impact future career intentions. As a result, vocational expectations can represent a unique combination of traits, values, experiences, and anticipations for each individual. According to Beilmann and Espenberg (2016), understanding and managing expectations — while striving to align them more closely with reality — can help prevent learner dropouts.

1.2 School Adjustment

For those aspiring their first profession, VET not only facilitates the transition to the labour market (Golsteyn & Stenberg, 2017), but also provides a long-term safe environment for personal and professional development, gradually shaping adolescents' life aspirations, learning patterns, professional identities (Negru-Subtirica & Pop, 2016), and socialising them for a career in the labour market (Eccles & Roeser, 2011). However, the transition from general education to vocational education and the adaptation to it can be one of the most challenging in adolescence (Feldt et al., 2011; Volodina & Nagy, 2016). Researchers recognize that school adjustment is multidimensional and discuss various factors that can either facilitate or hinder students' adaptation. Most research in this area draws on Baker and Siryk's (1986) theoretically grounded four dimensions of school adjustment - academic, personal-emotional, social, and institutional (Credé & Niehorster, 2012).

Academic adjustment refers to how well students adapt to changing academic demands and how capable they feel in completing various academic tasks (Credé & Niehorster, 2012). As both general education and vocational subjects (e.g., post-grade 10) become more demanding, requiring increased cognitive effort from students (Eccles & Roeser, 2011), it is crucial that teaching materials, curriculum structure, content, and the overall organization of the learning experience support students' well-being in school. Academic adjustment is demonstrated by learners' attitudes and engagement in the learning process, their academic effort, and their perceived ownership of appropriate learning skills (Feldt et al., 2011).

Personal-emotional adjustment refers to a student's emotional well-being, as well as their psychological and physical state (Feldt et al., 2011; Credé & Niehorster, 2012). This adjustment is influenced by challenges and negative emotions, such as anxiety and fear that arise in school. Factors contributing to school anxiety include pressures to fit in with teachers, peers, and parents, as well as fears related to testing and self-expression. During adjustment periods, school anxiety can negatively affect students' social behaviour, limit their ability to communicate and socialise, reduce attendance, and instil fears about future educational and career pursuits (Grigaitienė & Bukšnytė-Marmienė, 2018). Avant et al. (2011) argue that a lack of emotional support in new environments can increase student exclusion. Gazelle (2006) indicates that some pupils, needing more protection during transitions, may face victimisation if they lack support. In contrast, various studies show that a warm classroom climate, bolstered by social support from teachers, parents, and peers, reduces behavioural problems and enhances adjustment and participation in school life (Eccles & Roeser, 2011).

Social adjustment, defined by Credé and Niehorster (2012), is the integration into the social structures of educational institutions. Feldt et al. (2011) emphasise the importance of strong social skills, friendship-making abilities, and satisfaction in social relationships. When students change schools, they must navigate new friendship networks (Eccles & Roeser, 2011) and re-assess their place within a new peer group. This transition can be especially challenging for anxious children, who may need specific interventions to help them adjust (Gazelle, 2006). Teachers play a crucial role in this adjustment process (Eccles & Roeser, 2011), as their support fosters academic engagement and enhances social and emotional well-being (Longobardi et al., 2016). Peer relationships greatly affect a student's ability to adjust. Children who are accepted by peers and receive emotional support develop better social skills, while those without strong social connections often struggle with feelings of insecurity, leading to negative attitudes toward school (Grigaitienė & Bukšnytė-Marmienė, 2018).

Institutional adjustment refers to how well students connect with their school community (Credé & Niehorster, 2012). This includes their self-perception as community members, integration into school life, and relationships with the institution (Kepalaitė, 2013). Successful adaptation involves meeting school requirements, functioning effectively in the environment, and interacting appropriately (Grigaitienė & Bukšnytė-Marmienė, 2018). Achieving harmony between students and schools requires effort from both sides. Students must embrace new roles that align with their environment's clear expectations while addressing their needs for autonomy, competence, and belonging (Raižienė et al., 2015). Adjustment difficulties can lead to switching curricula or dropout (Tinto, 2012; Volodina & Nagy, 2016), making it crucial for institutions to implement effective support strategies (Feldt et al., 2011).

Credé and Niehorster (2012), after reviewing two decades of empirical research on adjustment in educational settings, found a strong relationship among all four dimensions of adjustment. They identified a particularly strong correlation between social adjustment and institutional adjustment. Notably, institutional adjustment serves as a strong predictor of student retention and dropout rates (Credé & Niehorster, 2012, p. 155-156). However, there remains an absence of clear correlations between vocational expectations and adjustment in vocational training institutions.

1.3 The Role of Gender and Age

According to the literature, gender influences both school adaptation (Raižienė et al., 2015) and occupational expectations (Gore et al., 2017) but research findings have been mixed. Existing literature on the vocational expectations of adolescents highlights significant gender differences. Karacan-Ozdemir and Ayaz (2022) summarized that while some studies found no notable gender differences, others pointed to higher expectations in either male or female students. Additionally, gender roles can impact students' class participation, learning styles, and interactions with peers and teachers (Kuhn & Wolter, 2023). This, in turn, helps them develop specific strategies for coping with adaptation challenges.

Research indicates that professional expectations change only slightly during adolescence (Beal & Crockett, 2010; Basler & Kriesi, 2019). While young people in vocational education often hold high, sometimes unrealistic expectations (Stam, 2017; Walters, 2021), these aspirations may decrease as they better understand their strengths and opportunities (Sharp et al., 2019). Additionally, age significantly impacts students' adaptability in vocational school, affecting motivation, learning styles, career choices, and life responsibilities. Understanding these factors is crucial for developing targeted interventions to support diverse student populations in vocational training.

1.4 Context

The literature review highlights the need to assess vocational expectations and adaptation to vocational schools within a specific context. In Lithuania, initial vocational education and training (IVET) is designed for students to obtain their first qualification. There are three types of IVET programmes available:

- training programmes for students *without basic education* (after completing 8-9 grades) focused on acquiring a professional qualification or a specific profession along with basic education;
- training programmes for students *with basic education* (after completing 10 grades) aimed at obtaining a professional qualification or a specific profession in addition to upper secondary education;
- training programmes for students *with upper secondary education* (after completing 12 grades) designed to acquire a professional qualification as a skilled worker.

The number of students in vocational education and training institutions is gradually increasing, though only slightly. According to data from the Government Strategic Analysis Centre (STRATA, 2021), approximately one-tenth of the country's high school graduates enrol in vocational education and training institutions each year. Additionally, there is an increasing number of young people aged 15 to 16, who are at risk of dropping out of the general education system.

What professional decisions do young people make when entering the VET system? Observational data on general education students indicate that the majority make unconsidered choices about their curricula, focusing primarily on short-term career goals (Jokštaitė & Pociūtė, 2014). The lack of research necessitates a deeper examination of the vocational expectations of IVET students and their adaptation to school.

Several important questions can be raised about the relationship between vocational expectations and school adjustment:

1) What are the occupational expectations of students in IVET? How do these students adapt to vocational school? What is the relationship between students' vocational expectations and their adaptation to vocational school?
2) How are vocational expectations and school adaptation related to gender and age groups?
3) How do vocational expectations, along with gender and age, predict school adaptation?

2 Method

2.1 Sample and Procedure

The study involved 377 students from initial vocational education and training, recruited from 29 VET institutions across the country using a convenience sampling method. The age distribution of the participants was appropriate for the types of modular vocational programmes. Among the participants, 165 students (43.8%) were enrolled in programmes following 10th grade, that included both vocational training and general education, with an average age of 17.36 years (*SD* = .73). In contrast, 212 students (56.2%) were enrolled in programmes after 12th grade, with an average age of 20.21 years (*SD* = 1.79). Additionally, there were more female students in the post-grade 12 programmes, with 131 girls compared to 83 in the post-grade 10 programmes.

2.2 Measures

A short version of the *Academic Expectations Scale*, adapted for first-year students, was used to assess their occupational expectations (Fleith et al., 2020). This scale includes 5 subscales that evaluate students' occupational expectations as part of their overall academic expectations. The statements cover aspects such as *'The desire to pursue a socially valued occupation'* and *'The aim to increase the likelihood of securing a stable job in the future'*. Respondents rated their level of agreement with each statement on a 6-point scale, ranging from 1 (*'strongly disagree'*) to 6 (*'strongly agree'*). The authors reported a Cronbach's alpha of .89 for the original occupational success perspective subscale (Fleith et al., 2020). In the present study, Cronbach's alpha for this subscale was found to be .91, indicating high reliability.

The Student's Adjustment to College Questionnaire (Baker & Siryk, 1986) was utilized in this study, featuring a shortened version containing 38 items that represent 4 dimensions (Lopez-Angulo et al., 2021). Participants rated the extent to which they agreed or disagreed with the statements on a 7-point scale ranging from 1 ('strongly disagree') to 7 ('strongly agree'). The internal consistency results for the subscales of the short version of the questionnaire were as follows: Personal-emotional adjustment (15 statements, e.g., '*I don't think I can do everything that is asked of me*') subscale α = .95; Social adjustment (8 statements, e.g., '*In vocational school, I meet people and make friends*') subscale α = .84; Institutional adjustment (10 statements, e.g., '*I know why I'm in vocational school and what I want to get out of it*') subscale α = .87; Academic adjustment (5 statements, e.g., 'I *am very satisfied with the teachers on this course*') subscale α = .90. In the present study, the overall Cronbach's alpha coefficient of .95 indicates high internal consistency, that is consistent with findings from other authors, such as Rodriguez et al. (2012), who reported an α of .84.

2.3 Data Analysis

Descriptive statistics were computed for the study variables across the overall sample, as well as by gender and study programme type. Given that the distributions of the variables closely resemble a normal distribution, parametric criteria were used for the statistical analyses. Independent samples *t*-tests were conducted to examine the significance of differences in study measures based on gender and study programme type. *Hedges' g* was calculated as a measure of effect size to express the magnitude of differences between the two different sample size groups. Additionally, Pearson's correlation coefficient and linear regression analysis were employed to evaluate the associations among the variables.

3   Results

Table A1 in the Appendix presents the descriptive statistics for *vocational expectations*, analysed for the overall sample as well as by gender and study programme type. Overall, participants demonstrated strong vocational expectations, with ratings averaging close to five on a 6-point scale (M = 4.84; SD = .89), which is significantly above the theoretical mean of 3.5. Some gender differences were observed: females reported significantly higher scores ($p < .05$) across nearly all subscales, except for the perception of having better opportunities in the labour market, where no significant differences between the groups were found. Although statistically significant changes were observed, the effect size for vocational expectations between females and males was small (g = .28).

Statistically significant differences were found ($p < .05$) between participants in post-10 and post-12 grades. The difference was modest (g = .27), but students enrolled in the post-10th modular vocational training programs had lower mean scores across all subscales. However, it can be confirmed that older students (post-grade 12) have higher vocational expectations than younger students (post-grade 10).

Descriptive statistics for the *Vocational School Adjustment* scale are presented in Table A2 in the Appendix. The highest scores were recorded for institutional adjustment ($M = 5.6$; $SD = .97$), while the lowest were for personal-emotional adjustment ($M = 4.6$; $SD = 1.45$). The mean scores for all subscales were above the theoretical mean of the scale (4), indicating that students generally feel well-adjusted to the VET institutions.

Overall, there were no statistically significant differences ($p > .05$) in how males and females adapted in vocational training institutions, except for academic adjustment where females demonstrated slightly higher ($g = .22$) and statistically significant scores ($p < .05$) compared to males. An independent t-test revealed that students who completed 12 grades had significantly better school adjustment than those who completed only 10 grades ($p < .05$). These older students displayed better personal-emotional ($p < .01$) and institutional ($p < .01$) adjustment. This suggests that older students adapt better in VET institutions than younger students, although the effect size is small ($g = .26$).

Table 1 presents the correlations among the study measures, as detailed in Tables A1 and A2. The correlation coefficient between general adaptation in vocational school and vocational expectations is 0.49 ($p < 0.01$), indicating a moderate strength of the relationship. This suggests that students with higher vocational expectations tend to adapt better to vocational school.

The correlation between vocational expectations and school adaptation is moderately strong for both female and male students. While post-grade 12 students have statistically significantly higher vocational expectations, the correlation between these expectations and school adaptation remains moderately strong for both groups. Interestingly, younger students exhibit an even stronger correlation than older students.

Table 1
The Correlation between Vocational Expectations and Adjustment in Vocational School

| | Sample groups | N | Adjustment in vocational school | | | | |
			Personal-emotional adjustment	Social adjustment	Institutional adjustment	Academic adjustment	General adjustment
Vocational expectations	Total sample	377	.22**	.51**	.32**	.53**	.49**
	Males	141	.12	.62**	.21*	.60**	.49**
	Females	214	.31**	.43**	.42**	.43**	.49**
	Post 10 grades	165	.20**	.59**	.28**	.52**	.50**
	Post 12 grades	212	.19**	.46**	.32**	.53**	.47**

*Note. * $p < .05$; ** $p < .01$.*

A linear regression analysis was conducted to determine whether vocational expectations, the type of programme (post-grade 10 and post-grade 12), and gender significantly predict adaptation to VET institution. The results of the regression analysis, shown in Table 2, indicated that learners' vocational expectations and gender are significant predictors of adjustment to vocational school. Together, these variables explain 24.6% of the variation in vocational school adaptation data.

Table 2

Regression Equation Characteristics for Predicting Adjustment in Vocational School

Variables	Regression coefficients		t	p	F	R	R^2
	B	β					
Expectations	.51	.48	10.48	.01			
Gender	- .16	- .099	- 2.21	.03	40.49**	.49	.25
Programme type	.12	- .06	1.40	.16			

Note. ** *p* < .01; males: 1; females: 2; post-grade 10 = 1, post-grade 12 = 2

It can be argued that males with higher vocational expectations adapt better in vocational schools. However, it is important to note that the predictive value of these expectations is relatively low, suggesting that there are other significant factors influencing students' adaptation in vocational settings.

4 Discussion and Conclusions

This research enhances existing studies on learners' occupational expectations and adaptation in an educational institution by shedding light on the situation in initial vocational education.

The findings of our study indicate that IVET students generally have high vocational expectations, particularly regarding their desire for stable employment and future professional success. These high expectations are not exclusive to IVET students. Yudina et al. (2020) found that individuals with higher qualifications tend to have even higher and more positive occupational expectations. A comparative study by Jokšaitė and Pociūtė (2014) revealed that university students have significantly greater occupational aspirations than college or vocational students. Walters (2021) notes that many college freshmen not only have high expectations but often hold unrealistic ones as well. Tinto (2012) argues that fostering high expectations is beneficial, as they are essential for student success, while low expectations can lead to failure. Additionally, Tinto states that first-year college students' expectations remain flexible and can be easily influenced by educational institutions.

The results of this study indicate that IVET students adapt well to their schools, particularly in terms of institutional adaptation. This is reflected in the students' satisfaction with their experiences in various aspects of the school and their sense of belonging to the institution (Lopez-Angulo et al., 2021). The findings revealed a moderately strong positive correlation between vocational expectations and adjustment to VET institutions. This suggests that higher vocational expectations contribute to better adaptation in VET schools.

This study also emphasised particular nuances due to the significant differences that were found.

Significant differences were observed between males and females regarding vocational expectations and school adjustment. Girls had slightly higher mean scores on both the vocational expectations scale and the academic adjustment subscale. However, other studies have reported contradictory findings. For instance, Walters (2021) found that gender does not significantly impact students' college expectations. Conversely, Watts et al. (2015) and Wicht et al. (2022) indicated that college women have higher levels of occupational aspirations compared to college men. The authors suggest that females' elevated occupational aspirations reflect their specific vocational interests — such as aspirations for higher socioeconomic status occupations and the nature of the work itself — rather than a general desire for higher status and prestige compared to males.

When examining gender issues related to school adjustment, research findings often vary. This study revealed that boys tend to adapt better on a personal-emotional level, while girls excel significantly in academic adaptation. Schnuck and Handal (2011), who studied college

freshmen, found that women displayed better institutional adjustment but had poorer personal-emotional adjustment compared to men. Additionally, the results from Raižienė et al. (2015) indicated that girls experience more emotional difficulties and struggle more with adjustment in learning environments. In contrast, Grama (2018) reported the opposite: men demonstrated stronger institutional adjustment but weaker personal-emotional adjustment than women.

Beal and Crockett (2010) and Basler and Kriesi (2019) suggest that professional expectations change only slightly during adolescence. This study found that older students, who have completed grade 12, have significantly higher vocational expectations compared to younger students, even though the age difference effect size between these groups is minimal. Basler and Kriesi's (2019) longitudinal research in Switzerland indicated that the level and development of vocational aspirations among individuals aged 15 to 21 vary. The authors observed that while young people enrolled in baccalaureate programs tend to slightly decrease their occupational aspirations over time, those in certain types of vocational training experience a significant increase in their aspirations. Another common perspective is that aspirations often decline as adolescents develop a clearer understanding of their strengths and the opportunities available to them (Sharp et al., 2019).

However, higher vocational expectations partly contribute to better school adjustment. Students in post-grade 12 tend to adapt better in terms of personal and emotional, as well as institutional aspects. While younger students in initial vocational training (post-grade 10) have lower vocational expectations and weaker school adjustment skills, the relationship between their vocational expectations and overall school adjustment is stronger compared to that of older students.

The findings of this study suggest that younger students (post-grade 10) face significant challenges in their personal-emotional and institutional adjustment. These younger pupils struggle to meet the institution's demands, integrate into school life, commit to the school, and often experience higher levels of emotional, psychological, and physical discomfort. It is well-known that students with low grades in general education (Rosvall et al., 2017) and those with behavioural difficulties are often directed towards vocational training. This trend is observed not only in Lithuania but also in other countries (see Ling, 2015). Researchers highlight a paradox: while vocational training is typically associated with learners of lower social status and educational achievement, low-achieving students often set high aspirations that do not align with their academic performance (Stam, 2017). Conversely, the respondents in our study do not have high professional expectations after grade 10; they experience personal-emotional and institutional challenges in adjusting to vocational school. However, the relationship between their vocational expectations and overall school adjustment is stronger than it is for older students. According to Credé and Niehorster (2012), the level of institutional adjustment strongly predicts whether a student will drop out or remain in school. In this study, the programme type (i.e., age) was not identified as a predictor of school adjustment. However, this underscores the significance of the school environment and the need for interventions (Longobardi et al., 2016) aimed at supporting students with lower expectations and poorer adjustment.

We suggest that a combination of lower occupational expectations and poorer personal-emotional, and institutional adjustment — often seen in students after grade 10 — may contribute to a higher risk of dropping out of school. However, this hypothesis should be examined in a separate study. Our research offers initial insights into the relationship between the factors being investigated, categorised by the type of vocational training programmes.

4.1 Limitations of the Study and Guidelines for Further Research

The study has several limitations. One major issue is that the survey sample does not fully represent the diversity of VET institutions and programmes across Lithuania. A higher proportion of certain institutions are represented, often centred on students from the same institution

and even from the same class or group. It would be beneficial to reconsider and adjust the sampling method used for this survey.

Secondly, this study relies on self-reports for data collection, and respondents often present themselves in the best possible light. Therefore, the scale could include control questions to assess social desirability.

Thirdly, the cross-sectional study does not indicate any change in vocational expectations. To gain a clearer understanding of how students' vocational expectations and school adjustment evolve, it would be beneficial to survey two phases: one at the beginning of their studies and another at graduation. This approach would allow for a more detailed analysis of the dynamics involved.

Given the positive relationship between vocational expectations and school adjustment, it is advisable to conduct further in-depth research in this area. This research should explore the connections between these factors and the socio-demographic characteristics of students. Additionally, it should examine the reasons behind choosing, dropping out of, or switching educational programmes. Lastly, this study does not address the impact of vocational training institutions on the adjustment and development of learners' vocational expectations, especially after the 10th grade. We believe that IVET learners in this age group should receive greater research attention.

References

Avant, T. S., Gazelle, H., & Faldowski, R. (2011). Classroom emotional climate as a moderator of anxious solitary children's longitudinal risk for peer exclusion: A child× environment model. *Developmental Psychology*, *47*(6), 1711. https://doi.org/10.1037/a0024021

Baker, R. W., & Siryk, B. (1986). Exploratory intervention with a scale measuring adjustment to college. *Journal of Counseling Psychology, 33*(1), 31. https://doi.org/10.1037/0022-0167.33.1.31

Basler, A., & Kriesi, I. (2019). Adolescents' development of occupational aspirations in a tracked and vocation-oriented educational system. *Journal of Vocational Behavior, 115,* 103330. https://doi.org/10.1016/j.jvb.2019.103330

Beal, S. J., & Crockett, L. J. (2010). Adolescents' occupational and educational aspirations and expectations: Links to high school activities and adult educational attainment. *Developmental Psychology, 46*(1), 258. https://doi.org/10.1037/a0017416

Beilmann, M., & Espenberg, K. (2016). The reasons for the interruption of vocational training in Estonian vocational schools. *Journal of Vocational Education & Training*, *68*(1), 87-101. https://doi.org/10.1080/13636820.2015.1117520

Böhn, S., & Deutscher, V. (2022). Dropout from initial vocational training–A meta-synthesis of reasons from the apprentice's point of view. *Educational Research Review*, *35*, 100414. https://doi.org/10.1016/j.edurev.2021.100414

Campos, M., Peixoto, F., Bártolo-Ribeiro, R., & Almeida, L. S. (2022). Adapting as I go: An analysis of the relationship between academic expectations, self-efficacy, and adaptation to higher education. *Education Sciences, 12*(10), 658. https://doi.org/10.3390/educsci12100658

Credé, M., & Niehorster, S. (2012). Adjustment to college as measured by the student adaptation to college questionnaire: A quantitative review of its structure and relationships with correlates and consequences. *Educational Psychology Review, 24,* 133-165. https://doi.org/10.1007/s10648-011-9184-5

Eccles, J. S., & Roeser, R. W. (2011). Schools as developmental contexts during adolescence. *Journal of Research on Adolescence*, *21*(1), 225-241. https://doi.org/10.1111/j.1532-7795.2010.00725.x

Elffers, L., & Oort, F. J. (2013). Great expectations: students' educational attitudes upon the transition to post-secondary vocational education. *Social Psychology of Education, 16,* 1-22. https://doi.org/10.1007/s11218-012-9192-4

Feldt, R.C., Graham, M., & Dew, D. (2011). Measuring adjustment to college: construct validity of the student adaptation to college questionnaire. *Measurement and Evaluation in Counseling and Development, 44*(2), 92-104. https://doi.org/10.1177/0748175611400291

Fleith, D. S., Almeida, L. S., Marinho-Araujo, C. M., Gomes, C. M. A., Bisinoto, C., & Rabelo, M. L. (2020). Validity Evidence of a Scale on Academic Expectations for Higher Education. *Psychological Evaluation, 30*, e3010. https://doi.org/10.1590/1982-4327e3010

Gazelle, H. (2006). Class climate moderates peer relations and emotional adjustment in children with an early history of anxious solitude: A child× environment model. *Developmental Psychology*, *42*(6), 1179.

https://doi.org/10.1037/0012-1649.42.6.1179

Golsteyn, B. H., & Stenberg, A. (2017). Earnings over the life course: General versus vocational education. *Journal of Human Capital, 11*(2), 167-212.

Gore, J., Holmes, K., Smith, M., Fray, L., McElduff, P., Weaver, N., & Wallington, C. (2017). Unpacking the career aspirations of Australian school students: Towards an evidence base for university equity initiatives in schools. *Higher Education Research & Development, 36*(7), 1383-1400. https://doi.org/10.1080/07294360.2017.1325847

Grama, B. (2018). The student adaptation to college questionnaire (SACQ) for use with Romanian studens. *Psihologia Resurselor Umane, 16,* 16-26. https://doi.org/10.24837/pru.2018.1.483

Grigaitienė, K. M., & Bukšnytė-Marmienė, L. (2018). Gimnazijos mokinių santykių su bendraamžiais reikšmė prisitaikymo mokykloje charakteristikoms. *Ugdymo psichologija*, 29.

Jokštaitė, K., & Pociūtė, B. (2014). Students' occupational commitment: Relationship with the satisfaction of occupational choice, career aspirations and career adaptability. *Psichologija*, *49*, 60-80. https://doi.org/10.15388/Psichol.2014.49.3693

Karacan-Ozdemir, N., & Ayaz, A. (2022). Adolescents' future expectations of work and education within adaptation model of career construction theory. *Journal of Career Development, 49*(6), 1266-1282. https://doi.org/10.1177/08948453211037043

Kepalaitė, A. (2013). Stress coping peculiarities of first year students of social pedagogy. *Special Education,* (2), 94-101.

Kuhn, A., & Wolter, S. C. (2023). The strength of gender norms and gender-stereotypical occupational aspirations among adolescents. *Kyklos*, *76*(1), 101-124. https://doi.org/10.1111/kykl.12320

Ling, M. (2015). "Bad students go to vocational schools!": Education, social reproduction and migrant youth in urban China. *The China Journal*, (73), 108-131.

Longobardi, C., Prino, L. E., Marengo, D., & Settanni, M. (2016). Student-teacher relationships as a protective factor for school adjustment during the transition from middle to high school. *Frontiers in Psychology, 7,* 1988. https://doi.org/10.3389/fpsyg.2016.01988

Lopez-Angulo, Y., Cobo-Rendon, R., Saez-Delgado, F., & Diaz Mujica, A. (2021). Exploratory Factor Analysis of the Student Adaptation to College Questionnaire Short Version in a Sample of Chilean University Students. *Universal Journal of Educational Research. 9*(4), 813-818. https://doi.org/10.13189/ujer.2021.090414

Negru-Subtirica, O., & Pop, E. I. (2016). Longitudinal links between career adaptability and academic achievement in adolescence. *Journal of Vocational Behavior*, *93*, 163–170. https://doi.org/10.1016/j.jvb.2016.02.006

Perry, J. C., & Raeburn, R. (2017). Possible selves among urban youth: A study of developmental differences and the aspirations–expectations gap. *Journal of Career Development, 44*(6), 544–556. https://doi.org/10.1177/0894845316670032

Raižienė, S., Gabrialavičiūtė, I., Ruzgaitė, U., & Garckija, R. (2015). Suvoktas psichologinių poreikių patenkinimas mokykloje: kaip tai prognozuoja 13–18 metų mokinių prisitaikymą mokykloje?. *Ugdymo psichologija*, *26*, 44-56.

Rodríguez, M., Tinajero, C., Guisande, A. & Páramo, M. F. (2012). The student adaptation to College Questionnaire [SACQ] for use with Spanish students. *Psychological Reports, 111*(2), 624-640. https://doi.org/10.2466/08.10.20.PR0.111.5.624-640.

Rosvall, P. Å., Hjelmér, C., & Lappalainen, S. (2017). Staying in the comfort zones–Low expectations in vocational education and training mathematics teaching in Sweden and Finland. *European Educational Research Journal*, *16*(4), 425-439. https://doi.org/10.1177/1474904116669154

Schnuck, J., & Handal, P. J. (2011). Adjustment of college freshmen as predicted by both perceived parenting style and the five-factor model of personality. *Psychology, 2*(4), 275-282. https://doi.org/10.4236/psych.2011.24044

Sharp, K., Jarvis, J. M., & McMillan, J. M. (2020). Leadership for differentiated instruction: Teachers' engagement with on-site professional learning at an Australian secondary school. *International Journal of Inclusive Education*, *24*(8), 901-920. https://doi.org/10.1080/13603116.2018.1492639

Stam, T. (2017). Reasons and resources: Understanding pupils' aspirations in lower vocational Dutch education. *Ethnography and Education*, *12*(3), *259-270.* https://doi.org/10.1080/17457823.2016.1237880

STRATA (2021). Vocational training in Lithuania 2021. Government Centre for Strategic Analysis. Retrieved from: https://strata.gov.lt/wp-content/uploads/2022/09/PMBA2021_LT_web.pdf

Strauss, K., Griffin, M. A., & Parker, S. K. (2012). Future work selves: How salient hoped-for identities motivate proactive career behaviors. *Journal of Applied Psychology, 97*(3), 580–598. https://doi.org/10.1037/a0026423

Tinto, V. (2012). Enhancing student success: Taking the classroom success seriously. *The International Journal of the First Year in Higher Education*, *3*(1), 1–8. https://doi.org/10.5204/intjfyhe.v3i1.119

Urbanavičiūtė, I. (2009). *Profesinio kelio rinkimosi vidiniai ir išoriniai veiksniai.* [Daktaro disertacija. Vilniaus

universitetas]. https://epublications.vu.lt/object/elaba:1777966/

Van Rooij, E. C., Jansen, E. P., & van de Grift, W. J. (2017). Secondary school students' engagement profiles and their relationship with academic adjustment and achievement in university. *Learning and Individual Differences*, *54*, 9–19. https://doi.org/10.1016/j.lindif.2017.01.004

Volodina, A., & Nagy, G. (2016). Vocational choices in adolescence: The role of gender, school achievement, selfconcepts, and vocational interests. *Journal of Vocational Behavior*, *95–96*, 58–73. https://doi.org/10.1016/j.jvb.2016.07.005

Walters, J. A. (with Western Illinois University). (2021). *College freshmen and their perceived expectations of higher education*. ProQuest Dissertations & Theses.

Watts, L. L., Frame, M. C., Moffett, R. G., Van Hein, J. L., & Hein, M. (2015). The relationship between gender, perceived career barriers, and occupational aspirations. *Journal of Applied Social Psychology*, *45*(1), 10-22. https://doi.org/10.1111/jasp.12271

Wicht, A., Miyamoto, A., & Lechner, C. M. (2022). Are Girls More Ambitious Than Boys? Vocational Interests Partly Explain Gender Differences in Occupational Aspirations. *Journal of Career Development*, *49*(3), 551-568. https://doi.org/10.1177/0894845321991665

Wüst, K. (2015). Interesting tasks, independence or importance to society? The vocational expectations of generation Y. *Ekonomski Vjesnik/Econviews: Review of Contemporary Business, Entrepreneurship and Economic Issues*, *28*(2), 307-324.

Yudina, I. A., Neustroeva, E. A., Makarova, T. A., & Fedorova, A. A. (2020). Future teachers forming professional expectations in modern educational conditions. *Propósitos y Representaciones*, *8*(SPE3). https://doi.org/10.20511/pyr2020.v8nSPE3.720

Biographical Notes

Dr Rita Mičiulienė is a senior researcher at the Institute of Educational Research at Vytautas Magnus University. Her research interests include teacher professional development, social factors in vocational education and training, and value education. She is a member of the Lithuanian Educational Research Association.

Dr Kristina Kovalčikienė holds a doctorate in social sciences (psychology) and is an associate professor in the Department of Psychology at Vytautas Magnus University. Her research areas focus on professional identity, work motivation, personality characteristics, and the impact of psychological traits on work efficiency and employee well-being.

Appendix A

Table A1
Descriptive Statistics on the Respondents' Vocational *Expectations*

Subscales	Sample		Gender						Type of study programme					
			Female		Male		*t*-test		Post-10 grades		Post-12 grades		*t*-test	
	M	SD	M	SD	M	SD	t	p	M	SD	M	SD	t	p
Aiming for a socially valued profession	4.52	1.09	4.65	.91	4.41	1.20	-2.16	.031	4.31	1.10	4.69	1.05	-3.41	.001
To have better opportunities in the labour market	4.79	.99	4.87	.82	4.74	1.14	-1.26	.209	4.62	1.07	4.92	.90	-2.92	.004
Get training to get a good job	4.91	1.08	5.04	.96	4.77	1.20	-2.34	.020	4.78	1.13	5.01	1.03	-2.09	.038
To be trained for future professional success	4.97	1.02	5.12	.92	4.82	1.13	-2.81	.005	4.85	1.07	5.05	.98	-1.86	.063
Increase the likelihood of having a stable job in the future	5.02	1.06	5.15	.89	4.87	1.24	-2.49	.013	4.93	1.11	5.09	1.02	-1.47	.143
General scale	4.84	.89	4.97	.73	4.72	1.04	-2.62	.009	4.70	.91	4.95	.87	-2.76	.006

Table A2
Descriptive Statistics on the Respondents' Vocational School Adjustment

Subscales	Sample		Gender						Type of study programme					
			Female		Male		*t*-test		Post-10 grades		Post-12 grades		*t*-test	
	M	SD	M	SD	M	SD	t	p	M	SD	M	SD	t	p
Personal-emotional adjustment	4.60	1.5	4.52	1.48	4.82	1.37	1.95	.052	4.35	1.45	4.79	1.41	-2.95	.003
Social adjustment	5.15	1.08	5.21	1.09	5.19	1.01	-.13	.900	5.13	1.03	5.16	1.11	-.25	.805
Institutional adjustment	5.60	.97	5.70	.93	5.50	1.02	-1.94	.053	5.41	.98	5.73	.94	-3.19	.002
Academic adjustment	5.35	1.29	5.51	1.28	5.22	1.32	-.07	.040	5.24	1.20	5.44	1.37	-1.44	.151
General scale	5.17	.94	5.24	.95	5.18	.92	-.50	.615	5.03	.90	5.28	.96	-2.52	.012

The Role of the Car Industry in Integrating Migrants in the Workforce and Society: Preliminary Findings of a Comparative Case Study of Sweden and the USA

Moreno Herrera, Lázaro
lazaro.moreno@edu.su.se, Stockholm University

Hernandez-Gantes, Victor M.
victorh@usf.edu, University of South Florida

Antera, Sofia
sofia.antera@uu.se, Uppsala University

Abstract

Context: This paper presents preliminary findings of a more ambitious study aimed to investigate the role of the car industry in integrating migrants into the workforce and society in Sweden and the USA. The study is part of the research project *from work force immigration to inclusion – A study of Vocational Education & Training development in relation to society changes and immigration in a historical perspective,* funded by the Swedish Research Council.
Approach: Using a comparative case study approach, it employs curriculum and frame factor theory, analysing labor policies and integration programs through qualitative and quantitative data.
Findings: Both countries offer employment opportunities in the automotive sector, yet differ in labour market policies, social support systems, and integration strategies. Migrants face challenges such as language barriers and recognition of foreign qualifications, but targeted vocational training and government initiatives help facilitate inclusion.
Conclusions: The study underscores the car industry's significance in economic and social integration, emphasizing the need for policies promoting equitable access and long-term inclusion.

Keywords

migration, vocational education and training, car industry, inclusion

1 Introduction

This research paper presents preliminary findings of a study examine to investigate the role of the car industry in the integration of migrants into the workforce and society in Sweden and the United States. It explores how this sector influences economic opportunities, social inclusion, and cultural adaptation for migrant populations. Through a comparative analysis, the paper highlights the distinct approaches and policies of each country, evaluating the successes and challenges faced by migrants in the automotive labour market. The findings suggest that

while both countries provide unique pathways for integration, structural differences in labor market policies and social welfare systems significantly affect migrant outcomes. The study is a work in progress part of the research project "From work force immigration to inclusion – A study of Vocational Education & Training development in relation to society changes and immigration in a historical perspective", financed by the Swedish Research council. With a focus on structural changes and migration an international comparison as the one carried in this study intends to highlight features beyond Swedish national context to strengthen findings in studies by other researchers participating in the project.

2   Context Setting and Framework of the Study

A literature review by Antera & Moreno Herrera (2025) identified various dimensions and the complexity of the different interacting aspects related to migrant work force in the car industry. This section is largely based on the mentioned study.

The integration of migrants into the workforce and society is a pressing issue in many countries, particularly in the context of globalization and increasing migration flows. The car industry, a key sector in both the United States and Sweden, has played and still plays a significant role in this integration process. This study investigates how the automotive industry serves as a vehicle for economic inclusion and social integration of migrants, examining policies, practices, and outcomes in both contexts.

Portrayed as the industry of industries (Drucker, 1992), the car industry has a significant role in global and national economies, not only because of its massive size but also because of its connections to other industries (Dicken, 2003), being a key player in the trade and economy of several countries around the world. Originating in France and Germany, its activity has reached the United States, Japan and the Republic of Korea, while the more recent emergence of China, especially regarding electric vehicles, cannot be overlooked. Expanding in services more than vehicle production, the car automotive industry became synonymous with the industrial development of the 20th century (Papatheodouru & Harris, 2017). In terms of its contribution to global economic growth, the automotive industry´s annual turnover is of equal value to the world´s sixth-largest economy (Masoumi et al., 2019). The car industry is perceived as capital-intensive, but it drives research and innovation, also creating job positions and investment. Because of its size, the automotive industry has been perceived as a key actor in achieving several of the Sustainable Development Goals for 2030, including sustainable economic growth, decent work, quality education and sustainable cities.

Besides the economic and technological contribution, the automotive industry´s role in education and training is indisputable. Automobile companies have been responsible for the development of the workers, with (technical) training provided in-house, often in collaboration with vocational education and training institutions, and/or government agencies (Laseinde & Kanakana, 2017). As the sector is currently undergoing transformation, the car industry should revise practices of recruiting and (re)training workers, investing in the competence of a labour force that can use new technologies to improve productivity and sustainability, as according to the International Labour Organization (ILO) (2020) the capabilities of the workforce in the car industry are decisive for its future.

From a historical perspective, the automotive industry has been highly resilient, recovering from financial recessions and contributing to Gross Domestic Product (GDP) and global employment. Since the beginning of mass automobile production in the United States until today, the car industry has employed large numbers of migrants. From 2012 to 2017, the percentage of migrants as part of all automotive industry workers increased by around 8-10 % in the United States (US). The automobile industry has historically attracted low-skilled workers for the assembly lines, and fewer skilled workers for specialised tasks. Nevertheless, in the present times, there is a need for highly skilled and often science, technology, engineering and mathematics

(STEM)-educated migrant workers. Recruiting a (highly skilled) migrant workforce is beneficial to the car industry; yet it causes a permanent loss of the national workforce, often qualified nationals (ILO, 2020). On the other hand, migrant workers recruited for low-skilled jobs have raised concerns about their work conditions, which research literature has shown to be bad (e.g., Lau, 2012; Leach, 2008; Schmitz, 2019).

According to ILO (2020), migration policies are continuously evolving, due to a growing reliance on temporary labour migration programmes rather than permanent migration. More specifically, a tendency towards temporary foreign worker schemes has been identified, with these schemes requiring stricter conditions for the admission of less skilled workers compared to highly skilled workers. These trends create a rather demanding environment for migrant workers, putting an increasing emphasis on skills recognition and meaningful employment. In these terms, validation of prior experience and recognition of skills becomes an issue of transnational collaboration.

Summarising the car industry as a sector that is an important contributor to economic growth, a common provider of training and an employer of a migrant workforce, researching further the relationships between this sector and migrant labour can illuminate the potential lying within it and the challenges ahead. Hence, the present study explores the relationships between migrant labour and the car industry sector as they are outlined in the research literature. Nevertheless, it is important to note that the literature considering both topics, meaning the car industry and migration (or migrant labour), is scarce.

3   Theory and method

The theoretical ground for this study is twofold: we have combined curriculum theory, in specific frame factor theory as developed by Lundgren (1972) and Goffamn´s frame theory (1974). Curriculum theory helps, in the context of this study, to examine various factors influencing the dynamics of migrants' inclusion in the work forces in the car industry in both contexts. Secondly, we use international comparative methodology in specific research that highlights the methodological challenges in comparing context where 'frame factors and social trajectories varies considerably (e.g. Bray & Thomas, 1995; Bray et al., 2007). This study employs a comparative case study approach, drawing on qualitative and quantitative data from industry reports, government publications, and academic literature. It analyses labor policy frameworks, and integration programs in both countries, focusing on the experiences of migrants within the automotive sector.

This multi-faceted approach enables a nuanced understanding of how the automotive industry functions as a vehicle for economic and social integration in distinct policy environments.

4   Preliminary Results

Literature review indicates that migration has profound economic implications for host countries. Research indicates that migrants contribute to economic growth, innovation, and labour market dynamism. However, the extent of their integration into the labour market varies widely, influenced by factors such as local labour demand, educational background, and support systems. The car industry is a significant economic sector in both Sweden and the USA, offering diverse employment opportunities. It is characterized by a range of roles, from manufacturing to engineering and design, which can accommodate varying skill levels among migrants.

An overview of the Swedish automotive sector gives grounds to argue that Sweden's automotive industry, known for its innovation and sustainability, is a significant contributor to the national economy. Major companies such as Scania and Volvo had and still have employment

impact that reaches several communities and not only where main assembly lines are located. Migrant workforce has been significant and had a remarkable impact in the development of the Swedish car industry. The composition of migrant workers in the Swedish automotive sector and their qualifications has historically shifted, while a pattern of migrant workers from, for example, Finland, the Balkans and Italy is well documented, there is also more recently a more diverse group of migrants working in different positions within the industry.

The employment challenges are various and related to aspects that goes beyond the specific practical skills needed for a specific activity in the industry, from assembly lines to administrative work. Challenges faced by migrants, include cultural 'adaptation', language barriers, and the recognition of foreign education and experience. Sweden is also known from enactment of various integration initiatives. Amongst the ways forward to face the challenges there are identifiable company policies and Swedish government's policies and initiatives to support the integration of migrants in the automotive industry, including vocational training programs, mentorship schemes, and language instruction.

On the other comparative component of the study, the car industry in the USA, we find that the U.S. automotive industry is one of the largest in the world, employing millions of people across various sectors. With difference to the Swedish case in terms of industry's structure, key players, and economic significance, there is a commonality related to the employment of migrant workforce. The demographics of migrant workers in the automotive sector, including their countries of origin, skill levels, and employment trends varies. Still, commonalities are identifiable in relation to employment challenges and the barriers faced by the immigrants such as language proficiency, recognition of foreign qualifications, and discrimination. In this study, still in progress, we intend to look also at examples of integration initiatives aimed at facilitating the integration of migrants in the U.S. automotive sector. This may include training programs, language courses, and partnerships with community organizations.

Further research work is needed, we do intend to reach a better understanding of policy frameworks. Comparing the policy approaches in the USA and Sweden regarding labour market integration for migrants, focusing on the role of government, industry, and civil society.

It is also relevant to search for possible evidence of economic outcomes, specifically the economic impact of migrant integration in the automotive sectors of both countries, considering employment rates, income levels, and job stability. Social outcomes are another aspect to be further investigated, in other words, examining possible evidence of the social integration of migrants within the automotive industry, including community involvement, cultural exchange, and social cohesion.

In an earlier stage of the study, we can already see but need to identify further challenges and opportunities. Common challenges faced by migrants in both the U.S. and Swedish automotive sectors, such as discrimination, underemployment, and lack of access to resources. Evidence indicates that there have been opportunities for improvement, for example potential opportunities for enhancing migrant integration in the automotive industry, including policy recommendations and best practices from both countries.

5 Concluding Remarks

Concluding we argue that even though the study is on a preliminary stage, there is evidence, as presented in some of the literature used here, emphasizing the importance of the car industry as a facilitator of migrant integration and continued efforts to address barriers and promote inclusive practices within the sector.

In relation to the migrant workers' profiles, the types of skills that they bring to the car industry seem to be of primary importance. Highly skilled migrants seem to enjoy higher status and to be assigned further responsibilities. Another interesting element is the use and, thus, the value attributed to the cultural capital that re-migrants bring. Cultural capital can be viewed as

the social position that a person has and how it affects their actions. In analogy with economic capital, cultural capital is a resource, for example knowledge, that is invested and/or converted into other forms.

The automotive industry serves as a critical platform for migrant workforce integration in both Sweden and the USA. While both countries offer employment pathways, disparities in labour policies and social welfare systems affect migrant outcomes. Sweden's state-led interventions provide structured support, whereas the U.S. relies on employer-driven initiatives. Future research should explore long-term employment trajectories and the role of technological advancements in shaping migrant labour opportunities. Strengthening policy frameworks for vocational education and workplace inclusion is essential to ensuring equitable access and long-term economic stability for migrant workers.

Further research is needed to clarify best how this sector influences economic opportunities, social inclusion, and cultural adaptation for migrant populations. The authors are committed to continue the path highlighted in this paper.

References

Antera, S., & Moreno Herrera, L. (2025). Migrant labour in the automotive industry: A literature review. In L. Moreno Herrera, M. Teräs, A. Laczik, & B. Stalder (Eds.), *Migration, inclusion & the role of VET* (Special Issue). *Nordic Journal of Vocational Education & Training*. In progress.

Akhtar, S. (2015). Immigrant island cities in industrial Detroit. *Journal of Urban History, 41*(2), 175–192. https://doi.org/10.1177/0096144214563509

Bhalla, V. (2008). Detroit and Windsor as transnational spaces: A case study of Asian Indian migrants. *Michigan Historical Review, 34*(2), 99–116. http://www.jstor.org/stable/20174287

Bray, M., & Thomas, R. M. (1995). Levels of comparison in educational studies: Different insights from different literatures and the value of multilevel analyses. *Harvard Educational Review, 65*(3), 472–490.

Bray, M., Adamson, B., & Mason, M. (2007). *Comparative education research: Approaches and methods*. Hong Kong: Comparative Education Research Centre, The University of Hong Kong.

Broberg, Å., & Herrera, L. M. (2024). Education for access to the Swedish labour market and society: A historical comparison of practices for the integration of immigrants in the 1960s and early 2000s. In M. Teräs, A. Osman, & E. Eliasson (Eds.), *Migration, education and employment* (Vol. 10, Education, Equity, Economy). Springer. https://doi.org/10.1007/978-3-031-41919-5_6

Dicken, P. (2003). Global shift: Reshaping the global economic map in the 21st century (4th ed.). New York: Guilford.

Drucker, P. F. (1992). *Concept of the corporation* ([New ed.]). Transaction Publishers.

Giertz, E. (1991). Människor i Scania under 100 år: Industri, arbetsliv och samhälle i förändring. Stockholm: Norstedts Juridikförlag.

Goffman, E. (1974). *Frame analysis: An essay on the organization of experience*. Cambridge, MA: Harvard University Press.

International Labour Organization (ILO). (2020). The future of work in the automotive industry: The need to invest in people's capabilities and decent and sustainable work. Issues paper for the Technical Meeting on the Future of Work in the Automotive Industry (Geneva, 15–19 February 2021). International Labour Office, Sectoral Policies Department, Geneva.

Lau, R. (2012). Restructuring of the Honda auto parts union in Guangdong, China: A 2-year assessment of the 2010 strike. *Working USA, 15*, 497–515.

Leach, B. (2008). A clash of histories. *Focaal,* (51), 43–56. https://doi.org/10.3167/fcl.2008.510105

Lundgren, U. P. (1972). Frame factors and the teaching process: A contribution to curriculum theory and theory on teaching. Stockholm: Almqvist & Wiksell.

Masoumi, S. M., Kazemi, N., & Abdul-Rashid, S. H. (2019). Sustainable supply chain management in the automotive industry: A process-oriented review. *Sustainability, 11*(14), 3945. https://doi.org/10.3390/su11143945

Laseinde, O. T., & Kanakana, G. M. (2017). Interventions to skills development in the automotive manufacturing sector of South Africa. *InTech*. https://doi.org/10.5772/intechopen.70305

Papatheodouru, Y., & Harris, M. (2007, January 5). The automotive industry: Economic impact and location issues. *Industry Week*.

Schmitz, M. A. (2019). Change in China? Taking stock of blue-collar workers' work values. *Journal of Chinese Human Resource Management, 10*(1/2), 49–68. https://doi.org/10.1108/JCHRM-08-2018-0014

Sugrue, T. (2024). From Motor City to Motor Metropolis: How the automobile industry reshaped urban America.

Retrieved from http://www.autolife.umd.umich.edu/Race/R_Overview/R_Overview3.htm

Biographical Notes

Dr Lázaro Moreno Herrera is a professor in education sciences with orientation to vocational education and training and the scientific leader of the research group Vocational Education & Training (VETYL) at the Department of Education, Stockholm University, Sweden. His research interests focus on various dimensions of VET notably policy issues, migration and comparative international aspects.

Dr Victor M. Hernandez-Gantes is a professor and the Director of the Career and Workforce Education program in the College of Education at the University of South Florida in Tampa, Florida, USA. His research interests focus on student participation, the nature and role of program structures, underlying conditions of support, and their intersection as an organizational system.

Dr Sofia Antera is a researcher at Uppsala University, Sweden, and member of the research group VETYL (Vocational Education & Training) at the Department of Educational at Stockholm University. Her research focuses on vocational teachers, their competence and professional development. Her research interests also include migration and employment and adult learning.

Online Tools to Support Career Planning on the Pathway to Vocational Education and Training (VET) or General Education[1]

Nägele, Christof

christof.naegele@fhnw.ch, University of Applied Sciences and Arts, School of Education and University of Basel, Institute for Educational Sciences

Wyss, Annika

annika.wyss@phbern.ch, Bern University of Teacher Education

Hell, Benedikt

benedikt.hell@fhnw.ch, University of Applied Sciences and Arts, School of Applied Psychology

Stalder, Barbara E.

barbara.stalder@phbern.ch, Bern University of Teacher Education

Abstract

Context: Career planning is crucial for young people transitioning from school to vocational education and training (VET) or general education. Self-reflection and career-related decision-making are essential for balancing societal, cultural, and personal factors. Career education in schools plays a vital role in preparing students for these transitions; however, challenges arise in providing personalised career support within the school environment. Digital tools offer a promising method to encourage career-related reflection and transformative learning, allowing students to explore their interests, competencies, and career pathways in a structured and self-directed manner.

Approach: This study investigates the implementation and impact of www.digibe.ch, an online career reflection tool. The tool offers structured reflection tasks covering various career-related themes, encouraging students to engage in self-reflection. Using a longitudinal study design, we collected data from students in lower secondary education over three years, monitoring their interaction with the tool, their self-reflection practices, and their career-related decision-making. We also examined the role of teachers in facilitating career guidance and their perspectives on integrating digital tools into career education.

Findings: The results indicate that career reflection is highly individualised, with students engaging in self-reflection at varying paces. Some students reported notable benefits from using the tool, gaining deeper insights into their career interests and aspirations. Others responded negatively to the reflection tasks, perceiving little relevance in exploring broader career perspectives. Teachers played a significant role in granting students access to the online tool, and

---

their involvement and views on it varied. Some teachers recognised digital career reflection as an essential element of career education, whereas others regarded it as secondary to traditional career guidance methods. The study also highlighted that career planning is rarely linear; students frequently revisit and revise their choices, underscoring the necessity for flexible and adaptive career education models.

Conclusions: The findings emphasise the importance of fostering career-related self-reflection and transformative learning in school-based career education. Digital tools like www.digibe.ch can effectively support this process; however, their success depends on students' readiness to reflect and the teachers' role in facilitating career exploration. Career planning should be recognised as a dynamic and ongoing process, requiring career education and adaptable guidance instead of rigid, linear methods that aim to place students in a suitable follow-up solution. Future research should explore how to better integrate career education within school curricula and how digital tools can be optimised to meet diverse student needs.

Keywords

career-related self-reflection, transformative learning, career education in schools, digital career education tools, individualised career planning

1 Introduction

This paper reports on www.digibe.ch, a project designed to support young people in exploring careers and making decisions by encouraging career-related reflection and development. It aims to foster self-reflection and transformative learning related to careers (Mezirow, 2009). We present the structure of a longitudinal intervention study and results that address the roles of teachers, self-reflection, and transformative learning in students.

Learning to manage career planning and decision-making is crucial in students' educational journeys and school-to-work transitions and beyond. Young people must choose to pursue vocational or general education no later than the upper secondary level, and in some countries, even earlier at the lower secondary level. Transitioning from school to work is a beginning, not the final goal; career planning is a dynamic, long-term process that helps individuals adapt to changing career demands (Ertl, 2023).

In many countries, VET promises to offer young people sustainable careers and supply the economy with skilled workers. It is seen as a viable education pathway in many countries to higher education and work (Billett et al., 2018; Cedefop, 2014) or aiding them in becoming self-employed (Allais, 2022). Nevertheless, for many young people, the decision to pursue education and training in initial vocational education and training (iVET) and VET rather than general education at the upper secondary level is inconceivable. They often perceive VET as more physically challenging, fearing longer working hours or feeling they have less freedom to pursue their projects compared to academic education (Nägele & Düggeli, 2020). These young individuals limit the range of career options they consider valid. Regardless of how we analyse it, career decisions are influenced and constrained by many early experiences and perceptions shaped by cultural, gender, and societal factors (Gottfredson, 2002).

Young people should engage in career-related reflection to address these issues and broaden their exploration and choices. This process involves expanding their perspective on work and career options while developing thoughtful and informed decisions. Young people encounter numerous challenges when navigating the complexities of dynamic societies and emerging forms of employment (Savickas & Savickas, 2019). We cannot expect all young individuals to be capable or willing to self-reflect (Hell & Pässler, 2022) , nor is it necessary—or feasible—for all young people to have access to career counselling services and coaching.

Career education and counselling for students is often embedded in the school context. Teachers and parents play a crucial role in supporting students' career planning within a classroom, which presents various challenges. These challenges begin with the availability of resources and extend to how to manage individualised coaching and guidance in a classroom setting (Stalder et al., 2023). Teachers often find themselves acting as educators, counsellors, or career guides, assisting students in navigating educational transitions and transformations. Our online tool is primarily designed for career education and guidance activities in schools and by teachers. " Career education " may be a more appropriate term in this context than " career counselling " or " guidance. " Career education fosters an understanding of the influences shaping concepts of self and career, emphasising the central role of schools and teachers in supporting young people's development (Irving, 2010).

Digital tools are essential in this context, as they can enhance career education and guidance. Questions emerge regarding how to design these online tools and their capacity to stimulate career-related reflection.

2 The Aims of Career Guidance

This paper emphasises a shift in perspective when examining the transition from school to vocational education and training (VET) through the lens of transformative learning and developmental processes. These processes help individuals design their careers and acquire the competencies necessary to handle challenges during their transition from school to VET, and later in their careers, guided by career-related reflections. This approach contrasts with viewing the transition through the lens of employability, which focuses on facilitating young people's entry into VET via matchmaking processes.

Many countries invest significantly in guiding young people into vocational education and training (VET), with teachers or career counsellors playing central roles (Stalder et al., 2023). In the transition from school to work, whether at the lower or upper secondary school level, career counselling often focuses on helping young people pursue education and employment. For a long time, it has been an important goal to encourage young people to enter post-compulsory education (Heinz et al., 1985).

Firstly, career guidance aims to assist adolescents in finding their way into education, training, and work. It prepares them academically for general education or makes them employable for apprenticeship positions. A broader approach to career education and counselling is rooted in career development theories (Savickas et al., 2009; Super, 1990). By doing so, we can guide young people toward suitable educational programmes or work opportunities, on one hand. This approach, however, narrows the focus to solving a transitional problem (Guichard, 2022).

Secondly, career guidance aims to educate young people on how they can independently design their careers. This broader focus seeks to empower individuals to shape their future (Guichard, 2022). Designing a career depends on an individual's ability to engage in self-discovery about the labour market, as well as an assessment of personal competencies, social contexts, and cultural backgrounds. During the critical phase when young people select educational or education-to-work pathways, it is essential to view this as an opportunity for decision-making and for learning to navigate career paths, considering the developmental trajectories, competencies, personal interests, and socio-cultural contexts that influence their aspirations (Bårdsdatter Bakke & Hooley, 2022).

Career guidance and education are embedded in complex school, family, and societal contexts that limit the range of options in designing a career. Students lacking adequate career guidance may feel discouraged from pursuing vocational education and training (VET), even if it aligns with their talents and ambitions. Career planning among young people requires support from parents, teachers, training institutions, or career counsellors (Stalder et al., 2023; Von Wyl et al., 2018). Without this support, they tend to make career decisions heavily influenced by

their social background or their family's socio-economic status (Hirschi, 2009). Career support should aim not only at finding immediate solutions but also at helping students develop reflection and decision-making skills. In the Swiss context, many cantons have emphasised the importance of empowering students to shape their careers (Nägele & Schneitter, 2016). This also addresses the challenges of increasingly non-linear career paths, which are visible in the transitions across secondary and tertiary education in Switzerland—for example, in students dropping out and later re-enrolling in VET programmes, general education, or higher education (Deppierraz, 2021; Laganà & Babel, 2018). Such discontinuities in education and training, along with career changes, pose significant challenges not only for individuals but also for organisations and society as a whole.

2.1 Reflection and Career Orientation

Reflection becomes a fundamental component of career planning, but it is not a self-running process (Hell, 2009). Personality and motivation are developed through reflection. By reflecting on oneself and making one's thoughts, experiences, and actions the focus of that reflection, a person can undergo significant change (Silvia, 2021). Many career orientation programmes rightly encourage young people to reflect. However, it is essential to distinguish between reflection that aims to identify follow-up solutions during the transition from school to work and reflection that genuinely addresses beliefs to broaden or change one's perspective on a career.

The functional reflection emphasises becoming aware of the competencies and knowledge necessary to identify suitable follow-up education or employment. This reasoning is usually reflected in theories that connect vocational personalities with work characteristics (Holland, 1996). It can be tempting to evaluate one's situation to discover appropriate career options. While it is crucial for students to feel assured that their chosen path aligns with their goals at the start of any apprenticeship program (Nägele & Neuenschwander, 2014), career orientation and decisions should also consider the rationale behind those choices and the potential for growth.

In doing so, self-reflection becomes pertinent. Grounded in transformative learning theory (Mezirow, 2009), self-reflection is central to embarking on a transformative learning and developmental process. Within this framework, one can evaluate gender stereotypes, cultural norms influencing career planning, and parental expectations directed at children. This is crucial, as career decisions made at a young age, not only in Switzerland, are often swayed by gender or cultural factors. Self-reflection and insight are vital competencies for fostering life-long career management skills, equipping students to navigate the complexities of contemporary career paths. Given the increasing unpredictability of labour markets, promoting reflective capacity in career education is essential for enhancing students' adaptability and informed decision-making.

While mastering the transition from school to work is crucial, understanding the reasons behind specific decisions and their potential outcomes is even more essential. Career guidance in schools should foster reflective and critical thinking, practical skills, and improve career education alongside the ability to design a career path.

3   Support Career Planning by Online Tools

Various offline and online tools exist to assist in vocational orientation and decision-making for young people. Most of these tools are developed from practice to practice, though some are also grounded in research, especially in higher education (Höft et al., 2024). Many tools rely on "paper and pencil" methods. Teachers use these tools individually with their classes or

integrate them into whole-school strategies. One example of a whole-school strategy is the Potenzialanalyse, implemented in some German Bundesländer. This initiative aims to identify and assess an individual's strengths, interests, and competencies to help them make informed decisions about their career path (Dahmen & Thielen, 2024).

We focus on scientifically validated tools that teachers and individuals can quickly adopt. There are three types of tools: Type one tools match people to jobs or study programmes. An example is www.was-studiere-ich.ch, which aims to help individuals make informed decisions about what to study at university. Type two tools are rooted in the serious gaming tradition and engage young people in activities within games. An example is www.like2be.ch, which addresses gender stereotypes in vocational orientation and choices (Keller et al., 2023). A third type includes tools that aim to induce career-related self-reflection based on self-assessment concepts related to competencies, interests, mindsets, and environments that influence career exploration and decisions. Examples include www.informationssetting-bl.ch and www.digibe.ch.

3.1 www.digibe.ch

www.digibe.ch is a collection of tasks designed to stimulate career-related self-reflection, serving as a foundation for development and transformative learning processes (Nägele et al., 2025). The reflection tasks that students are engaging with are organised by topics: "Planning", "Family and Peers", "Vocational Interests", "Decisions", "Future", "World of Work", "Networks", "Supporting Others", and "Career Planning as a Game". For each topic, multiple tasks are available to students.

One task in the category "Vocational Interests" is about freely expressed vocational interests, which are often measured through standardised interest inventories with stimuli like "Load and unload freight materials", "Learn about human behaviour ", or "Perform office work" (Chernyshenko et al., 2019). In www.digibe.ch, young people are encouraged to develop up to six vocational interests in their own words, which can be quite demanding. This encourages individuals to explore and articulate their interests. Students mention interests like, for example, "Working in a team, " "being able to balance work and leisure time, " or "communication. "

Another reflection task in the "Vocational Interests" category asks students to assess their vocational interests based on two publicly available online interest tests. The first test from[2] covers nine vocational fields, such as Nature, Nutrition, and Hospitality. The second test is a picture assessment from[3], depicting twenty-two vocational fields (Zihlmann, 2023). Students taking both tests will notice that the results differ, as categorising vocational interests into nine versus twenty-two fields can lead to distinct outcomes. After completing these two interest tests, the young people are asked to report the results of each test within www.digibe.ch and compare them. The aim is to reflect on these differences, potentially retake one of the tests, and compare the new results with the previous ones. The students then receive feedback on their written reflections, prompting them to consider what they have experienced and learnt during the reflection task, whether it has changed their mindset, and if they wish to discuss their insights further with peers, teachers, or parents.

In the category "World of Work", young people are asked to design their own vocation; in the category "Future, " they write a letter to themselves at ages 30 and 90. The essential point

---

[2] BIZ = Berufsinformationszentrum Zürich, Career Information Center Zurich.
[3] SDBB = Schweizerisches Dienstleistungszentrum Berufsbildung | Berufs-, Studien- und Laufbahnberatung, Swiss Competence Center for Vocational Education and Training | Career, Study, and Guidance Counseling

is that none of the reflection tasks aim to identify a specific follow-up option. Even in the category "Decision", the tasks focus on decision processes and styles, exploring how individuals typically decide - whether cognitively or intuitively.

All reflection tasks follow a consistent structure: an introduction, task work, feedback on the results, and reflections on those results. After completing a task, students receive a summary of their answers and reflections for their ongoing career planning.

3.2 www.digibe.ch in Action

The implementation of www.digibe.ch in the context of career orientation activities in Switzerland is described briefly. Career orientation (Berufsorientierung) is a central topic at the lower secondary level, as every student must decide how to continue their education after compulsory school upon completing Year 11 or when they reach the age of 16; there is no school leaving examination or diploma in Switzerland. Theoretically, young people might not need to pursue upper-secondary education. In practice, up to 95% complete education and training at the upper-secondary level. It is difficult for individuals without a certifying diploma at the upper-secondary level to find a job. Approximately 60% of young people are enrolled in company-based training programs in dual VET. Across the EU, 49% of upper-secondary students participate in VET programs, although access to workplace training remains limited in many EU states (Directorate-General for Education, Youth, Sport and Culture, 2022).

Consulting the Lehrplan 21 (D-EDK, 2016), the model curriculum for all cantons with German-speaking students, vocational orientation aims to develop career-related competencies in four areas: "personality profile", "educational pathways and the world of work", "decision-making and handling difficulties", and "planning, implementation, and documentation". Vocational orientation spans all three years of lower secondary education, from Year 9 to Year 11, for students aged 13 to 16. It is described as a highly individualised process in which the teacher takes on the role of a coach. Schools and teachers are responsible for initiating this process, while students and parents are tasked with finding a follow-up solution. This is important because students cannot decide to start apprenticeship training since they are under 16 and cannot sign a working contract themselves. In practice, we find that teachers often feel responsible for securing a follow-up solution for all of their students. No teacher wants to see students disengaged from education after lower secondary school. Additionally, there is significant pressure from cantons on schools and their leaders to ensure that all students are in a certifying follow-up solution (EDK et al., 2015). This concern stems from research findings indicating that the absence of a diploma at the upper secondary level leads to precarious career paths and low incomes. It also relates to an inter-cantonal agreement that mandates no student should leave upper secondary education without a certifying diploma.

How vocational orientation works in practice varies between the cantons and schools. However, a common implicit rule is that students with good grades are exempt from career orientation since they plan to continue their education. Another implicit rule suggests that women tend to pursue education and training in the health sector, while men lean towards technical fields. At least, the data indicates that students often make their decisions accordingly.

In practice, career orientation often does not span all three years at the lower secondary level but takes place in the first semester of Year 10, when students are aged 14 to 15. In many cantons, students are grouped into different performance levels. Those in demanding school levels with good marks are often exempt from vocational orientation, as they remain in school and continue in general education. Students at school levels with "basic demands" may only apply for apprenticeship training at the upper secondary level. Only students in school levels between the low and high ranges have a real choice, as they can orient themselves towards general education or demanding apprenticeship training (initial vocational education and training). See Figure 1.

Figure 1

Career Orientation in Swiss-German Cantons
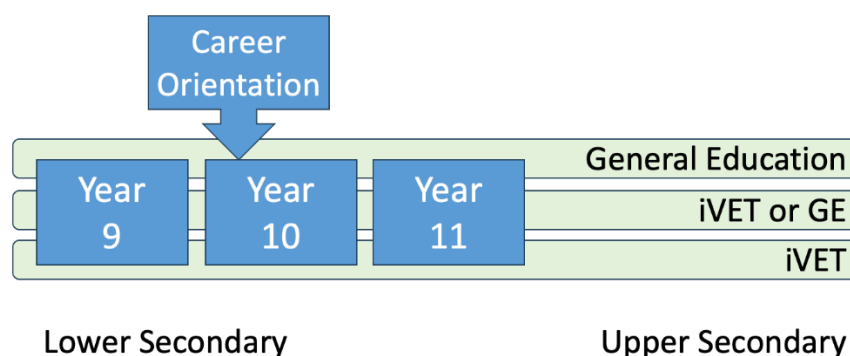
Note. iVET = initial Vocational Education and Training, GE = general education.

In practice, we find many tools for vocational orientation that focus on what we call a "functional reflection". This emphasis is even stronger in some cantons, as they automatically suggest suitable apprenticeship training programmes to students based on their school marks and interests. The emphasis is on making young people employable and fitting, which appears efficient at first glance.

However, these initiatives do not give young people enough time to reflect on and develop their career plans, especially during a phase marked by various physical and mental changes. There is no other subject in school where skills must be quickly developed and decisions must be made so swiftly.

Before this background – the need for individualisation and the limited time available – we present www.digibe.ch as a collection of adaptive tasks. It is illogical for a student to reflect on vocational interests while actively applying for an apprenticeship; this reflection should occur beforehand. It's more beneficial for students to consider the influence of parents and peers on career planning when the topic is relevant to them. As a result, there is no fixed order or frequency for engaging with a specific reflection task, as shown in Figure 2. The only guideline teachers provide is that students must undertake a reflection task. However, this approach conflicts with the structured lesson planning in vocational orientation, which often adheres to the recommendations of cantonal career counselling services that advocate for a linear progression, where all students simultaneously participate in the same activities.

Figure 2

Timing of the www.digibe.ch intervention
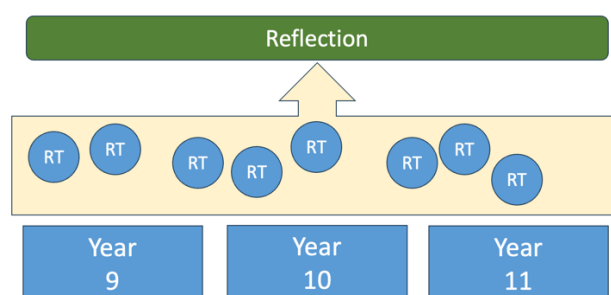
Note. RT = reflection task.

In addition to the reflection tasks mentioned above, www.digibe.ch includes a module to monitor the career planning process. With just a few questions, students report on the status of

their career planning and any follow-up solutions up to three times per semester, totalling 18 reports over three years at the upper secondary level.

4   Data and Results

4.1 Data Collection

Progress in career orientation was assessed up to three times per semester, resulting in eighteen observations from 2021 to 2024, covering school years 9 to 11. Over two years, student participation decreased from 2,848 to 702; by the end of the third year, 150 students remained. All parents of participating students provided informed consent.

4.2 Reception

The decline in participation was primarily due to students making decisions regarding their follow-up plans in year 10, along with other factors such as leaving school, changing classes, staff alterations, and teachers withdrawing from the project. Interestingly, some students paused their project participation but returned after some time. During their pause, they indicated that they had completed their career planning and identified an apprenticeship they wished to pursue. A few months later, they returned, informing us they were still seeking a follow-up solution. This illustrates that career planning is not linear but involves loops and' repetitions" or refinements along the journey.

www.digibe.ch elicits very different reactions from students. Some students reported that working on the reflection tasks was one of the best experiences they had in career orientation. However, we also observe students reacting quite harshly and negatively when asked to self-reflect on fundamental questions in career planning. They see no sense in doing so. Similarly, we received feedback from some teachers, who even withdrew their classes from the project because they did not see a valid reason to promote self-reflection among their students. We believe that one factor explaining this situation is that schools often have very little time for vocational orientation. In Year 9 and Year 11, there are often no dedicated vocational orientation lessons and only one weekly lesson in Year 10.

4.3 Outcomes

Teachers. As teachers are responsible for guiding vocational orientation, they instruct students to use the online tool www.digibe.ch. The research project's goal was to grant teachers as much freedom as possible in implementing the tool in their teaching. Teachers fulfil many roles, such as instructor, facilitator, guide, coach, or coordinator, which need further clarification (Stalder et al., 2023). Their roles evolve as students grow older and teachers gain more experience.

Games that students play. A reflection task focuses on video games and the competencies developed through them. We discover that students can recognise career-related skills in their games and understand how to transfer these skills to the real world of career planning (Hoffelner et al., 2025).

Interests. A reflection task focused on vocational interests allowed students to express themselves freely. We observe that the interests they mentioned fall into categories from standardised interest tests, while also introducing new categories such as "nature/environment", "computer", or "communication" (Hänni et al., under review).

Self-reflection and transformative learning. If students are ready to engage in career planning, participating in reflection tasks enhances self-reflection (Nägele et al., submitted; Nägele & Wyss, 2024). In summary, the intervention(s) are effective. However, it makes little sense to require students who are not prepared to plan their future education and training to reflect on

career issues. This finding is highly relevant for teachers, as it indicates that in career guidance, there is no one-size-fits-all approach; it is a highly individualised process.

Many students encounter frustrations in their career orientation process stemming from work experience days (Schnupperlehre), discussions with others, applications for apprenticeship positions or general education schools, and informational events or tests (Nägele et al., 2022). These frustrations provoke self-reflection and ultimately lead to transformative learning.

Overall, we observe the positive effects of working on reflection tasks at www.digibe.ch in enhancing career-related self-reflection. Additionally, we note that career planning is a highly individualised process that progresses at different paces for each student in a class and, for many students, can be pretty complex. This underscores the need for research to describe non-linear processes and for practical efforts to develop concepts for career orientation that facilitate personalised career support.

References

Allais, S. M. (2022). Beyond 'supply and demand': Moving from skills 'planning' to seeing skills as endogenous to the economy. *Journal of Vocational, Adult and Continuing Education and Training*, *5*(1), 56–74. https://jovacet.ac.za/index.php/JOVACET/article/view/246/129

Bårdsdatter Bakke, I., & Hooley, T. (2022). Neither online, nor face-to-face, but integrated career guidance. In M. V. Buford, M. J. Sharp, & M. J. Stebleton (Eds.), *Mapping the future of undergraduate career education* (pp. 138–154). Routledge. https://doi.org/10.4324/9781003213000-13

Billett, S., Aakrog, V., Hiim, H., Stalder, B. E., & Nokelainen, P. (2018). Enhancing the standing of vocational education and the occupations it serves: A symposium. In C. Nägele & B. E. Stalder (Eds.), *Trends in vocational education and training research. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET) 1* (pp. 87–94). VETNET. https://zenodo.org/record/1319640

Cedefop. (2014). *Attractiveness of initial vocational education and training: Identifying what matters.* Publications Office of the European Union. https://data.europa.eu/doi/10.2801/74821

Chernyshenko, O. S., Stark, S., & Nye, C. D. (2019). Interest measurement. In C. D. Nye & J. Rounds (Eds.), *Vocational interests in the workplace* (pp. 80–96). Routledge.

Dahmen, S., & Thielen, M. (2024). Thematisierungsweisen beruflicher Zukünfte in Rückmeldegesprächen von Potenzialanalysen—Bwp@ Berufs- und Wirtschaftspädagogik—Online [Modes of engagement with professional futures in institutionalized settings of early vocational counselling]. https://www.bwpat.de/ausgabe/spezial22/dahmen-thielen

D-EDK. (2016). *Lehrplan 21: Gesamtausgabe* [Curriculum 21: Complete edition]. Deutschschweizer Erziehungsdirektoren-Konferenz (D-EDK). https://www.lehrplan21.ch/

Deppierraz, R. (2021). *Lehrvertragsauflösung, Wiedereinstieg, Zertifikationsstatus. Resultate zur dualen beruflichen Grundbildung (EBA und EFZ)* [Apprenticeship contract termination, re-entry, certification status. Results on dual vocational education and training (EBA and EFZ)]. Bundesamt für Statistik (BFS).

Directorate-General for Education, Youth, Sport and Culture. (2022). *Education and training monitor 2022: Comparative report* (European Commission, Ed.). Publications Office. https://doi.org/10.2766/61621

EDK, SAV, SGB, SER, SBFI, SER, sgv, travail.suisse, & LCH. (2015). Übergang Obligatorische Schule – Sekundarstufe II. Programmatische Erklärung der Kantone, des Bundes, der Organisationen der Arbeitswelt, der Lehrerorganisationen [Transition from compulsory school to upper secondary level. Programmatic declaration by the cantons, the Confederation, professional organisations and teachers' organisations]. Schweizerische Konferenz der kantonalen Erziehungsdirektoren (EDK); Schweizer Arbeitgebervereinigung (SAV); Schweizerischer Gewerkschaftsbund (SGB); Syndicat des enseignantes et des enseignants de Suisse romande (SER); Staatsekretariat für Bildung Forschung und Innovation (SBFI); Schweizerischer Gewerbeverband (sgv); Dachverband der Arbeitnehmenden Travail.Suisse; Dachverband Lehrerinnen und Lehrer Schweiz (LCH).

Ertl, H. (2023). Berufliche Orientierung als biografisches Langzeitprojekt [Career orientation as a long-term biographical project]. *BWP*, *2*, 3.

Gottfredson, L. S. (2002). Gottfredson's theory of circumscription, compromise, and self-creation. In D. Brown (Ed.), *Career choice and development* (pp. 85–148). John Wiley & Sons, Inc.

Guichard, J. (2022). Support for the design of active life at a turning point. *Studia Poradoznawcze/Journal of Counsellogy*, *11*, 133–146. https://doi.org/10.34862/sp.2022.1

Hänni, N., Hell, B., Pässler, K., & Nägele, C. (under review). Berufliche Interessen Jugendlicher: Eine Analyse

offener Interessenäußerungen [Vocational Interests of youth: An analysis of openly expressed interests]. *Submitted*.

Heinz, W. R., Kriiger, H., Rettke, U., WachtveitI, E., & Witzel, A. (1985). *»Hauptsache eine Lehrstelle«. Jugendliche vor den Hürden des Arbeitsmarkts* ["The main thing is to get an apprenticeship." Young people facing the hurdles of the labor market.]. Beltz.

Hell, B. (2009). Selbsttests zur Studienorientierung: Nützliche Vielfalt oder unnützer Wildwuchs [Self-assessments for study orientation: Useful variety or unnecessary proliferation?]. In G. Rudinger & K. Hörsch (Eds.), *Self-Assessment an Hochschulen: Von der Studienfachwahl zur Profilbildung* (pp. 9–20). V&R Unipress, Bonn University Press.

Hell, B., & Pässler, K. (2022). *Der wahrgenommene Nutzen von reflexionsorientierten und von geschlossenen Übungen im Rahmen eines Berufswahltrainings* [The perceived benefit of reflection-oriented and closed exercises within the framework of career choice training]. Reflexion im Berufswahlprozess – notwendig und doch so schwierig, Tagung an der PHBern, 2.12.2022.

Hirschi, A. (2009). Was macht Jugendliche fit für die Berufswahl [What prepares young people for career choice?]. *Panorama*, *4*, 13–14.

Hoffelner, C., Nägele, C., & Düggeli, A. (2025). Play for the future: A cross-sectional study on the role of video game skills in student career planning. *Simulation & Gaming*.

Höft, S., Hell, B., Ortner, T., Hartmann, F., & Oeljeklaus, L. (Eds.). (2024). Online-Self-Assessments zur Studienorientierung: Quo vadis? Aktuelle Entwicklungstrends bei ihrer Gestaltung und Nutzung. Dokumentation zum OSA-Symposium 2023 [Online self-assessments for study orientation: Quo vadis? Current development trends in their design and use. Documentation of the OSA Symposium 2023]. Pabst Publishers.

Holland, J. L. (1996). Exploring careers with a typology. What we have learned and some new directions. *American Psychologist*, *51*(4), 397–406.

Irving, B. A. (2010). Making a difference? Developing career education as a socially just practice. *Australian Journal of Career Development*, *19*(3), 15–23. https://doi.org/10.1177/103841621001900304

Keller, C., Makarova, E., & Döring, A. K. (2023). Career choice with the serious game Like2be. *International Journal of Game-Based Learning (IJGBL)*, *13*(1), 1–18. https://doi.org/10.4018/IJGBL.327788

Laganà, F., & Babel, J. (2018). *Bildungsverläufe auf Sekundarstufe II. Längsschnittanalysen im Bildungsbereich* [Educational trajectories at the upper secondary level: Longitudinal analyses in the field of education]. Bundesamt für Statistik (BFS). https://dam-api.bfs.admin.ch/hub/api/dam/assets/5026679/master

Mezirow, J. (2009). An overview on transformative learning. In K. Illeris (Ed.), *Contemporary theories of learning: Learning theorists ... In their own words* (pp. 90–105). Routledge.

Nägele, C., & Düggeli, A. (2020). Careers in VET. In C. Nägele, B. E. Stalder, & N. Kersh (Eds.), Trends in Vocational Education and Training Research, Vol. III. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET) (pp. 241–247). VETNET. https://doi.org/10.5281/zenodo.4274094

Nägele, C., & Neuenschwander, M. P. (2014). Adjustment processes and fit perceptions as predictors of organizational commitment and occupational commitment of young workers. *Journal of Vocational Behavior*, *85*(3), 385–393. https://doi.org/10.1016/j.jvb.2014.08.011

Nägele, C., & Schneitter, J. (2016). Schul- und Berufsorientierung auf der Sekundarstufe I in der Schweiz [Vocational orientation and career guidance at school on the lower secondary level]. Schweizerischen Konferenz der Leiterinnen und Leiter der Berufs- und Studienberatung (KBSB).

Nägele, C., Stalder, B. E., Hell, B., Hoffelner, C., & Pässler, K. (2025). *Reflexionsaufgaben in www.digibe.ch* [Reflection tasks in www.digibe.ch]. PH FHNW, PH Bern, APS FHNW. https://doi.org/10.5281/zenodo.14956011

Nägele, C., Stalder, B. E., Hoffelner, C., & Düggeli, A. (2022). Irritations in the career choice process and transformative learning. In C. Nägele, N. Kersh, & B. E. Stalder (Eds.), *Trends in vocational education and training research, Vol. V. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET)* (pp. 142–149). https://zenodo.org/record/6977532

Nägele, C., & Wyss, A. (2024). *Student's reflection on career planning and the role of teachers*. European Conference on Educational Research, Nicosia, Cyprus.

Nägele, C., Wyss, A., & Stalder, B. E. (submitted). *Student's reflection on career planning*.

Savickas, M. L., Nota, L., Rossier, J., Dauwalder, J.-P., Duarte, M. E., Guichard, J., Soresi, S., Van Esbroeck, R., & van Vianen, A. E. M. (2009). Life designing: A paradigm for career construction in the 21st century. *Journal of Vocational Behavior*, *75*(3), 239–250. https://doi.org/10.1016/j.jvb.2009.04.004

Savickas, M. L., & Savickas, S. (2019). A history of career counselling. In J. A. Athanasou & H. N. Perera (Eds.), *International Handbook of Career Guidance* (pp. 25–43). Springer International Publishing. https://doi.org/10.1007/978-3-030-25153-6_2

Silvia, P. J. (2021). The self-reflection and insight scale: Applying item response theory to craft an efficient short form. *Current Psychology*, *47*, 8635–8645. https://doi.org/10.1007/s12144-020-01299-7

Stalder, B. E., Gaupp, P.-M., & Nägele, C. (2023). Teachers and their role in the career choice process. In C. Nägele, N. Kersh, & B. E. Stalder (Eds.), *Trends in vocational education and training research, Vol. VI. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET)*. VETNET. https://doi.org/10.5281/zenodo.8209176

Super, D. E. (1990). A life-span, life-space approach to career development. In D. Brown & L. Brooks (Eds.), *Career choice and development* (pp. 197–262). Jossey-Bass.

Von Wyl, A., Sabatella, F., Zollinger, D., & Berweger, B. (2018). Reif für den Beruf? Schwierigkeiten und Ressourcen von Jugendlichen im Berufswahlprozess [Ready for the job? Challenges and resources of young people in the career choice process]. In F. Sabatella & A. Von Wyl (Eds.), *Jugendliche im Übergang zwischen Schule und Beruf* (pp. 1–21). Springer Berlin Heidelberg. http://link.springer.com/10.1007/978-3-662-55733-4_1

Zihlmann, R. (2023). *Die 22 Berufsfelder nach Zihlmann* [The 22 occupational fields according to Zihlmann]. Stadt Zürich Laufbahnzentrum & BSLB Graubünden.

Biographical Notes

Dr Christof Nägele is a senior lecturer and researcher at the University of Applied Sciences and Arts Northwestern Switzerland, School of Education, and the University of Basel, Institute for Educational Sciences. He serves as co-chair of the European researchers VETNET. His research interests include VET, vocational choice, adjustment processes, social and group dynamics in VET, and transferable skills.

Dr Annika Wyss is a researcher and lecturer at the Bern University of Teacher Education. She specialises in vocational education and training (VET), as well as career education and guidance. Her work centres on transitions from school to work, educational pathways, and the role of career counselling in promoting equitable access to education.

Dr Benedikt Hell is a full professor at the School of Applied Psychology at the University of Applied Sciences and Arts Northwestern Switzerland. His research interests include psychological assessment, particularly the assessment of constructs relevant to career decision-making and career development, fairness of assessment procedures, and innovative assessment methods.

Dr Barbara E. Stalder is a full professor of educational and social sciences at the Institute of Upper Secondary Education at the Bern University of Teacher Education in Switzerland. She serves as co-chair of the European researchers VETNET. Her research interests centre on learning in the workplace and schools, student engagement, and career development during and after vocational education.

Vocational Education and Underskilling: Lessons from European Skills and Jobs Surveys

Neuber-Pohl, Caroline

neuber-pohl@bibb.de, Federal Institute for Vocational Education and Training (BIBB)

Russo, Giovanni

giovanni.russo@cedefop.europa.eu, European Centre for the Development of Vocational Training (Cedefop)

Santangelo, Giulia

giulia.santangelo@cedefop.europa.eu, European Centre for the Development of Vocational Training (Cedefop),

Zigova, Katarina (corresponding author)

katarina.zigova@business.uzh.ch, University of Zurich

Abstract

Context: Vocational education and training (VET) aims to equip students with a mix of general, occupational, and firm-specific skills—skills that are directly relevant to the "world of work". In this paper, we investigate whether workers with a VET background have an advantage in securing jobs that match their skills. We focus on underskilling, a condition in which workers' skills are insufficient to meet the demands of their job.

Approach: We estimate the association between vocational education and underskilling, using both European Skills and Jobs Surveys (ESJS1 and ESJS2), each providing a unique perspective on skills. Both waves of this survey allow us to construct multiple self-reported measures of underskilling.

Findings: Using the ESJS1, we find that VET workers perceive, on average, a lower degree of underskilling, compared to those with general education. Examining the patterns behind this effect, we show this different perception is driven by lower underskilling in specialized technical skills and already present earlier in their careers. None of these results are replicated using the ESJS2, likely because underskilling is indirectly measured via skill deficit. However, in both surveys, we find that underskilling measures of VET workers fare better in VET systems that are more closely linked to the labor market.

Conclusions: The analyses on the ESJS1 sample suggest that vocational education adequately fulfils its function as collective skill formation system: workers with a VET background experience less or equal underskilling than workers with a general education background. Differences between results obtained via ESJS1 and ESJS2 underline the importance of underskilling measurement. The closeness of VET systems to labor market seems to matter for better underskilling outcomes of VET workers in both surveys.

Keywords

underskilling, initial vocational education, collective skill formation systems

1   Introduction

One of the crucial roles of vocational education and training (VET) programmes is to prepare students for specific occupations providing them with skills that are relevant to the labour market (Eichhorst et al., 2015).[1] Of the many labour market outcomes, e.g. employment, wages, job quality, or career progression—job-skill match is more closely linked to the VET system than others and can be regarded as the direct outcome of the role played by the VET system in an economy. Various stakeholders and the governance mechanisms that control the supply of skills and their utilization in an economy is called a collective skills formation system (Busemeyer & Trampusch, 2012; Thelen, 2004). VET as a part of this system plays a role alongside all other key actors as the general education system, employers, unions, or the government. The supply of skills may be collectively organized with the involvement of businesses, industry chambers, and unions supported by state in execution, finance, and monitoring (Busemeyer & Trampusch, 2012; Eichhorst et al., 2015; Ibsen & Thelen, 2024). The initial VET, by providing education for youth not yet in the labor market, plays a core role in such formation process. Its governance often foresees the participation of firms and employer associations in the VET curriculum (Thelen, 2004). While such participation can take on different forms in different countries (Mende et al., 2023), it is generally true that the initial VET programs have stronger connections to the "world of work" than general education programs (Bolli et al., 2018).

The ability of the VET system to form skills that are valued by employers is central to the VET effectiveness. It is often assessed by measuring the advantages the VET confers to workers who have participated in such programmes compared to those who did not. For example, such effectiveness is reflected by shorter duration of the school-to-work transitions experienced by upper secondary VET graduates compared to graduates from general upper secondary schools (Middeldorp et al., 2019; Pastore et al., 2021).[2] More often, however, the effects of VET on labour market outcomes are less clear-cut. The initial advantage is reversed later in their career, and this evidence has been used to question the effectiveness of initial VET. Compared to general education graduates, VET graduates tend to earn a higher wage in the first part of their career, but then the advantage evaporates and turns into a disadvantage later in their careers (Brunello & Rocco, 2017; Hanushek et al., 2017). Similarly, workers with a VET background are less likely to experience a spell of unemployment in the early part of their career (Vermeire et al., 2022). Yet, they also seem to be more likely to find fixed term contract and to be in jobs with lower skills requirements than workers with a general education background (Vermeire et al., 2022). The initial advantage of VET students in terms of the likelihood of being in employment evaporates over time (Forster et al., 2016; Forster & Bol, 2018; Hampf & Woessmann, 2017). These findings seem to suggest a policy trade-off between a short-term and long-term labour market outcomes (Hanushek et al., 2017), and signal inefficiencies of initial VET in the collective skills formation.

Analyses that use skills mismatch as a labor market outcome variable, find that a VET background gives an initial advantage in terms of match and job quality (Heijke et al., 2003; Tobback et al., 2024). This initial advantage decreases over time but never turns negative (Verhaest et al., 2018). This signals that initial VET is effectively contributing to the collective skills

---

[1]   The focus of the analysis is therefore on initial VET.
[2]   In dual VET systems, students are already in the labour market. However, they also move out from the dual vet system to full-time work.

formation system. However, mismatch conflates two types of misalignments between workers' skills and job requirements. Overskilling characterizes a situation in which workers' skills set is wider than what required by the job–the problem not directly linked to VET system–but how organizations use their workers' skills or are results of job search and recruitment frictions. On the contrary, underskilling is an issue that is directly connected to the VET system signaling that that the VET system is not delivering the skills required by employers. Consequently, our ex-ante working hypothesis is that the relationship between VET background and underskilling is informative about the way VET fulfils its duties in the collective skills formation system. If there is a negative correlation between them, workers with a VET background tend to suffer less from underskilling than those with a general education background. In addition, in VET systems that have a stronger linkage with the "world of work" the relationship between a VET background and underskilling is even stronger (Levels et al., 2014). Conversely, when the VET system is weakly linked to the world of work, firms would experience difficulties in recruiting applicants with the required skills (Brunello et al., 2021; Weaver & Osterman, 2017), thus signaling that the VET system's contribution to the collective skills formation system is defective.

This paper focuses on the relationship between initial VET background and underskilling using both European Skills and Jobs Surveys (ESJS1 from 2014 and ESJS2 from 2021) performed in 27 European Union countries. We restrict our analysis to a comparison between VET and general education at the upper secondary level at which the VET definition is clear for each participating country.[3] From both surveys, we construct multiple self-reported measures of underskilling between perceived job requirements and individual skill endowment. Using two surveys, seven years apart, allows us to compare the VET effects in underskilling using a larger number of measures, in different point in time and using two different ways of ascertaining a VET background—self-reported in ESJS1 and expert assessed in ESJS2.

2   Data

In our analysis we use both waves of the European Skills and Jobs Surveys (ESJS1, 2014; ESJS2, 2021). They are both representative samples of European population on self-reported skill measures. Each survey offers some comparable self-reported mismatch measures allowing for external validity of the results, rather than potentially being only collection-specific. Moreover, each survey has its specific component that enables us to expand the variety of our underskilling measures.

The ESJS1 (2014) surveys about 49'000 adult employees, aged 24 to 65, from all EU-27 member states and the United Kingdom (Cedefop, 2018). It collects detailed information on job-skill requirements, digitalization, skill mismatches, and workplace learning, with the aim to assess dimensions of skill shortages and skill underutilisation. The ESJS1 survey is the richest source of self-reported mismatch measures of general and of skill-specific nature. The ESJS2 (2021) surveys 46'213 adult employees, aged 24 to 65, in the EU-27 Member States, Norway, and Iceland (Cedefop, 2022). It examines drivers of skill development in relation to changing task complexity and skills requirements of jobs. The special focus of ESJS2 is in changing skill needs and job tasks of workers due to digitalization and underlying adaptability.[4]

---

[3]   VET at the tertiary level does not exist in all European countries.
[4]   There are other surveys containing information on skills: The European Working Conditions Survey (EWCS) from Eurofound and the LFS ad-hoc module on skills utilization. However, the EWCS does not include variables that could be used to identify a VET background, while the LFS ad-hoc module consists of a Job Requirement Module that allows inference on skills utilisation but does not contain a measure of underskilling. For these reasons the EWCS and the LFS ad-hoc module on skills utilization were not included in the analysis.

In our analysis we focus on a joint subset of all 27 EU countries existing in both datasets. Across European countries vocational education has a long tradition. It also allows us to leverage the differences between the country's VET system. VET generally does not exist on the lower secondary level. As for tertiary level, it exists in some countries, but its definition is not unified across countries. All countries have a VET system at the upper and post-secondary (non-tertiary) level of education. Therefore, the analyses will be restricted to the samples of individuals holding an upper or post-secondary education as their highest educational attainment (levels 3 and 4 of ISCED 97), which is around 35-40% of the total samples.

The fraction of vocationally educated workers varies across surveys. The VET share is 74% in ESJS1 where the VET secondary attainment is self-reported. It is less in ESJS2 (62%), where the VET degree is based on expert knowledge of the country's education systems and each respondent is aligned with an ISCED 3 or 4 attainment is a VET worker (cf. Table 1). Additionally, the reduction in the VET share between the two rounds of ESJS surveys is also in line with the decrease in VET school enrolment experienced by most participating countries.

2.1 Measures of Underskilling

Both waves of the ESJS survey have a variant of an overall underskilling measure and several measures of skill domains underskilling. In the ESJS1 the overall underskilling measure is based on two consecutive questions. In the first one, each respondent is asked to *best describe their skills in relation to what is required to do their job*. If answering *some of my skills are lower than what is required by my job*, a follow up question is asked to assign the extent of the underskilling between 1 (=*my skills are a little lower than required*) and 5 (=*my skills are a lot lower than required*). Accordingly, the measure of current job underskilling equals zero if the respondent feels perfectly matched or overskilled. Depending on the individual perception of underskilling, it takes one of the integer values 1 to 5. An equivalent set of two questions exists in ESJS1 also with a reference to the situation when starting the current job as well as for four skill domains we explicitly look at: numeracy skills, specialized technical skills, information and communication technology (ICT) skills, and problem-solving skills. A separate explicit question is asked on another place of the ESJS questionnaire concerning *rating of an own level of skills*. The question is to be answered on a scale of 0 to 100. For the purposes of our analysis, we rescale the current job underskilling measure (0-100) in such a way that 0 indicates that the respondent has all the skills needed and 100 indicates a need to develop all skills.

In general, few people feel underskilled. In the ESJS1 survey the share of current job underskilling is only 6%. Accordingly, the means of the underskilling measures are low, that corroborates our 0-100 underskilling measure—the average need for reaching the perfect match is 17 points out of 100. The average underskilling levels are between 0.05 to 0.1, except for underskilling when starting the current job which is substantially higher at 0.5 (cf. Table 1, Panel A).

The ESJS2 survey has a single overall underskilling measure. It is based on a skill deficit question: *To what extent do you need to further develop your overall level of knowledge and skills to do your main job even better?*. The answer can take four possible levels from *to a great extent* down to *not at all*. For our analysis we directly used the answers to build the underskilling measure such that zero means no underskilling and 3 stands for being underskillined to a great extent. An equivalent question exists for ICT underskilling. For the two remaining skill domains available in the ESJS2, numeracy and specialized technical skills, we build dummy variables based on yes/no answers to a question *do you need to further develop numeracy/technical skills to do your main job even better*. Underskilling is much more frequent in the ESJS2 survey averaging 1.4 and 1.6 of 0-3 integer levels for ICT and overall skills (about 80% of the respondent report to be underskilled). In total, 30% and 40% of the respondents report underskilling in

numeracy and specialized technical skills (cf. Table 1, Panel B). The large incidence of under-skilling compared to ESJS1 is due to the prospective nature of the question: *Compare the skills that you have today to those you will need in the future to have a better performance.* With this formulation everybody that expect to increase its performance is underskilled. Those who are not underskilled according to this measure are those that cannot increase their performance or do not want to increase their performance.

Table 1
Descriptive Statistics of Vocational Dummies and Underskilling Measures in Both ESJS Surveys

	Mean	(Std. dev.)	N
Panel A: ESJS1			
vocational education	0.755	(0.430)	16,764
Overall underskilling measures			
current job: 0-5	0.103	(0.509)	16,652
current job: 0-100	17.288	(15.120)	16,764
when starting the current job: 0-5	0.541	(1.145)	16,575
Underskilling measures in domains			
numeracy: 0-5	0.053	(0.360)	16,500
specialized technical: 0-5	0.100	(0.524)	16,448
ICT: 0-5	0.054	(0.354)	16,450
problem-solving: 0-5	0.044	(0.329)	16,402
Panel B: ESJS2			
vocational education	0.616	(0.486)	11,381
Overall underskilling measures			
current job: 0-3	1.640	(0.853)	11,380
Underskilling measures in domains			
numeracy: 0/1	0.283	(0.450)	11,383
specialized technical: 0/1	0.387	(0.487)	11,376
ICT: 0-3	1.409	(0.935)	11,378

Note. ESJS1(2014) and ESJS2 (2021) subsamples of ISCED 3-4 educational attainment. ICT = Information and communication technology.

3   Empirical Approach

In our empirical specification we take inspiration from Hanushek et al. (2017) who estimate the age profile of lifetime employment and earnings; and Verhaest et al. (2018) who estimate a graduation year profile of education and skill mismatches. In our case we explain underskilling by use of a following equation:

(eq. 1) $y_i = \beta_0 + \beta_1 VET_i + \gamma X_i + \theta_c + \lambda_t + \delta_c t + \varepsilon_i ct,$

where y_i is an underskilling measure of an individual i. The θ_c and λ_t stand for country and graduation year fixed effects. The country fixed effect control for time invariant specificities of countries' labour markets, while the graduation year fixed effects are dummies controlling for structural factors generally present at the time of an individual entering the labour market. To allow for country specific developments related to underskilling we include also country specific linear time trend $\delta_c t$ in graduation years. Furthermore, we cluster standard errors, ε_{ict},

on country×graduation year level. We justify our clustering level by the relevance of this grid for the VET variable.

The matrix X_i includes three sets of variables which further explain the individual underskilling, and control, albeit imperfectly, for selection into VET educaion due to observable characteristics. Accordingly, the vector γ stores the underlying coefficient estimates. The first set contains five individual control dummies: female, post-secondary education, migration status, living with a partner and living with children. Next, job-specific controls include temporary contract and part time dummies, three tenure dummies, four occupation level dummies and, lastly, high job-autonomy, high level of learning, and high level of team-work dummies. Finally, in the third set are workplace-specific variables: three firm-size dummies and 15 industrial sector dummies. The reason behind these broad sets of control variables is to demonstrate stability of the VET coefficient including all available information regarding each individual the ESJS surveys offer.

Our core interest lies in the distinction between the average underskilling of VET and generally educated individuals controlling with an extensive set of observables for selection into VET education track. Accordingly, in eq. 1 the coefficient of interest is β_1. If negative, secondary VET education leads to a smaller underskilling probability in the underlying skill as compared to generally educated. If positive, VET educated workers have higher levels of underskilling.

To assess the robustness of the estimates to the effect of unobservable variables, we apply an approach originally suggested by Altonji et al. (2005) and Oster (2019). It measures the connection of bias with treatment coefficient stability—in our case vocational education—regarding the explanatory power of observed confounders in total variation of the outcome. On the practical side we accompany any of our significant results with a percentage bias necessary to overthrow the effect of vocational education dummy (Xu et al., 2019). An estimate is proclaimed as significant in the presence of unobserved heterogeneity if the percentage bias is at least 50%. Finally, we apply throughout our analysis linear regression, albeit our dependent variables are mostly ordinal variables taking integer values between zero and three (five) and eventually dummies. We justify our choice by having a possibility of direct interpretation. We obtain equivalent results, qualitatively, when using probit or ordinal probit, respectively.

4 Results

4.1 VET and Overall Underskilling

Our measures of overall underskilling assess underskilling levels which are not bound to any specific skill domain but rather reflect a general match perception of individuals vis-à-vis their current work. There are three measures of this type available in the ESJS1 and one in the ESJS2. In Table 2 we report VET coefficients employing regression equation (eq. 1) without controls (column 1), including fixed effects and linear time trends in graduation years (column 2); adding individual (column 3); and job and workplace-specific controls (column 4).

Reported is only the coefficient of the vocational education dummy. Each coefficient stems from a separate linear regression with an underskilling measure as dependent variable (see row headings) optionally including fixed effects and control variables (see bottom part of the table). Observations are weighted by sampling weights. Robust standard errors clustered by country × graduation year are in parentheses. *p<0.10, **p<0.05, ***p<0.01

Using any of the three measures of underskilling in the ESJS1 survey we find that workers with a vocational education degree perceive themselves as less underskilled in their current job as well as when starting their current job. Including fixed effects, country-specific linear trend and control variables does not change the coefficient of vocational education dummy much, demonstrating stability of the VET coefficient. Focusing on the full model (column (4)), the

coefficients of the VET dummy at the 0-100 scale variables indicate a lower underskilling probability by the same level of about 1.5 percentage point (pp). Using the mean of 17.3 of the 0-100 underskilling measure (Table 1), the 1.5pp translates into a 9% smaller underskilling of vocationally educated workers. For the 0-5 scale underskilling variable, both currently and when starting the current job, the association is nominally similar, pointing to less underskilling by 0.05pp. However, when accounting for the respective means of 0.1 and 0.54, the effect is about 11% reduction in underskilling for the situation when starting the current job, but VET workers are by 40% less underskilled when using their answers to less precise 0-5 underskilling measure. The percentage bias to invalidate the inference is high for both current measures of underskilling, corroborating the significance of the VET coefficients in current perceptions of underskilling (cf. Table 2, Panel A).

Table 2

Association of Vocational Education with Self-reported Underskilling

Underskilling measure:	(1)	(2)	(3)	(4)
Panel A: ESJS1				
Current job: 0-5	-0.048***	-0.042***	-0.040***	-0.045***
	(0.012)	(0.013)	(0.013)	(0.013)
% Bias to invalidate inference	49.39	40.1	38.53	41.83
current job: 0-100	-1.469***	-1.517***	-1.507***	-1.544***
	(0.349)	(0.342)	(0.346)	(0.355)
% Bias to invalidate inference	53.45	55.86	55.05	54.98
When starting the current job: 0-5	-0.050*	-0.039	-0.037	-0.058**
	(0.027)	(0.028)	(0.028)	(0.028)
% Bias to invalidate inference				3.51
Panel B: ESJS2				
Current job: 0-3	0.069***	0.066***	0.066***	0.059**
	(0.025)	(0.025)	(0.025)	(0.025)
% Bias to invalidate inference	30.22	26.25	24.42	18.08
country & graduation year FE		yes	yes	yes
country-specific LT in graduation year		yes	yes	yes
individual controls			yes	yes
job/workplace-specific controls				yes

Note. ESJS1(2014) and ESJS2 (2021) subsamples of ISCED 3-4 educational attainment.

These results are not replicated using the more recent ESJS2 survey. Here, VET workers self-report larger underskilling as compared to generally educated workers. However, economically, this difference is small. The mean overall underskilling is much higher in ESJS2 (1.64) than in the ESJS1. The coefficient's size of 0.06 translates into a very small actual disadvantage for VET workers: their underskilling is only about 3.6% higher than for workers with general education. Moreover, the percentage bias is low at 18%, when we include job and workplace characteristics into regression, thus it is likely that the measured association would be overthrown when having a fuller account of unobserved heterogeneity (cf. Table 2, Panel B). Additionally, the measure of underskilling adopted in the ESJS2—skill deficit—is further away from

the actual job-skill underskilling. In fact, a well-functioning VET system may imply a positive relationship between a VET background and skill deficit.[5]

4.2 VET and Skill Domains Underskilling

In the consecutive analysis we explore which specific skill domains drive the VET effects in overall underskilling. Both surveys collect explicit self-reports of underskilling in various skill domains. We focus on the specialized technical domain because it is by construction the skill that VET education is designed to train.[6] We also consider three other domains, numeracy, problem-solving and ICT skills, in which generally educated workers should have an advantage.

In both surveys the domain of specialized technical skills is the only domain for which the VET coefficient is significant. In all other domains the difference in underskilling between VET and generally educated is negligible. Indeed, it is the job-specific skills domain where the VET workers perform better (ESJS1) or worse (ESJS2). Reflecting upon the percentage bias, this evidence is not strong, nevertheless it is the only skill domain which shows a systematic difference in underskilling. (cf. Table 3, both specialized technical rows). Moreover, for both surveys the VET coefficient in specialized technical domain underskilling is about half of the coefficient size in overall underskilling, underscoring the primacy of the domain in the overall perception of underskilling.

4.3 VET and Underskilling in VET Systems Closer to Labor Market

Initial VET systems across Europe differ in their closeness to labor market needs. In this section we specifically estimate VET coefficients for subset of countries that, by observable characteristics, are more closely linked to the labor market in their VET tracks. The first obvious characteristic is an apprenticeship format of VET. In such systems firms take over responsibility for practical training and trainees are bound to firm via a work contract. However, even without apprenticeships, VET systems might have close links to the labor market. To capture this, we use results of the qualitative analysis by Bolli et al. (2018) upon education-employment linkages (EEL) for 18 countries' VET systems. We study the association of VET with underskilling in the seven above average EEL countries. Lastly, we use OECD (2017) statistics and distinguish nine countries where workplace training takes up at least 50% of the VET education (cf. bottom part of Table 4 for countries sets).

In Table 4 we report VET coefficients for underskilling measures for the three subsets of countries (columns (2) to (4)). For an easy comparison, we re-report in column (1) coefficients based on all EU 27 countries from estimations. We only report results including all fixed effects and control variables. For the ESJS1 results, the current job underskilling primacy of VET workers is slightly stronger in the set of high EEL countries and about the same for the subsets of apprenticeship and high WPT countries. The underskilling disadvantage is smaller for all three countries subsets based on the ESJS2 (Table 4, Panel B).

---

[5]   For example, if the relationship between skills and job performance is characterized by decreasing marginal improvements and assuming that workers with a VET background are less underskilled than those with general education background, workers with VET background would need a larger increase in skills than that needed by workers with a general education background to attain the same level of performance increase.

[6]   In ESJS2 the reference to specialized technical skills is accompanied by explanatory text making an explicit reference that the job requirements--skill endowment match is being asked for: *Technical skills or job-specific skills e.g. engine repair if you are a mechanic, applying accountancy rules if accountant, using design software if graphic designer, using programming software if computer scientist etc.*

As for skill domains, underskilling results improve for VET workers in both surveys. Based on ESJS1, underskilling is smaller in all domains but ICT. For ESJS2 the underskilling disadvantage in specialized technical domain we see for all countries disappears, and there is slightly lower underskilling probability in numeracy and in the ICT skill domains. All results reported in Table 4 are not sufficiently robust to pass the percentage bias test to invalidate inference, but they are indicative of the role that VET, and in particular in countries with stronger labor market links, has in making the job-skill match more precise.

Table 3

Association of Vocational Education with Self-reported Underskilling in Specific Domains

Underskilling measure:	(1)	(2)	(3)	(4)
Panel A: ESJS1				
specialized technical: 0-5	-0.022*	-0.034**	-0.032**	-0.020
	(0.013)	(0.014)	(0.014)	(0.014)
% Bias to invalidate inference	15.59	18.23	13.65	30.17
numeracy: 0-5	-0.003	-0.010	-0.009	-0.010
	(0.008)	(0.009)	(0.008)	(0.009)
ICT: 0-5	-0.011	-0.015*	-0.015*	-0.011
	(0.009)	(0.009)	(0.009)	(0.009)
problem-solving: 0-5	-0.009	-0.009	-0.007	-0.007
	(0.007)	(0.007)	(0.008)	(0.008)
Panel B: ESJS2				
specialized technical: 0/1	0.031**	0.035**	0.035**	0.032**
	(0.014)	(0.014)	(0.014)	(0.014)
% Bias to invalidate inference	12.88	20.47	23.08	14.27
numeracy: 0/1	-0.005	-0.007	-0.007	0.000
	(0.012)	(0.012)	(0.012)	(0.012)
ICT: 0-3	-0.034	-0.019	-0.018	0.011
	(0.024)	(0.025)	(0.025)	(0.025)
country & graduation year FE		yes	yes	yes
country-specific LT in graduation year		yes	yes	yes
individual controls			yes	yes
job/workplace-specific controls				yes

Note: ESJS1(2014) and ESJS2 (2021) subsamples of ISCED 3-4 educational attainment. Reported is only the coefficient of the vocational education dummy. Each coefficient stems from a separate linear regression with an underskilling measure as dependent variable (see row headings) optionally including fixed effects and control variables (see bottom part of the table). Observations are weighted by sampling weights. Robust standard errors clustered by country × graduation year are in parentheses. *p<0.10, **p<0.05, ***p<0.01

Table 4

Association of Vocational Education with Underskilling by Labour Market Tightness of VET Education Systems

Underskilling measure:	All (1)	High EEL (2)	Apprenticeship (3)	High WPT (4)
Panel A: ESJS1				
current job: 0-5	-0.045***	-0.052**	-0.044	-0.032
	(0.013)	(0.023)	(0.030)	(0.025)
% Bias to invalidate inference	41.83	14.44		
specialized technical: 0-5	-0.020	-0.026	-0.038	-0.042
	(0.014)	(0.032)	(0.046)	(0.037)
numeracy: 0-5	-0.010	-0.027	-0.047*	-0.043*
	(0.009)	(0.020)	(0.028)	(0.022)
ICT: 0-5	-0.011	0.017	0.030	0.020
	(0.009)	(0.016)	(0.022)	(0.018)
problem-solving: 0-5	-0.007	-0.020	-0.019	-0.021
	(0.008)	(0.015)	(0.022)	(0.018)
Panel B: ESJS2				
current job: 0-3	0.059**	0.044	0.045	0.037
	(0.025)	(0.041)	(0.051)	(0.042)
specialized technical: 0/1	0.032**	-0.002	-0.018	-0.013
	(0.014)	(0.025)	(0.030)	(0.025)
numeracy: 0/1	0.000	-0.033*	-0.045**	-0.033*
	(0.012)	(0.018)	(0.023)	(0.019)
% Bias to invalidate inference		6.65	1.16	11.66
ICT: 0-3	0.011	-0.076*	-0.094*	-0.073*
	(0.025)	(0.040)	(0.050)	(0.042)
countries included:	All EU27	Austria	Austria	Austria
		Denmark	Denmark	Denmark
		Germany	Germany	Germany
			Luxembourg	Luxembourg
		Finland		Finland
		Estonia		Belgium
		Poland		Croatia
		Slovenia		Latvia
				Netherlands

Note: ESJS1(2014) and ESJS2 (2021) subsamples of ISCED 3-4 educational attainment. Reported is only the coefficient of the vocational education dummy. Each coefficient stems from a separate linear regression with an underskilling measure as dependent variable (see row headings) and including full set of fixed effects and control variables (see Table 2, column (4)). Above average EEL= education-employment linkages index (Bolli et al., 2018), More than 50% of WPT: workplace training. Observations are weighted by sampling weights. Robust standard errors clustered by country × graduation year are in parentheses. *p<0.10, **p<0.05, ***p<0.01

5   Conclusions

The aim of this paper is to investigate the contribution of the VET system to the collective skill formation system. One of the key roles of the VET system is to supply occupational and professional skills at a scale. Underskilling is the labor market outcome that is very closely related to the way in which the VET system fulfils its function within the collective skills formation system. Consequently, our empirical analysis is built on the ex-ante hypothesis that

workers with a VET background would experience both a lower incidence and a lower degree of underskilling than workers with a general education background.

We explore this hypothesis using two waves of European Skills and Job Surveys. Our results are not robust enough to support a clear conclusion on the VET ability to provide workers with the skills they need for labor markets. When overall underskilling is measured by a subjective comparison between one's skills and the skills requirement of the job, vocational background is associated with a lower likelihood of overall underskilling (ESJS1). The VET coefficients we obtained are also robust to the omitted variable bias, in the sense that the percentage of bias that would be needed to nullify the inference is implausibly high. When underskilling is measured via skills development that would support a foreseen improvement in work performance, we find weakly positive association between underskilling and VET (ESJS2).

We specifically examine the association between VET and underskilling for subsets of countries where the VET system is more closely linked to labor markets. It appears that the advantage of having a vocational background is in such systems stronger related to the better connection with the "world of work". Based on the ESJS1 sample, our results suggest that the VET system discharges its role in the collective skills formation system adequately. Based on the ESJS2 sample we can at least exclude large underskilling disadvantages of VET workers. This is a positive result that reinforces the recent literature on the parity between general education and vocational education (e.g., Schweri et al., 2020; Silliman & Virtanen, 2022).

References

Altonji, J. G., Elder, T. E., & Taber, C. R. (2005). Selection on observed and unobserved variables: Assessing the effectiveness of catholic schools. *Journal of Political Economy 113*(1), 151–184.

Bolli, T., Caves, K. M., Renold, U., & Buergi, J. (2018). Beyond employer engagement: measuring education-employment linkage in vocational education and training programmes. *Journal of Vocational Education & Training*, *70*(4), 524-563.

Brunello, G., & Rocco, L. (2017). The effects of vocational education on adult skills, employment and wages: What can we learn from PIAAC? *SERIEs*, *8*, 315-343.

Brunello, G., & Wruuck, P. (2021). Skill shortages and skill mismatch: A review of the literature. *Journal of Economic Surveys*, *35*(4), 1145-1167.

Busemeyer, M. R., & Trampusch, C. (2012) *The Political Economy of Collective Skill Formation*. Oxford University Press.

Cedefop (2018). Insights into skill shortages and skill mismatch: Learning from Cedefop's European skills and jobs survey. Publications Office of the European Union. https://doi.org/10.2801/645011.

Cedefop (2022). Setting Europe on course for a human digital transition: new evidence from Cedefop's second European skills and jobs survey. Publications Office of the European Union. https://doi.org/10.2801/253954.

Eichhorst, W., Rodríguez-Planas, N., Schmidl, R., & Zimmermann, K. F. (2015). A road map to vocational education and training in industrialized countries. *ILR Review*, *68*(2), 314-337.

Forster, A. G., & Bol, T. (2018). Vocational education and employment over the life course using a new measure of occupational specificity. *Social Science Research*, *70*, 176-197.

Forster, A. G., Bol, T., & Van de Werfhorst, H. G. (2016). Vocational education and employment over the life cycle. *Sociological Science*, *3*(21), 473-494.

Hampf, F., & Woessmann, L. (2017). Vocational vs. general education and employment over the life cycle: New evidence from PIAAC. *CESifo Economic Studies*, *63*(3), 255-269.

Hanushek, E. A., Schwerdt, G., Woessmann, L., & Zhang, L. (2017). General education, vocational education, and labor-market outcomes over the lifecycle. *Journal of Human Resources*, *52*(1), 48-87.

Heijke, H., Meng, C., & Ris, C. (2003). Fitting to the job: the role of generic and vocational competencies in adjustment and performance. *Labour Economics*, *10*(2), 215-229.

Ibsen, C. L., & Thelen, K. (2024). Arrangers and orchestrators: The diverging role of the state in Danish and German vocational education and training. *Socio-Economic Review*, mwae022.

Levels, M., Van der Velden, R., & Di Stasio, V. (2014). From school to fitting work: How education-to-job matching of European school leavers is related to educational system characteristics. *Acta Sociologica*, *57*(4), 341-361.

Mende, C., Oswald-Egg, M. E., & Caves, K. M. (2023). *VET System Governance: A systematic literature review*. CES Working Paper Series, 14. https://doi.org/10.3929/ethz-b-000605388

Middeldorp, M. M., Edzes, A. J., & Van Dijk, J. (2019). Smoothness of the school-to-work transition: general

versus vocational upper-secondary education. *European Sociological Review*, *35*(1), 81-97.

OECD (2017), *Education at a Glance 2017: OECD Indicators*, OECD Publishing, Paris. http://dx.doi.org/10.1787/eag-2017-en

Oster, E. (2019). Unobservable selection and coefficient stability: Theory and evidence. *Journal of Business & Economic Statistics 37*(2), 187–204

Pastore, F., Quintano, C., & Rocca, A. (2021). Some young people have all the luck! The duration dependence of the school-to-work transition in Europe. *Labour Economics*, *70*, Article 101982.

Schweri, J., Eymann, A., & Aepli, M. (2020). Horizontal mismatch and vocational education. *Applied Economics*, *52*(32), 3464-3478.

Silliman, M., & Virtanen, H. (2022). Labor market returns to vocational secondary education. *American Economic Journal: Applied Economics*, *14*(1), 197-224.

Thelen, K. (2004). How institutions evolve: The political economy of skills in Germany, Britain, the United States, and Japan. Cambridge University Press.

Tobback, I., Verhaest, D., Baert, S., & De Witte, K. (2024). Vocational education, general education, and on-the-job learning over the life cycle. *European Sociological Review*, *40*(2), 189-207.

Verhaest, D., Lavrijsen, J., Van Trier, W., Nicaise, I., & Omey, E. (2018). General education, vocational education and skill mismatches: Short-run versus long-run effects. *Oxford Economic Papers*, *70*(4), 974-993.

Vermeire, E., De Cuyper, N., & Kyndt, E. (2022). Preparing students for the school-to-work transition: A systematic review of research on secondary school-based vocational education. In C. Harteis, D. Gijbels, &, E. Kyndt (Eds.), *Research Approaches on Workplace Learning. Professional and Practice-based Learning*, vol. 31 (pp. 367-398). Springer, Cham. https://doi.org/10.1007/978-3-030-89582-2_17

Weaver, A., & Osterman, P. (2017). Skill demands and mismatch in US manufacturing. *ILR Review*, *70*(2), 275-307.

Xu, R., Frank, K. A., Maroulis, S. J., & Rosenberg, J. M. (2019). konfound: Command to quantify robustness of causal inferences. *The Stata Journal*, *19*(3), 523-550.

Biographical Notes

Caroline Neuber-Pohl is a senior researcher in the field of vocational education. Her research interests lie in apprenticeship training, policies on vocational education, and technological change.

Giovanni Russo is an expert in skills and workplaces. Besides working for Cedefop, he is also a research fellow of the IZA Institute of Labor Economics. His interests include labour demand, firms' recruitment behaviour and adaptation to changing labour market conditions.

Giulia Santangelo holds a Ph.D. in Economic Sciences and works in Cedefop EU agency as an expert in skills and workplaces. Her research interests lie in the fields of labour economics, applied micro-econometrics, and policy evaluation.

Katarina Zigova is an assistant professor in personnel economics at the Department of Business Administration of University of Zurich. She is a member of Swiss Leading House VPET-ECON. Her interests are in the fields of adult skills and training, labour and education policies.

Empowering VET Teachers with the Skills to Tackle the Challenges of Sustainable Development and Drive Innovation

Ostuni, Chiara

chiara.ostuni2@unibo.it, University of Alma Mater Studiorum, Italy

Abstract

Context: Recent socio-economic changes have reshaped the workforce, created new professional profiles. Vocational Education and Training (VET) plays a crucial role as a bridge between education and the labour market. Training institutions must respond to these changes in line with European policies, such as the Europe 2020 strategy and the 2030 Agenda, focusing on employability, social inclusion, and sustainable development (Goal 4).

Approach: A The action-research began with an in-depth exploration of the context, using a mixed-methods approach (qualitative and quantitative) to understand the needs of the professional figures involved. In line with the participatory nature of action-research, the objectives were progressively discussed and renegotiated.

Findings: Thematic analysis identified both strengths and areas needing improvement, notably in communication, collaboration, innovative teaching methods, and role definition.

Conclusions: The collected data led to the co-creation of a "pyramid of priority interventions," resulting in concrete actions like a collaborative handbook, targeted training, and structured co-design moments, strengthening cooperation and belonging.

Keywords

VET innovation, teaching training, inclusive vocational education, egalitarian education, innovative teaching methods

1   Training and Innovation in Italy: The Contribution of VET in a Context of Global Change

Today's society faces challenges, including climate change, the ongoing effects of the COVID-19 pandemic, and rapid technological progress, reshaping the socio-economic landscape. These changes create a growing need for skills that can be immediately applied in the labour market (Cedefop, 2019). There is a mismatch between the skills workers possess and those required. In Europe, 44% of workers have lower skills than needed for full productivity, and 21% lack the minimum skills to start working. In Italy, 33% of companies struggle to find candidates with the right skills, especially transversal skills (INAPP, 2023; Zagardo, 2023). In response to these challenges, Vocational Education and Training (VET) institutions play a critical role by adapting their approaches to meet labour market demands. These adaptations focus on fostering collaboration, innovating training programs, and integrating inclusive practices. VET curricula increasingly combine technical and cross-functional skills—such as communication, teamwork, and adaptability—while ensuring equitable access to education for learners from diverse

backgrounds (Cedefop, 2022). Additionally, continuous professional development for trainers is prioritized, equipping educators to address social inequalities and create engaging, inclusive learning environments.

In Italy, VET schools aim to develop both practical and theoretical skills to prepare students for the labour market. However, class groups are often characterised by low motivation and difficulty adapting due to previous school failures. This fragmentation creates challenges in managing classroom dynamics and relationships (Vecchioni et al., 1996). VET programs are essential for equipping students with practical and theoretical skills aligned with labour market needs and to reduce dropout rates. Many of the students attending these programs come from disadvantaged socio-economic backgrounds and include a significant number of young people with unsuccessful school experiences and migrant backgrounds. These students often face challenges such as gaps in basic skills, low motivation, and difficulty adapting to traditional educational organisations. As a result, educators are tasked with fostering a sense of belonging and engagement through personalized and inclusive approaches (Tacconi, 2011).

To address these needs, the Italian VET system emphasises personalized learning plans, moving beyond standardised curricula to adapt to individual needs and preferences. Instruments such as Individual Education Plans (IEPs) and compensatory tools for students with Specific Learning Disabilities (SLDs) are implemented to ensure inclusivity, as outlined by Italian law 170/2010. Additionally, integrative activities—such as internships, workshops, and interdisciplinary projects—play a central role in enhancing student motivation and linking education to real-world experiences.

This inclusive, learner-centred approach reduces dropout rates, fosters personal and professional growth, and prepares students for active citizenship. It also promotes the development of transversal skills, resilience, and adaptability through experiential and active learning methods (Dewey, 1916; Kolb & Fry, 1975). Support from coordinators, tutors, and educators helps students navigate their learning paths, further lowering dropout rates and encouraging retention (Pellerey, 2006).

Furthermore, VET institutions contribute significantly to the Sustainable Development Goals (SDGs), particularly SDG 4 (quality education), by fostering skills for a green economy, including sustainability and environmental management.

Teachers and school leaders play a crucial role to this transformation, necessitating ongoing upskilling and reskilling to develop their digital, methodological, and interpersonal competencies (OECD, 2021; Losito & Pozzo, 2005).

Through inclusive practices and a commitment to continuous innovation, VET institutions are positioned to empower individuals, bridge socio-economic gaps, and foster resilience in a rapidly changing world. By combining technical expertise with the promotion of social and environmental awareness, VET programs play a pivotal role in preparing young people to face future challenges and contribute meaningfully to society.

1.1 An Action Research in Italy and Interim results

VET institutions play a crucial role in meeting labour market demands while providing education to young people (Cedefop, 2019). In this context, CEFAL initiated a collaboration with the university to analyze and understand its internal needs. The research focuses on the VET pathway, aiming to define innovative teaching objectives and tools to transform educational practices. The article outlines the action-research process, emphasizing the data collection and analysis phase, and describes the methodologies used and the main findings. This Action Research (Barbier, 2007), adopts a sequential exploratory design with a Mixed-Methods approach (Trinchero & Robasto, 2019), incorporating both qualitative and quantitative elements. In the initial exploratory phase, qualitative tools such as semi-structured interviews, focus groups, and observations were used to gain an in-depth understanding of the educational

context and the perspectives of the stakeholders involved, starting with an unstructured analysis and progressing to a more organized phase focused on addressing the challenges at hand (Corbetta, 2014; Trinchero, 2002). Using qualitative tools such as interviews, focus groups, and observations, dialogue is facilitated, and both strengths and challenges are analysed (Coggi & Ricchiardi, 2020; Corbetta, 2014). This collaborative dimension highlights the central role of professionals engaged in educational activities (Losito & Pozzo, 2005), to address identified issues and fostering innovations. Indeed, as Barbier (2007) argues, action research not only enables but actively promotes a process of transformation within reality, while simultaneously generating knowledge related to these transformations. The aim is to identify needs, challenges, strengths, and areas for improvement.

The initial focus group, conducted in January 2022, involved 13 participants, including coordinators and tutors from various sectors (e.g., catering, sales, electronics, administration) across Bologna, Faenza, and Villa San Martino. This tool was chosen to explore strengths and challenges within the training environment and to identify key areas for improvement (Corbetta, 2014; Ostuni, 2024). Participants were selected for their stable roles, extensive experience, and expertise in their respective areas, which are pivotal to the educational process. From February to June 2022, semi-structured interviews were conducted with a broader group, including coordinators (n=6), tutors (n=7), educators, and support teachers (n=6), as well as 15 trainers. The selection criteria for participants ensured representation of various teaching profiles, years of experience, professional backgrounds, and teaching approaches (Corbetta, 2014; Clarke & Braun, 2022). Observations, conducted across 38 sessions lasting one hour each, complemented these interviews. Initial data collection used a field diary to document teaching strategies, tools, and interactions among students, teachers, and other professionals. This informed the development of a systematic observation grid, designed to capture key behaviours and classroom dynamics including time management, assessment methods, and professional collaboration (Trinchero, 2004). This research examines the VET setting at C.E.F.A.L., focusing on the improvement of the critical issues previously identified through the observation and the analysis. Teachers have been engaged as co-designers of the research goals, and the targeted interventions aimed to enhance their teaching and transversal competencies. Action Research recognizes its strength in a spiral process that involves the collaboration and cooperation of a research group and the key participants in the training action. Defined by Barbier (2007) and Lewin (1946) as a spiral process, action research fosters a reflective path that promotes greater awareness of one's actions. This process, by fostering greater awareness of one's actions, helps identify and transform existing weaknesses in the context, gradually improving its overall quality.

The research also employed quantitative tools, such as questionnaires administered to all participants before and after the training. These tools allowed for the systematic collection of data on perceptions and outcomes of the training, providing a solid foundation for analyzing the effectiveness of the proposed program. The questionnaire is divided into many sections with closed-ended questions, based on a Likert scale to assess the importance of educational factors and the agreement on specific statements.

The investigated topics include teaching effectiveness, the importance of lesson preparation, the variety of tools and methodologies, the balance between transmissive and participatory approaches, and the use of technology in the classroom. Collegiality and collaboration are investigated by asking teachers how relevant they find designing common activities and discussing educational issues with colleagues. Concerning teaching strategies, the focus has been put on the perceived effectiveness of methodologies such as the use of educational technologies, flexibility in adapting lessons, and fostering creativity and critical thinking. Problem management examines how teachers address challenging situations, from relying on intuition to using external resources or consulting colleagues. Finally, on educational goals, participants are asked

to evaluate their expectations regarding the improvement of teaching skills, learning new instructional strategies, and managing students' needs.

To triangulate the findings, interviews were also conducted with students after analysing data from the focus group and interviews with professionals. Two students per class were selected based on representativeness and gender balance, with input from the area manager (Corbetta, 2020). These interviews offered critical insights into students' perspectives on previously identified themes, providing a more comprehensive understanding of the educational practices at C.E.F.A.L.

This multi-method approach, integrating focus groups, interviews, and systematic observations, ensured an accurate and detailed exploration of the training needs and challenges, supporting actionable outcomes for educational improvement.

2 Findings on Teaching Quality in VET Programs

The thematic analysis (Clarke & Braun, 2022) of the data collected through focus groups, interviews with trainers and students, and direct classroom observations revealed both significant strengths and critical issues that required targeted interventions. The focus groups and interviews with trainers provided an overall view of the perceptions and needs of education professionals, highlighting daily challenges and development opportunities. At the same time, the interviews with students offered direct insight into the educational experience from the perspective of the main recipients. Direct classroom observations, on the other hand, added objective and complementary data, analysing the actual behaviour of teachers and students during lessons, interpersonal dynamics, and activity management. This process allowed for confirming or revising the information emerging from the interviews, enriching the overall analysis.

The main themes identified include: 1) the effectiveness of experiential learning, a key strength of the VET programs at C.E.F.A.L.; 2) ambiguity in roles and responsibilities among professionals; 3) lack of effective teaching methodologies among technical-professional teachers; 4) unbalanced participation in project design and management; 5) the need to develop common, student-centred teaching techniques.

One of the positive aspects is experiential learning, a key element of the VET programs at C.E.F.A.L. Based on the "learning by doing" principle, this approach was recognized as effective and motivating by both the professionals interviewed and the students, 47% of whom cited practical learning as one of the most appreciated components, as it allows them to directly apply the knowledge they acquire.

Another strength is the central role of the tutor, regarded as a fundamental reference role from both the pedagogical and psychological perspective. Widely recognized in the literature (Bertagna, 2020; Zaramella et al., 2001), the tutor plays a key role as a mediator and coordinator within the VET system.

On the other hand, the analysis highlighted significant challenges, such as difficulty in managing the class, a problem that emerged clearly in interviews with tutors, coordinators, and educators. There is a need to enhance teacher training, particularly in skills related to Specific Learning Disabilities (SLD) and Special Educational Needs (SEN). Moreover, students expressed a desire for more creative and innovative teaching methods, less tied to traditional lectures. Classroom observations confirmed this need, revealing a limited use of diverse teaching tools and an overreliance on static methods such as pen and paper.

Another challenge concerns communication and collaboration between teachers and educational staff, as well as among different operational sites. While tutors and coordinators described the context as lacking collaboration, classroom observations revealed limited interaction during lessons. Addressing these issues requires an integrated approach involving all professional figures and promoting continuous improvement of competencies, fostering coherence and effectiveness within the educational system.

In conclusion, the comparison of sources and the integration of diverse perspectives prove to be essential tools for understanding the needs of the educational system and fostering continuous improvement. Teacher training, updated and based on these principles, have been chosen as a response to tackle these educational challenges, ensuring an inclusive, innovative, and high-quality learning environment.

3   Addressing Teacher Training: A Reflective and Adaptive Approach

In the previous paragraphs, the main training needs expressed by teachers were highlighted, with a specific focus on the need to innovate teaching methodologies and tools. The data analysis indicates a strong demand for support in improving classroom management (67%) and in addressing topics related to Specific Learning Disabilities (SLD) and Special Educational Needs (SEN) (40%).

Before delving into the details of the teacher training content, it is important to clarify what "classroom management" entails in the context of Vocational Education and Training (VET). Generally, this concept encompasses a set of key competencies, including the ability to establish effective relationships with the group, foster a positive climate, collaboratively share rules and norms, and manage the planning and organization of teaching. These elements contribute to creating a favourable, inclusive learning environment that nurtures the potential of each student.

In light of these considerations, a training program for teachers was designed to update and enhance their knowledge and skills regarding tools, methodologies, and teaching strategies. The program addressed essential topics such as adolescence as a critical stage of development, the value of reflexivity in educational contexts, lesson planning, operational tools for VET, and in-depth coverage of Specific Learning Disabilities (SLD) and Special Educational Needs (SEN). The program consisted of five sessions: three lasting two and a half hours and two lasting four hours, held cyclically in the locations of Villa San Martino, Bologna, and Faenza. The training was developed and delivered through collaboration among several professionals: pedagogical coordinator, educator, and Chiara Ostuni, PhD candidate from the Department of Education Sciences at the University of Bologna; and Professor Elena Luppi, full professor at the Department of Education Sciences at the University of Bologna.

This initiative, aligned with the Action-Research methodology, involved internal professional figures from the training institution who were tasked with designing and implementing the teacher training program, based on the results of the training needs analysis. In this context, the professionals within the institution took an active and central role in the project, becoming co-designers (Benvenuto, 2015). Addressing the training needs of those working in VET institutions allows for the creation of research and innovation pathways based on real needs, fostering collaboration and co-design with the involved professionals. The co-design phase helps professionals become aware of the challenges and opportunities, promoting critical reflection on educational practices.

Teacher training plays a key role not only in ensuring quality education but also in promoting teachers' psychological well-being, which in turn supports the well-being of students. Targeted training thus becomes an essential tool to equip teachers or relevant professionals with the necessary skills to address these demands and to develop strategies for both personal and professional resilience. Training provides not only technical knowledge but also opportunities for teachers to reflect on their roles and develop emotional and social awareness. These aspects are central to promote continuous professional development that prepares educators not only to manage classroom challenges but also to support their personal growth. Teachers who feel adequately trained and supported experience a greater sense of control and value their professional activities, experiencing positive emotions that fuel their commitment (Pekrun, 2006).

The focus was placed on several key topics crucial for educational and training work:

1. adolescence as a life stage, exploring the characteristics of this developmental phase and its educational implications.
2. Learning theories, offering an overview of the main theoretical models to understand learning processes.
3. A reflect and adaptive approach, combining critical reflection with the ability to adapt and respond proactively to situations and changes. This approach is inspired by key figures such as Dewey, the concept of Mindset (Dweck, 2023), and Maslow's hierarchy of needs, aimed at promoting conscious and inclusive teaching.
4. Educational design, analysing and applying methodologies for planning and implementing educational interventions.
5. Training tools, emphasizing the use and evaluation of resources to support teaching and training activities.

Another key objective of the training provided to C.E.F.A.L. educators was to promote a vision of education and training as a dynamic context, where no single solution fits all. Emphasis was placed on the importance of tailoring educational pathways, highlighting the centrality of the educational process, which is marked by reflexivity, the building of meaningful relationships, and flexible planning.

The training process should be grounded in a reflective, adaptable, and dynamic approach, enabling educators to respond effectively to the varied situations that arise in classroom settings. It allows educators to reassess habitual practices and consciously adapt teaching strategies in innovative ways. Effective teaching requires formulating hypotheses, analysing feedback, and designing flexible interventions that address the specific challenges of each educational context.

Every educational intervention should be a collaborative effort, where educators and learners share responsibilities and intentions. In complex contexts, educators are called to act with flexibility and decisiveness, constantly making informed choices and adaptations. The starting point remains the individual: educational planning (Bertolini & Caronia, 2015) must be rooted in a deep understanding of each person's individuality, specific needs, and educational goals. This foundation paves the way for personalized and meaningful intervention pathways.

The comparison of pre-and post-training data reveals significant shifts in the beliefs of professionals regarding teaching strategies. The findings indicate a growing awareness and openness toward more flexible, differentiated approaches that integrate active methodologies and technological tools into educational practices. Specifically, after the training, 70% of professionals strongly agreed that active learning strategies, such as group work, promote active engagement and interaction, compared to 43.24% before the training.

The importance attributed to the use of educational technologies, such as multimedia presentations, videos, and online materials, also increased, with 60% of participants recognizing their relevance, up from 40.54%. Additionally, learning strategies based on the arts, such as drawing or music, gained greater recognition, with 75% of professionals strongly agreeing on their value compared to 54% before the training.

Another notable change concerned a decline in traditional, rigid beliefs. Fewer professionals now agree with statements such as "lectures are the only truly effective way to transmit knowledge" or "a well-structured lesson does not need to be adapted to different student needs." These findings suggest a shift toward a more dynamic, student-centred approach to teaching, emphasizing methodological diversity and aligning with the demands of an inclusive and innovative educational environment.

4   Conclusions

In adult learning, training plays a pivotal role when it fosters a profound transformation of individual frames of reference (Biasin & Chianese, 2022; Mezirow, 2016). This transformative process often begins with a critical event or a disorienting crisis, leading to a reassessment of traditional meaning-making perspectives. When these perspectives prove inadequate for interpreting situations or emotions, adults are prompted to embark on a path of critical self-reflection, examining their beliefs, emotions, expectations, and actions. This process challenges dominant views and opens the possibility of embracing new meanings (Biasin & Chianese, 2022; Mezirow, 2016; Federighi, 2020). According to the transformative approach, adult education supports continuous personal growth and a deeper understanding of experiences.

During the training sessions held with the professionals at C.E.F.A.L., one limitation was the inability to make participation mandatory for all trainers. This restricted involvement to a minority, hindering uniform participation. This limitation is partly due to the multifaceted roles of the educators, who, in addition to teaching, are engaged in other professional activities. Another explanation lies in the challenges and complexities inherent in self-questioning and change. Resistance to training may stem from fears of failure, judgment, or perceived threats associated with change, as well as from scepticism about the training's relevance.

A further challenge relates to the workload experienced by educators. Teaching is increasingly characterized by complexity, involving organizational and relational challenges alongside continuous proposals for training and professional development. Teachers often report significant stress. According to the 2021 Eurydice report, nearly half of lower secondary school teachers in Europe experience high levels of work-related stress, with rates ranging from 20% to 90% depending on the educational context. This stress is linked to various factors, including excessive bureaucracy, heavy workloads, grading assignments, classroom management, and interactions with students' families. Many teachers feel overwhelmed, leaving them little time to focus on lesson planning and professional growth. These challenges not only affect teachers' well-being but also compromise their ability to fully perform their educational roles. Such findings align with reports from C.E.F.A.L. educators and help explain absenteeism during training sessions.

Despite these challenges, training remains a powerful tool for driving change. In the context of this action-research initiative, a training program was designed and developed in response to the needs identified through data analysis. Investing in training is key to building an inclusive and evolving society. Acquiring both transversal and technical skills is essential for professionals to effectively address daily workplace challenges and navigate the complexities of contemporary educational environments (Cedefop, 2022). Furthermore, these skills enable professionals to engage effectively with students, address diverse challenges in educational settings, and foster meaningful learning (Dewey, 1916; Kolb & Fry, 1975), influencing cognitive, operational, and emotional dimensions.

References

Biasin, C., & Chianese, G. (2022). *Apprendere in età adulta: Modelli teorici e operativi.* Mondadori Università.

Benvenuto, G. (2015). Stili e metodi della ricerca educativa. In Stili e metodi della ricerca educativa. (Vol. 1). Carocci.

Barbier, R. (2007). *La ricerca-azione.* Armando Editore.

Bertagna, G. (2020). Reinventare la scuola: un'agenda per cambiare il sistema di istruzione e formazione a partire dall'emergenza Covid-19. Edizioni Studium Srl.

Bertolini, P., Caronia, L. (2015). Ragazzi difficili. Pedagogia interpretativa e linee di intervento. FrancoAngeli.

Cedefop. (2019). The changing nature and role of vocational education and training in Europe, Volume 7: VET from a lifelong learning perspective: continuing VET concepts. Publications Office. No 74. http://data.europa.eu/doi/10.2801/357.

Cedefop. (2022). Teachers and trainers in a changing world: building up competences for inclusive, green and

digitalised vocational education and training (VET): synthesis report. Publications Office. Cedefop research paper, No 86. http://data.europa.eu/doi/10.2801/53769

Clarke, V., & Braun, V. (2022). *Thematic analysis: a practical guide.* SAGE.

Coggi, C., & Ricchiardi, P. (2020). Progettare la ricerca empirica in educazione. Carrocci.

Corbetta, P. (2014). Metodologia e tecniche della ricerca sociale. Il Mulino.

Corbetta, P. (2020). *Metodologia tecniche della ricerca sociale*. Seconda edizione. Il Mulino.

Dewey, J. (1916). Democracy and education: An introduction to the philosophy of education. MacMillan.

Dweck, C. S. (2023). *Mindset. Cambiare forma mentis per raggiungere il successo* (P. Crimini & E. Tomassucci, Trad.). Franco Angeli.

Federighi, P. (2020). Chi sono i professionisti dell'educazione e della formazione: la classificazione come presupposto dell'identità e della mobilità. Quaderni di economia del lavoro, 112(2), 9-26.

INAPP. (2023). *Rapporto INAPP 2023*. Istituto Nazionale per l'Analisi delle Politiche Pubbliche (INAPP). https://www.inapp.gov.it/pubblicazioni/rapporto/edizioni-pubblicate/rapporto-inapp-2023

Lewin, K. (1946). *Action Research and Minority Problems. Journal of Social Issues, 2*, 34-46. http://dx.doi.org/10.1111/j.1540-4560.1946.tb02295.x

Losito, B., & Pozzo, G. (2005). La ricerca azione. Una strategia per il cambiamento nella scuola. Carocci.

Kolb, D. A., & Fry, R. (1975). Toward an Applied Theory of Experiential Learning. In G. Cooper (Ed.), Theories of Group Processes (pp. 33-57). Wiley.

Mezirow, J., & Cappa, F. (2016). La teoria dell'apprendimento trasformativo: imparare a pensare come un adulto. R. Cortina.

OECD. (2021). *Education at a Glance 2021: OECD Indicators*. Paris: OECD. Retrieved from: https://doi.org/10.1787/b35a14e5-en

Ostuni, C. (2024). L'innovazione delle pratiche formative nei percorsi di Istruzione e Formazione Professionale. La ricerca educativa. Quaderni di didattica e documentazione. In G. Moretti, A. La Marca, & I. Vannini. (Eds.), *La ricerca educativa e didattica nelle scuole di dottorato in Italia-7/2023* (pp.436-450). Pensa Multimedia. https://www.pensamultimedia.it/libro/9791255681533

Pekrun, R. (2006). The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice. Educational psychology review, 18, 315-341.

Pellerey, M. (2006). Dirigere il proprio apprendimento. Autodeterminazione e autoregolazione nei processi di apprendimento. La Scuola.

Tacconi, G. (2011). Tra rassegnazione ed ostinazione: logiche di intervento con i ragazzi dell'Istruzione e formazione professionale. Rivista Lasalliana, 78.

Trinchero, R. (2002). *Manuale di ricerca educativa*. Franco Angeli.

Trinchero, R. (2004). *I metodi della ricerca educativa* (11ª ed.). Laterza.

Trinchero, R., & Robasto, D. (2019). *I mixed Methods nella ricerca educativa*. Mondadori Università

Trobia, A. (2005). *La ricerca sociale quali-quantitativa* (Vol. 513). FrancoAngeli.

Vecchioni, V. (a cura di), Baptista, C. R., Bianchini, S., & Gomes, A. M. R. (1996). *Identikit di un insegnante: L'utilizzo del tutor e dei metodi attivi in un'esperienza con gruppi di allievi adolescenti*. Assessorato formazione professionale.

Zagardo, G. (2023). *La IeFP nelle Regioni e nelle Province Autonome: Alla ricerca di una identità comune*. CNOS. Retrieved from: https://www.cnos-fap.it/sites/default/files/pubblicazioni/quaderno_12-23_zagardo.pdf

Zaramella, S., Callini, D., Morini (2001). *Dal corso al percorso: la formazione professionale verso un modello di personalizzazione nell'obbligo formativo*. Presentazione di Beatrice Draghetti. Bologna, Assessorato Politiche Scolastiche Formative e dell'orientamento.

Biographical Notes

Dr Chiara Ostuni is a PhD at the University of Bologna, Italy and postdoc in experimental pedagogy. Her work focuses on innovation in teaching and learning, the educational needs of students, and the psychological well-being of teachers and students in VET schools.

Social-Ecological Transformation in the Automotive Sector. The Case of a Car Workshop and Dealership

Peters, Susanne
supeters@uos.de, University of Bremen

Klaus, Frieda
fklaus@uni-bremen.de, University of Bremen

Abstract

Context: The automotive sector is undergoing a significant socio-ecological transformation, requiring a skilled workforce to meet evolving industry demands. This study explores how a medium-sized car workshop and dealership in Bremen, Germany, is addressing these challenges and what the implications are for organizational learning.

Approach: This case study adopts a mixed-methods research design, incorporating quantitative data from an online survey (n=160) and qualitative insights from focus group discussions with management and human resources. The survey investigates employees' training needs, perceptions of organizational support, and the effects of digitalization and AI.

Findings: The results show that the majority of employees consider further training crucial for adapting to industry changes; however, there is expressed dissatisfaction with current offerings. A strong demand exists for training in digital skills and AI. Although an open feedback culture is present, time constraints hinder effective knowledge transfer and onboarding processes. Additionally, significant challenges related to employee retention and skilled labor shortages were identified, which are exacerbated by increasing demands for technological adaptation.

Conclusions: To promote sustainable organizational learning, it is vital for employers to take a proactive role in developing structured training programs and support systems. Improving communication and flexibility in training offerings can enhance employee engagement and retention. The study highlights the significance of addressing both technical and interpersonal aspects of transformation to build a resilient workforce capable of navigating the complexities of the automotive industry's future.

Keywords

transformation; automotive sector; organizational learning; Germany

1   Introduction

Transformation is a topic of significant discussion, particularly in key industries (Wendland, 2022). This focus is warranted due to its substantial economic relevance and implications. To effectively navigate the socio-economic and ecological transition, it is essential to develop a skilled workforce that meets specific needs, along with a customized array of qualifications to secure employment and address the evolving requirements for skills (Federal Ministry of Labour and Social Affairs, 2022). In the industry, the transformation process is poised

to become a key driver of innovation for the automotive sector in the years to come. Still, a more precise picture of transformation processes within companies would be desirable (Czernich et al., 2021).

Vocational training can be seen as the basis for the transformation process, as it provides the foundation for further qualifications. Vocational education and training (VET) in Germany is part of upper secondary education and takes place at various learning venues, including vocational schools, companies, public institutions, inter-company training centers and other educational institutions (Eckert et al. 2022). The German Vocational Training Act (Berufsbildungsgesetz, BBiG) forms the legal basis for this and has regulated dual apprenticeships since its introduction in 1969. It contributes to the stabilization of German federal corporatism by taking into account the interests of employers' associations, trade unions and the state (Weitz & Ludwig-Mayerhofer, 2024). VET is also characterized by a strong institutional structure (Gerholz, 2022).

The key element of VET is dual apprenticeships, which are based on the German Vocational Training Act (BBiG) and the Crafts and Trades Regulation Code (HwO). They combine in-company training with classroom instruction at vocational schools, with the in-company portion being supplemented by subject-specific theoretical and general education content (Forner, 2022; Klemm, 2022; Kutscha, 2022). It is defined as vocational training that is heavily company-based and closely linked to the economic system, but (co-)regulated by the state and supplemented by part-time school (Weitz & Ludwig-Mayerhofer, 2024) and represents a mixed system of state, market and corporatist elements (Kutscha, 2022). While the state sets the framework for in-company training, the federal states are responsible for the school-based part, which is regulated by school laws and curricula (Gerholz, 2022). It is steered and controlled by the state and the social partners (Reiber & Friese, 2022). At the regional level, chambers, as public corporations, take control of the practical training components and also ensure economic self-administration and representation of interests (Forner, 2022; Kutscha, 2022; Reiber & Friese, 2022). As state schools, vocational schools are subject to the school laws of the respective federal states (Reiber & Friese, 2022). The companies provide funding for the practical part, while the federal states and school authorities cover the costs for the school-based part (Klemm, 2022). In addition, all training contracts must be registered with a competent chamber, such as the Chamber of Industry and Commerce or the Chamber of Crafts (Weitz & Ludwig-Mayerhofer, 2024).

In general, apprentices spend three to four days a week in the company and one to two days in vocational school (Forner, 2022). Each year, about 500,000 people enter this training system (Weitz & Ludwig-Mayerhofer, 2024). In 2024, there are 328 recognised training occupations, which are divided into commercial/administrative, industrial/technical and craft occupations (BIBB, 2024; Gerholz, 2022). Most of these dual training occupations belong to the non-regulated occupations, which are characterized by dependent employment and are not carried out on one's own responsibility (Deutscher Bundestag, 2019).

Continuing vocational education and training (CVET) refers to all training activities that follow on from initial VET and aim to expand, deepen or adapt vocational qualifications to new requirements. It serves both to secure individual employment opportunities and to meet the demand for skilled workers in companies and the economy (Schmidt & Klenk, n.d.). In the face of transformation processes such as digitalisation and the shortage of skilled workers, skilled workers need specialised knowledge and future skills that include digital, classic and transformative competencies (Hocke & Klee, 2023). CVET should provide sustainable learning processes and interdisciplinary perspectives in order to do justice to the complexity of current challenges (Hocke & Klee, 2023).

While for the younger generations, the dual apprenticeship is supposed to strengthen its workforce with the breadth of training, it can be assumed that companies have a particular need

for action when it comes to further developing older generations that are the sustainable skilled workforce base now. Small and medium-sized enterprises (SMEs) from the supplier and service sector have a particular need for support here, as they often do not have the necessary capacities and knowledge to design sustainable further training planning (Müller, 2023). This study, therefore, aims to answer the following research questions: In how far do companies address the social-ecological transformation? What skills are needed now and in the coming years? Which organisational learnings can be observed? We answer these questions using a case study of a car workshop and dealership, a medium sized company, located in the Bremen area in Germany. The study takes place in the context of the project "Further education network of the Bremen automotive industry", funded by the German federal Ministry of Education and Research, the European Social Fund and the state of Bremen. We pursue a mixed methods research design with focus group discussions and an online survey.

2 Theoretical Framework

Pedagogical debates on organizational learning have so far been the exception rather than the rule in adult and organizational education discussions. We use the theoretical frame of the learning triangle that is applied to organizational learning (Illeris, 2007; Pätzold, 2017). Illeris' model assumes that individual learning consists of an outward interaction with the environment, which corresponds to a continuous balance between a cognitive and an emotional dimension on the "inside". Pätzold (2017; 2020) contextualizes the learning triangle for organizational learning and describes the dimensions as described in figure 1.

Here, the categories of dealing with knowledge, organisational culture and organisational environment can be used to classify phenomena in organizations in relation to organizational learning. Dealing with knowledge describes in the first place the dimension of cognitive processes within the organization and can also be described as knowledge management. This dimension goes hand in hand with emotional processes, the dimension of organizational culture. Both dimensions of cognition and emotion highlight the fact that a learning can neither be a process of cognition nor one of emotion but must always consider the dynamic balance between the two. The inclusion of the organisational environment includes the interplay between organization and environment. Pätzold (2017) states that a balanced equilibrium between cognition and emotion is important as a prerequisite for organizational learning. Regarding the interaction with the organizational environment, a clear allocation of tasks and resources (e.g., regarding sources of information, promoters, etc.) is required to foster organizational learning.

Figure 1
Organizational learning following Pätzold, 2017 (p. 46).
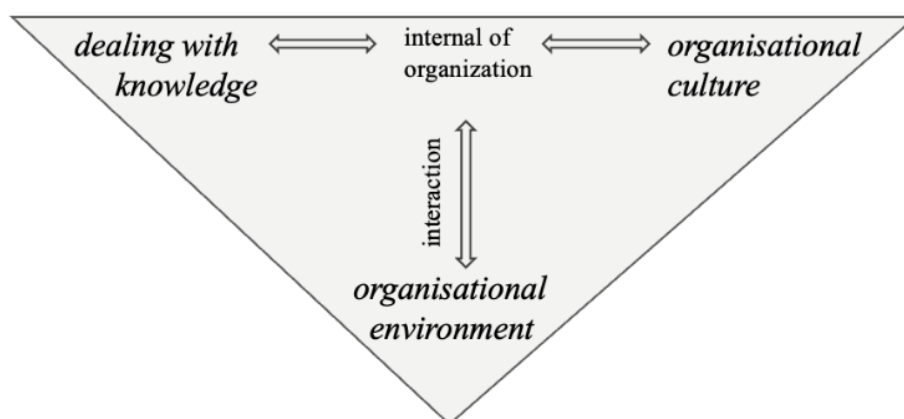
Focusing on customer satisfaction and operational excellence, the company has established a robust supply chain and logistics framework, enabling timely delivery and responsiveness to client needs. The company has about 900 employees and is a family-owned business. Additional to external developments, an organisational change is going on as the company has experienced an over-proportional growth during the last ten years through business combinations and acquisitions.

The survey is divided into the topics of a) socio-economic data, b) further training participation and reasons, c) further training contents, d) further training structures, e) artificial intelligence, f) onboarding, g) training support, h) (mental) health at the workplace. The respondents belong to the following employee groups: administration (14%), sales passenger cars, (14%), sales vans and transportation (13%), service (workshop, assistance) (41%), sales of parts (11%), others (such as invoicing and in training) (7%) and the workforce is characterized by a long period of employment (almost 50% work there for 11 years or longer).

3 Results

Referring to our theoretical framework, we structure the analysis of our data using the categories organizational culture, dealing with knowledge, and organizational environment.

3.1 Organizational Culture

The survey results show that further training is of central importance to employees. Many respondents emphasize that regular training is necessary to keep pace with changes in the industry (How important is it to you to regularly undergo further training? was answered by 97% with "very important" or "important"), as the original tasks have shifted and developed into larger task areas. The willingness to participate in training programs is high, but it is often noted that the offerings do not always meet the needs of employees. Employees also expect further training that is partly linked to the desire for management responsibilities, whether professionally, personally or in terms of remuneration. The content of the CVET should also be highly relevant to the employee's current professional position.

Some employees reported an open feedback culture, which is important for learning in the organization. The exchange between colleagues is perceived as positive, which helps to create a supportive learning environment. However, there is evidence of "time issues" (e.g., overtime hours) which can hinder learning and motivation.

3.2 Dealing with Knowledge

The survey shows that dealing with digital tools and AI is becoming increasingly important. Many employees (about 90%) express a desire for training in digital skills, which indicates an awareness of the need for knowledge transfer in these areas. They also emphasize that further training in AI should be offered due to the high level of stress (53% of all respondents). This opinion is based on the fact that employees emphasize that AI would make everyday tasks in their field of work more efficient, such as dealing with customers and customer management.

Although some knowledge sharing takes place through the open feedback culture, it is noted that there is often insufficient time for individual induction or learning through experience. This suggests that employees may not be sufficiently empowered to actually apply their knowledge.

3.3 Organizational Environment

The survey shows that many employees would like support from their employer for further training. The desire for more flexibility in the offerings is frequently expressed in order to improve the compatibility of further training and everyday working life. Some employees state that they need an impulse from their employer to take part in further training.

A clear lack of structured induction processes was identified. New employees often feel inadequately supported, which makes it difficult to implement knowledge in practice. A targeted allocation of resources and a clear distribution of tasks could bring improvements here.

In principle, a certain degree of organizational learning takes place in the company under review, supported by a positive corporate culture and the will to provide further training. However, there are significant challenges, particularly in the practical implementation of knowledge transfer and support for new employees. In order to fully exploit the potential for organizational learning, the areas of induction, knowledge sharing and management support should be specifically improved.

3.4 General Challenges and Organizational Ways of Learnings

Several critical aspects highlight both internal and external challenges. A notable concern is the absenteeism rate, indicating a significant shortage of skilled workers and the necessity to manage sickness levels effectively. We found that the company faces challenges in recruiting and retaining staff, with a recognized loss of specialist and process knowledge when employees leave. "Everyone who leaves takes so much specialist and process knowledge with them" (FG_2, 24.03.2024, HR-manager). Additionally, the demands on employees to adapt to new technologies due to mobility transitions are increasing, creating a widening skill gap: "The range is widening: combustion engines on the one hand and high-tech vehicles that almost need engineers for maintenance on the other" (FG_1, Managing director; 18.11.2023).

To address these challenges, the company is implementing new forms of corporate communication and vision, recognizing that transformation is a comprehensive process, particularly in light of generational change at the management level. Challenges in corporate culture, such as diversity acceptance—specifically concerning refugee employees—call for targeted measures to enhance team spirit and integration. Developing coaching programs and establishing a business-owned academy for centralized training offerings are emphasized as potential solutions.

Moreover, a paradigm shift in management culture is underway, characterized by increased attention to personality profiles within teams. This approach fosters decentralized responsibility and promotes an open communication culture, allowing employees to voice their needs and concerns. Additionally, pilot programs focusing on mental health support have been initiated.

4 Discussion

Overall, it is to be highlighted that the technical aspects of the transformation are not seen as the greatest challenges. Rather, the core problems lie in the communication strategy, employee retention and adapting to changing market conditions. Our results show that the organization provides a solid foundation for the learning and development of employees. The established open feedback culture contributes to creating an environment for organizational learning as an emotional component of the organizational culture.

While technical challenges, such as dealing with increasing digitalization and artificial intelligence, do exist, they represent only a minor barrier. The greatest challenge, by contrast, lies in the organizational environment. A lack of strategies for structured onboarding and deficits in communication and cooperation structures indicate significant potential for development in this area.

Another challenge is the shortage of skilled workers in the automotive industry, which leads to workforce shortages in the organization. This increases the work pressure on existing employees, as they have to perform their daily tasks despite reduced personnel capacity. This results in time stress, which should be reduced through targeted stress management and awareness-raising measures. High stress levels can also lead to employees being unable to work and, in the worst case, further exacerbate workforce shortages, creating a stressful cycle. Targeted measures are needed to break this cycle. One solution could be to allow employees the option of being flexible about their workload, as this can help to avoid overwork situations (DGB-Index Gute Arbeit, 2024). Dealing with AI in the form of further training can also address both the technical challenges and the interdisciplinary challenges. With the help of AI, everyday tasks for employees can be made easier, which could reduce stress factors such as time pressure and workforce shortages.

Further training is crucial for employees, as they need to continuously adapt to the changing demands of the world of work and their specific field of activity. In addition, further training and development opportunities not only have a positive effect on employability but also promote equal opportunities and participation in the labour market (DGB Index Gute Arbeit, 2024).

As employees expressed a desire for their employer to take the initiative and actively offer further training opportunities, a structured and more intensive induction is particularly important. This ensures that work tasks are clearly defined and that a reliable work structure is in place. In addition, regular performance reviews make it possible to identify challenges at an early stage, provide targeted feedback and directly communicate and offer further training opportunities.

Furthermore, the shortage of skilled workers can be observed across all industries: Companies need to develop innovative approaches to training and promoting talent in order to meet the demands of changing markets. This comes along with the awareness of employee mental health that is becoming increasingly important. Companies that take proactive measures to promote the well-being of their employees tend to increase their commitment and performance, as in our case.

Various measures should be taken to increase the potential for organizational learning and to improve employee satisfaction. One important step is to introduce structured induction plans and to revise the onboarding process. This should include developing clear, defined processes for the induction of new employees and improving internal processes and structures. In particular, communication and cooperation structures should be optimized to ensure more effective collaboration. Regular performance reviews provide an additional opportunity to address challenges early and provide feedback.

Also, employers should provide flexible training options that are tailored to the individual needs of employees. It is particularly important to offer training in stress management and mental health to support employees in their day-to-day work. Not only the team, but also managers should be trained in programs on topics such as appreciation and corporate communication. In addition, learning with and from each other within the company should be more strongly encouraged in order to support exchange and shared growth.

Another key point is digitalization initiatives that train employees in digital skills and the use of artificial intelligence (AI) in work processes. These training courses can help employees to adapt to technological changes and to adjust their working methods accordingly. Establishing cross-company programs that enable employees from different companies to exchange ideas could also strengthen the network idea and open up new perspectives.

Another crucial aspect is the influence of employees on determining the volume of work. Options for organizing the amount of work can help to avoid overwork and thus promote the well-being and satisfaction of employees (DGB Gute Arbeit, 2024).

5   Conclusion

The central point of the analysis is that employers should take a more proactive role in offering further training opportunities and motivating employees to participate. More open communication on the part of the employer can help to increase participation in further training programs. In addition, closer cooperation between employers and employees and the promotion of networks and cross-company offers are essential to creating sustainable learning and development opportunities. A more structured and intensive employee induction process would ensure that work tasks are clearly defined and that a reliable work structure is in place. In addition, regular performance reviews can help to identify challenges at an early stage and provide targeted feedback on tasks. Further training opportunities can be communicated and offered directly in this context to promote the continuous development of employees.

In the automotive *industry*, the situation might differ in general, as there is a higher pressure to adapt and learn resulting from technical changes. Still, we conclude that to be prepared for the socio-ecological transformation, organisations should be working on sustainable personnel development and responsible communication. This leads to social innovation which is a basis for transformation (Peters, 2024).

Our research work is limited by focusing on a single case and the associated restrictions in the data basis and interpretation. An extension of the study to several companies, maybe from different branches within the automotive sector, and the consideration of both qualitative and quantitative data would be necessary in order to achieve more comprehensive and valid results.

References

Czernich, N., Falck, O., Erer, M., Keveloh, K., & Muineacháin, S. Ó (2021). Transformation in der Automobilindustrie – welche Kompetenzen sind gefragt? [Transformation in the automotive industry: Which competences are demanded?] *ifo Schnelldienst digital*, 12/2021. https://www.ifo.de/DocDL/sd-2021-digital-12-czernich-etal-kompetenzen-autoindustrie.pdf

Deutscher Bundestag (2019) (Ed.). *Sachstand. Reglementierte Berufe in Deutschland*. https://www.bundestag.de/resource/blob/684720/8bc3b06008858a32d0e500882afce792/WD-8-164-19-pdf-data.pdf

DGB-Index Gute Arbeit (2024). *Jahresbericht 2024. Ergebnisse der Beschäftigtenbefragung zum DGB-Index Gute Arbeit 2024*. https://index-gute-arbeit.dgb.de/++co++9cfc53b8-9b7d-11ef-ab66-6977410ee4dd

Eckert, M., Ketschau, T.J., Klassen, J., Schauer, J., Schmees, J.K., & Steib, C. (2022) (Eds.), *Einleitung. In Berufsbildungspolitik: Strukturen – Krise – Perspektiven* (pp. 11–18). Wbv Publikation. https://doi.org/10.3278/9783763972623

Federal Institute for Vocational Education and Training (BIBB) (2024) (Ed.). *Verzeichnis der anerkannten Ausbildungsberufe 2024*. https://www.bibb.de/dienst/publikationen/de/19757

Federal Ministry of Labour and Social Affairs (2022). Nationale Weiterbildungsstrategie [National Further Training Strategy]. https://www.bibb.de/dokumente/pdf/220901_NWS_Fortfuehrung.pdf (26.10.2024)

Forner, A. (2022). *Bildungsmanagement für die Wirtschaft: Qualifizierung und Fachkräfteeinwanderung an der Schwelle zu neuen Arbeitswelten*. Springer Gabler. https://doi.org/10.1007/978-3-658-37673-4

Gerholz, K.-H. (2022). Berufliche Bildung. In H. Reinders, D. Berg-Winkels, A. Prochnow, & I. Post (Eds.), *Empirische Bildungsforschung. Eine elementare Einführung* (pp. 87–106). Springer. https://doi.org/10.1007/978-3-658-27277-7

Hocke, S., & Klee, A. (2023). Transformation in der Arbeitswelt gestalten. Welchen Beitrag leistet die akademische Weiterbildung von Betriebs- und Personalräten? Forschungsförderung Working Paper, 309. https://www.boeckler.de/de/faust-detail.htm?sync_id=HBS-008731

Illeris, K. (2007). How we learn: Learning and non-learning in school and beyond. Routledge.

Klemm, K. (2022). Das Bildungssystem Deutschland: Strukturen und Strukturreformen. In H. Reinders, D. Berg-Winkels, A. Prochnow, & I. Post (Eds.), *Empirische Bildungsforschung. Eine elementare Einführung* (pp. 75–86). Springer. https://doi.org/10.1007/978-3-658-27277-7

Kutscha, G. (2022). Politik des dualen Systems in Deutschland. In M., Eckert, T.J. Ketschau, J. Schauer, J.K. Schmees, & C. Steib (Eds.), *Berufsbildungspolitik: Strukturen – Krise – Perspektiven* (pp. 41–56). Wbv Publikation. https://doi.org/10.3278/9783763972623

Lamnek, S. (2005). Gruppendiskussion: *Theorie und Praxis* [Group Discussions: Theory and Practice]. Beltz.

Müller, C. (2023). *Betriebliche Weiterbildungsentscheidungen im Garbage Can. Typenbil-dende Rekonstruktion*

in Klein- und Kleinstunternehmen. [Company training decisions in the garbage can. Type-forming reconstruction in small and micro enterprises] wbv. https://www.doi.org/10.3278/9783763974535

Pätzold, H. (2017). Das organisationale Lerndreieck – eine lerntheoretische Perspektive auf organisationales Lernen [The organizational learning triangle - a learning theory perspective on organizational learning&. *ZfW 40*, 41–52. https://doi.org/10.1007/s40955-017-0087-z

Pätzold, H. (2020). Bausteine einer Theorie der lernenden Non-Profit-Organisation – eine lerntheoretische Perspektive [Building blocks of a theory of the learning non-profit organization - a learning theory perspective]. In A. Schröer, N. Engel, C. Fahrenwald, M. Göhlich, C. Schröder, & S. Weber (Eds.), *Organisation und Zivilgesellschaft. Organisation und Pädagogik* (pp.179–188). Springer VS. https://doi.org/10.1007/978-3-658-18005-8_17

Peters, S. (2024). Handling the transformation? Further training in the automotive industry. In C. Nägele, B. Esmond, N. Kersh, & B. E. Stalder (Eds.), *Trends in vocational education and training research, vol. VII. Proceedings of the European Conference on Educational Research (ECER), Vocational Education and Training Network (VETNET)* (pp. 93-97). https://doi.org/10.5281/zenodo.13237050

Reiber, K., & Friese, M. (2022). Das Schulberufssystem im Kontext des Berufsbildungssystems – Entwicklungslinien und -perspektiven der Care-Berufe. In M., Eckert, T.J. Ketschau, J. Schauer, J.K. Schmees, & C. Steib (Eds.), *Berufsbildungspolitik: Strukturen – Krise – Perspektiven* (pp. 57-67). Wbv Publikation. https://doi.org/10.3278/9783763972623

Schmid, J., & Klenk, J. (n.d.). *Berufliche Weiterbildung*. Gabler Wirtschaftslexikon. https://wirtschaftslexikon.gabler.de/definition/berufliche-weiterbildung-27376

Weitz, J., & Ludwig-Mayerhofer, W. (2024). Duale und schulische Berufsausbildung in Deutschland: Schritte zu einem umfassenden Verständnis von beruflicher Bildung. *Berliner Journal für Soziologie*. https://doi.org/10.1007/s11609-024-00531-6

Wendland, F.A. (2022). *Identifikation von Schlüsselberufen der Transformation auf Basis der EU-Taxonomie*. Institute of the German Economy (IW). https://www.iwkoeln.de/fileadmin/user_upload/Studien/Report/PDF/2022/IW-Report_2022-Schlüsselberufe-der-Transformation.pdf (27.10.2024)

Yin, R. K. (2009). Case *study research: Design and methods*. SAGE Publications.

Biographical Notes

Dr Susanne Peters is a substitute professor for vocational didactics at the University of Osnabrück at the Institute of Educational Science. Her research interests include the international comparison of VET systems and innovative forms of training, for example in the combination of initial vocational training and continuing vocational training.

Frieda Klaus is a researcher and doctoral student at the Institute Technology and Education (ITB) at the University of Bremen in Germany. Her research interests focus on the internationalization and innovation of vocational education and training and on the application of artificial intelligence in VET.

Educational Strategies to Prevent Dropout in Vocational Training Programs: A Pilot Approach

Pinya-Medina, Carme
carme.pinya@uib.cat , University of Balearic Islands, Spain

Vecina-Merchante, Carlos
carlos.vecina@uib.cat , University of Balearic Islands, Spain

Vilasís Pamos, Júlia
julia.vilasis@uib.cat , University of Balearic Islands, Spain

Tugores-Ques, María
m.tugores@uib.cat , University of Balearic Islands, Spain

Abstract

Context: Early dropout in vocational education and training (VET) remains a pressing challenge, particularly in Spain, where there is an urgent need for applied research on effective preventive measures. Grounded in Self-Determination Theory (SDT), this study investigates how specific teaching practices—namely autonomy support, competence-based work, and teacher-student relationships—can foster intrinsic motivation and thus reduce dropout rates.

Methods: A mixed-methods design was employed within a larger research project centered on teachers' practices and dropout prevention. The quantitative phase used two standardized questionnaires (Situations-in-School and Teachers' Sense of Efficacy Scale) to gather data from 287 vocational teachers, complemented by socio-demographic items. The qualitative phase involved action research through six focus groups (58 teachers) and four interviews with management team members, yielding deeper insights into the factors influencing student motivation and persistence.

Findings: Quantitative findings revealed high levels of teacher self-efficacy in student engagement, instructional strategies, and classroom management. Autonomy support and structured teaching styles were notably more prevalent than controlling or chaotic approaches, though structured methods were still used more frequently than autonomy-focused ones. Qualitative data underscored the importance of strong teacher-student relationships, the gradual cultivation of student autonomy, and the critical role of competencies.

Conclusions: Overall, the study highlights how self-determined motivation significantly influences student retention and success in VET. Strengthening teacher-student relationships, supporting autonomy, and developing core competencies emerge as essential strategies for enhancing students' intrinsic motivation and reducing dropout, thereby calling for targeted policy and practice interventions in the field of vocational education.

Keywords

vocational education, dropout prevention, self-determination theory, engagement

1 Introduction

In recent years, the issue of early dropout has been a cause for concern within the educational community. In the case of vocational education and training (VET), this matter is particularly relevant due to the strategic role of secondary vocational education in raising the educational level of the young population and its contribution to economic and social development (Cedefop, 2016; Salvà-Mut et al., 2019). In Spain, the most recent data indicate that, five years after entering a vocational training program, 50.6% of students in Basic Vocational Education and Training (BVET) and 64.3% of students in Intermediate Vocational Education and Training (IVET) have obtained their certification, while 41.2% of BVET and 28.6% of IVET students have left the education system. The remaining 8.2% of BVET and 7.0% of IVET students are pursuing some form of additional training (Ministry of education, vocational training and sports, 2024a). Specifically, in the Balearic Islands—where this study is located—52.3% of BVET and 67.3% of IVET students have obtained their certification, 42.4% of BVET and 26.8% of IVET have left the education system, and 5.3% of BVET and 3.9% of IVET students are engaged in additional training (Ministry of education, vocational training and sports, 2024b). These figures highlight a context in which applied research aimed at preventing dropouts is both urgent and necessary.

Early dropout in vocational education is defined as having failed to earn an upper-secondary qualification, having abandoned a vocational training program leading to a qualification higher than the one currently held, and not being enrolled in any educational program at present (Cedefop, 2016). Nonetheless, it is important to clarify that dropping out is not a single act but rather the outcome of a long, complex process involving various factors (Rumberger, 2011). Among these factors, teaching practices stand out as the focus of this research.

In this context and recognizing the importance of teachers and their teaching practices in the process of lifelong learning, we adopt Self-Determination Theory (SDT) as our conceptual framework. SDT is one of the most developed conceptual models for understanding how teaching practices influence students' learning processes by centering on motivation, specifically on individuals' self-directed and self-determined behavior (Ryan & Deci, 2002). Building on evidence that there are two types of motivation—intrinsic and extrinsic—Self-Determination Theory conceptualizes intrinsic motivation as autonomous and extrinsic motivation as controlled. Intrinsic motivation is understood as the inherent tendency to engage in an activity for its own sake and therefore has positive consequences for students' engagement and academic performance (Froiland & Worrel, 2016; Gottfried et al., 2008; Taylor et al., 2014; Tsai et al., 2008).

According to SDT, when teachers promote student autonomy, competence-based work, awareness of these competencies, and the establishment of relationships with others, they foster intrinsic motivation. Consequently, SDT posits that supporting student autonomy and providing structure in teaching-learning processes encourage self-regulated learning.

Finally, this study will consider teachers' sense of self-efficacy. Bandura (1977) defined self-efficacy as an individual's belief in their ability to successfully complete a specific task. Based on this definition, numerous studies have demonstrated the impact of this construct on teachers' performance. Thus, the literature has shown that teachers' self-efficacy is related to innovative behaviors (Klaeijsen et al., 2018), intrinsic enjoyment of work (Marshall et al., 2012), teachers' trust in students (Meristo & Eisenschmidt, 2014), teachers' motivation (Runhaar et al., 2010), work engagement (Zhou et al., 2022), and the development of better teaching practices (Girardet & Berger, 2017).

2 Methodology

The present study is carried out as part of the project 'Teaching practice and prevention of early dropout in Vocational Training: An empirical approach and intervention proposal"[1]. The project was developed in two distinct phases: the first, a quantitative and exploratory phase; and the second, qualitative and based on a pilot plan to prevent early dropout in VET at two centers. Based on the model proposed by SDT, this research aims to analyze and describe the teaching styles and the sense of self-efficacy among the teaching staff at two vocational training centers in the Balearic Islands.

The quantitative data were collected through two standardized self-administered questionnaires: the Situations-in-School (SIS) questionnaire (Aelterman et al., 2019) and the Teachers' Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001). Data was collected through an online questionnaire. The data collection process strictly adhered to ethical principles and privacy regulations, always ensuring the anonymity and protection of participants' personal data. A total of 30 questionnaires were collected from the two participating centers, consisting of 17 men and 13 women. Of the respondents, 12 taught in Basic Vocational Education and Training (BVET) and 18 in Intermediate Vocational Education and Training (IVET). Their professional experience ranged from 1 to 40 years (M = 13.65; SD=13,04).

The Situations-in-School (SIS, Aelterman et al., 2019) comprises 15 different teaching scenarios commonly encountered in classrooms to assess teachers' predominant teaching styles. For each scenario, four possible approaches are presented, and the teachers are asked to indicate the extent to which each approach describes their past actions or those in similar situations. The scale consists of four subscales (autonomy support, structure, control, and chaos) and 60 items, with Likert-type responses ranging from 1 ("Does not describe me at all") to 7 ("Describes me very well").

Teachers' Sense of Efficacy Scale (TSES, Tschannen-Moran & Woolfolk Hoy, 2001) measures teachers' beliefs about their ability to influence students' learning through certain actions related to three domains of self-efficacy: efficacy in fostering student engagement, efficacy of applied teaching strategies, and efficacy of classroom management. This scale consists of 24 items, 8 for each of these subscales, with response rated on a Likert scale ranging from 1 (Nothing) to 9 (A lot).

The design, development, and evaluation of the pilot plan were carried out using action research methodology (Elliot, 1990) within the critical paradigm of qualitative research. Six focus groups were conducted with a total of 58 vocational teachers, and four interviews were held with members of the management teams. These participants were selected according to criteria of relevance and significance to the study (Flick, 2004), constituting a purposive sample based on the participants' explanatory capacity.

Each focus group session lasted two hours, in accordance with the ethical commitment established for this study, and with the consent of the participants. All sessions followed anonymity protocols, and all necessary confidentiality and consent forms were duly signed. After transcription, the data were analyzed using NVIVO software. The categorization and subsequent coding of the data were performed deductively, drawing on the core elements of Self-Determination Theory: motivation, relatedness, autonomy, and competencies.

---

3 Results

The descriptive analysis of teachers' sense of self-efficacy (Table 1) allowed us to observe that they scored highly in efficacy in fostering student engagement (M = 7.15; SD = .92), efficacy of applied teaching strategies (M = 7.12; SD = .94), and efficacy of classroom management (M = 7.02; SD = .83). Table 1 also presents the minimum and maximum average values of the teachers' responses for each dimension. It can be observed that the minimum average values are above the midpoint of the response scale, indicating high scores.

Table 1
Descriptive Statistics of Teachers' Sense of Self-Efficacy and Teaching Styles

	M.	SD.	Min.	Max.
Self-efficacy				
Efficacy in fostering student engagement	7.15	0.92	5	9
Efficacy of applied teaching	7.12	0.94	5.63	9
Efficacy of classroom management	7.02	0.83	5.50	9
Teaching styles				
Autonomy support	5.19	0.89	2.33	6.60
Structure	5.58	0.71	3.40	6.67
Control	2.94	0.98	1.20	5.73
Chaos	2.09	0.58	1.20	3.27

Note. n = 30; Self-efficacy scores range from 1 (Nothing) to 9 (A lot), while teaching styles scores range from 1 (does not describe me at all) to 7 (describes me very well).

Regarding teaching styles, the descriptive analysis (Table 1) allows us to observe that styles supporting autonomy (M = 5.19; SD = .89) and structure (M = 5.58; SD = .71) are used more frequently than those focused on control (M = 2.94; SD = .98) and chaos (M = 2.09; SD = .58).

Table 2
Mean Contrast by Teaching Styles

Factor	M (SD)	t	d.f.	p	d
Autonomy support	5.19 (.89)	-3.802	29	0.001	0.48
Structure	5.58 (.71)				
Control	2.94 (.98)	4.348	29	0.000	1.05
Chaos	2.09 (.58)				

Note. Scores on the scale range from 1 (does not describe me at all) to 7 (describes me very well).

Mean contrasts using the Student's t-test (Table 2) reveal that, when comparing the autonomy support and structure styles, teachers tend to use more structured approaches ($p < .001$). Similarly, when comparing control and chaos, the results indicate that teachers tend to adopt more controlling styles ($p < .000$).

The following presents the qualitative results based on Self-Determination Theory:

3.1 Relationships

There is unanimous agreement among participants that building a bond with students is not only essential but also necessary: "In Basic Vocational Education, you have to connect with them on a personal level and motivate them, providing positive reinforcement."

Moreover, participants discuss the quality of this bond, going beyond its mere existence, and describe factors that may influence it: the educational level, the content of the module being taught, and the type of student population.

Finally, the effect of the relational aspect on student motivation is highlighted: "If you manage to establish contact, the relationship changes, and once they see there is trust, even if it's something that doesn't motivate them much, they will try."

This opens a path for further exploration of how the various dimensions of Self-Determination Theory relate to each other.

Autonomy

Teachers report that, although students initially exhibit a certain dependence on them, this low level of autonomy improves over the academic year, particularly in the second year. Regarding the determinants that affect student autonomy, teachers emphasize the importance of not making things too easy or adapting them excessively to students' needs; they suggest that too much adaptation can be detrimental in the long term: "You've made so many adaptations that some exams could be done by a six-year-old. How is that really helping them when at some point they'll need to do subtraction or multiplication?"

Competencies

Teachers confirm that students' level of competence becomes more limited each year, blaming this situation on the Compulsory Secondary Education stage (and sometimes even on Primary Education). They also point to the negative effects the pandemic had on the Spanish educational system.

Additionally, and as noted previously, students' competency development is related to their motivation and, consequently, to the academic guidance they have received: "This is what we often see: students' competencies are closely linked to whether they know where they're heading. I mean, you really have to think about it—whether you want to pursue this field or study that professional area. First, you need to know if you have reliable skills or competencies in that area."

Motivation

Across the various dimensions, teachers largely agree that student motivation is low or very low. Although teachers note certain variations depending on the educational level students are in, the academic guidance they have received, and the key role of teachers and their educational practices, motivation is broadly seen as lacking: "If you ask me about the topic of student motivation, we first have to distinguish between the different stages, whether it's Basic, Intermediate, or Advanced Vocational Education. In Basic Vocational Education, many students don't know what they want to do and have struggled in earlier schooling." Or, in another similar voice: "This year I had a student who ended up in their fifth-choice program. Whatever this student's calling might be; they have to study this."

Finally, a direct causal relationship is established between motivation and not only dropout prevention but also emotional well-being: "On the other hand, students who enjoy what they do—everyone who finishes the second year is very happy."

Hence, teachers highlight the importance of academic guidance and teaching practices that foster student motivation, linking it to the prevention of early school leaving and the promotion of students' emotional well-being.

4 Discussion and Conclusions

The objective of this research is to analyze and describe the teaching styles and sense of self-efficacy among VET teachers, to better understand how they operate and, consequently, design targeted measures to reduce dropout rates in these academic pathways. To achieve this, we analyzed both quantitative and qualitative data.

Regarding the quantitative data, on the one hand, the descriptive analysis of teachers' sense of self-efficacy has allowed us to observe that teachers have confidence in their abilities. On the other hand, the analysis of teaching styles reveals that teachers score higher in the autonomy support and structure style and lower in control and chaos. When comparing teaching styles, we observe that teachers show a greater predisposition towards structured styles compared to autonomy support styles, and a greater inclination towards controlling styles compared to chaotic ones. Given the high levels of self-efficacy, future interventions should focus on working with teachers to help shift their predisposition towards structured styles to ones that foster student autonomy support, thus promoting intrinsic motivation and greater personal fulfillment.

The results presented here align with existing research on secondary education dropout, showing that students' self-determined motivation influences both their intentions to continue studying and their academic performance (Hardre & Reeve, 2003; Vallerand & Bissonette, 1992; Vallerand et al., 1997). From this perspective, factors such as excessive control or a perception of incompetence negatively affect students' motivation, whereas opportunities for choice or recognition have a positive impact on intrinsic motivation and on perceptions of autonomy and competence (Ryan & Deci, 2017). In this regard, the findings indicate that a lack of genuine vocation or passion for one's field of study affects student motivation, underscoring the importance of fostering personal interests and abilities when choosing a career path.

Within this context, it is important to highlight how teaching styles and pedagogical practices shape educational outcomes and that a teacher's motivational style is reflected in classroom instruction (Aelterman et al., 2019; Berger & Girardet, 2016; Cheon & Reeve, 2015; Kember et al., 2009). This suggests that motivation can improve through the development of active teaching strategies, which aligns with the idea that satisfying basic needs such as autonomy, competence, and relatedness is pivotal for intrinsic motivation. Additionally, it was noted that motivated students achieve better results, further reinforcing the idea that intrinsic motivation is linked to academic performance.

Regarding the relationship between teachers and students, the study highlights the connection between this rapport and students' motivation, affirming that there is a strong correlation between the quality of the relationship and students' academic outcomes (Hofmann et al., 2021). Participants stated that in Basic Vocational Education, a highly rewarding bond can be established, focusing on personal aspects that help students stay motivated and prepare for the labor market. Meanwhile, in Intermediate Vocational Education, the focus tends to shift more toward a professional relationship.

Concerning student autonomy and competencies, the findings underscore the need to foster learners' autonomy and competence as a critical factor in promoting intrinsic motivation. Encouraging the development of autonomy and an awareness of one's competence level can help students take greater responsibility for their own progress, which may enhance their sense of control and improve the self-regulation of their learning processes.

In conclusion, the study's findings have significant implications for educational policy and practice, emphasizing the key factors that contribute to improving educational quality and, consequently, reducing dropout rates in vocational education. Nevertheless, despite the relevance of this topic, there remains a lack of research in the field of vocational education specifically focused on student motivation and early dropout.

References

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215. https://doi.org/10.1037/0033-295X.84.2.191.

Berger, J.L., & Girardet, C. (2016). Les croyances des enseignants sur la gestion de la classe et la promotion de l'engagement des élèves: articulations aux pratiques enseignantes et évolution par la formation pédagogique. *Revue Française de Pédagogie, 196,* 129-154. https://doi.org/10.4000/rfp.5099.

Cedefop (2016). Leaving education early: putting vocational education and training centre stage.volume I: investigating causes and extent. Publications Office. Cedefop research paper.

Elliott, J. (1990). La investigación-acción en educación. Morata.

Flick, U. (2004). Introducción a la investigación cualitativa. Morata.

Froiland, J. M., & Worrell, F. C. (2016). Intrinsic motivation, learning goals, engagement, and achievement in a diverse high school. *Psychology in the Schools, 53*(3), 321-336. https://doi.org/10.1002/pits.21901.

Girardet, C. & Berger, J.-L. (2017). Facing student disengagement: vocational teachers' evolution of their classroom management. *Journal for Educational Research Online, 9,* 114–140. https://doi.org/10.25656/01:15304.

Gottfried, A. E., Gottfried, A. W., Morris, P., & Cook, C. (2008). Low academic intrinsic motivation as a risk factor for adverse educational outcomes: A longitudinal study from early childhood intrinsic and extrinsic motivation, and achievement through early adulthood. In C. Hudley & A. E. Gottfried (Eds.), *Academic motivation and the culture of schooling* (pp. 36–39). Oxford University Press.

Hofmann, C., Häfeli, K., Müller, X., & Krauss, A. (2021). Transition from low-threshold vocational education and training to work in switzerland: factors influencing objective and subjective career success. *International Journal for Research in Vocational Education and Training, 8(2), 136-159*. https://doi.org/10.13152/IJR-VET.8.2.1.

Kember, D., Ho, A., & Hong, C. (2009). Characterising a teaching and learning environment capable of motivating students learning. *Learning Environments Research, 13,* 43-57. https://doi.org/10.1007/s10984-009-9065-8.

Klaeijsen, A., Vermeulen, M., & Martens, R. (2018). Teachers' innovative behaviour: the importance of basic psychological need satisfaction, intrinsic motivation, and occupational self-efficacy. *Scandinavian Journal of Educational Research, 62*(5), 769–782. https://doi.org/10.1080/00313831.2017.1306803.

Marshall, G., Kiffin-Petersen, S., & Soutar, G. (2012). The influence personality and leader behaviours have on teacher self-leadership in vocational colleges. *Educational Management Administration and Leadership, 40*(6), 707–723. https://doi.org/10.1177/1741143212456910.

Meristo, M., & Eisenschmidt, E. (2014). Novice teachers' perceptions of school climate and self-efficacy. *International Journal of Educational Research, 67,* 1–10. https://doi.org/10.1016/j.ijer.2014.04.003.

Ministry of Education, Vocational Training and Sports. (2024a). *Sistema estatal de indicadores de la educación 2024.* Instituto Nacional de Evaluación Educativa. https://www.libreria.educacion.gob.es/libro/sistema-estatal-de-indicadores-de-la-educacion-2024_184480/.

Ministry of Education, Vocational Training and Sports. (2024b). *Enseñanzas no universitarias. Formación Profesional. Curso 2022-2023*. Nota resumen [Archivo PDF]. https://www.educacionfpydeportes.gob.es/servicios-al-ciudadano/estadisticas/no-universitaria/alumnado/fp/cursos/2022-2023.html.

Reeve, J. (2012). A self-determination theory perspective on student engagement. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 149–172). Springer.

Runhaar, P., Sanders, K., & Yang, H. (2010). Stimulating teachers' reflection and feedback asking: an interplay of self-efficacy, learning goal orientation, and transformational leadership. *Teaching and Teacher Education, 26*(5), 1154–1161. https://doi.org/10.1016/j.tate.2010.02.011.

Ryan, R. M., & Deci, E. L. (2017). Self-determination theory: Basic psychological needs in motivation, development and wellness (1st ed.). Guilford Press.

Salvà-Mut, F., Sureda-Negre, J., Calvo-Sastre, A., & Oliver-Trobat, M.F. (2019). Educació i formació. A CES-UIB. 2030 Estudi sobre la prospectiva Econòmica, Social i Mediambiental de les Illes Balears a l'Horitzó 2030 (H2030). Consell Econòmic i Social de les Illes Balears. http://www.caib.es/sites/ces/ca/n/estudi_sobre_la_prospectiva_economica_social_i_mediambiental_de_les_societats_de_les_illes_balears_a_lahoritza_2030_h2030/?mcont=51.

Taylor, G., Jungert, T., Mageau, G.A., Schattke, K., Dedic, H., Rosenfield, S., & Koestner, R. (2014). A self-determination theory approach to predicting school achievement over time: the unique role of intrinsic motivation. *Contemporary Educational Psychology, 39*(4), 342-358. https://doi.org/10.1016/j.cedpsych.2014.08.002.

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). *Teachers' sense of efficacy scale.* Ohio State University.

Vallerand, R.J., & Bissonnette, R. (1992). Intrinsic, extrinsic, and motivational styles as predictors of behavior: a prospective study. *Journal of Personality, 60*(3), 599-620. https://doi.org/10.1111/j.1467-6494.1992.tb00922.x.

Vallerand, R.J., Fortier, M.S., & Guay, F. (1997). Self-determination and persistence in a real-life setting: toward a motivational model of high school dropout. *Journal of Personality and Social Psychology, 72*(5), 1161-1176. https://doi.org/10.1037/0022-3514.72.5.1161.

Zhou, N., Tigelaar, D., & Admiraal, W. (2022). The relationship between vocational teachers' motivational beliefs and their engagement in work placement. *Journal of Vocational Education and Training, 76*(3), 664–683.https://doi.org/10.1080/13636820.2022.2066560.

Biographical Notes

Dr Carme Pinya Medina is a professor in the Department of Applied Pedagogy and Educational Psychology at the University of the Balearic Islands and a member of LabVET. She is currently the First Vice Dean of Innovation and the 2030 Agenda. Additionally, she has participated in various projects related to teacher training and educational innovation.

Dr Carlos Vecina-Merchante is a professor in the Department of Applied Pedagogy and Educational Psychology at the University of the Balearic Islands and a member of LabVET. His research focuses on community development and intervention, teaching and educational roles, immigration, and social inequality. He has participated in various projects related to these topics.

Dr Júlia Vilasís-Pamos, Assistant Professor in the Department of Applied Pedagogy and Psychology of Education at the University of the Balearic Islands and a member of LabVET. Her main lines of research include studies on video games, youth, digital divide, new labor imaginaries, and anti-school discourse.

Dr María Tugores-Ques is a senior university lecturer in the Department of Applied Economics at the University of the Balearic Islands and a member of LabVET. Her research focuses on applied economics, teacher training and professional development. She has participated in various projects related to these topics.

VET From Non-VET Providers. How Can NGOs Help to Close the Vocational Training Gap for Disadvantaged Learners in Europe?

Pittrof, Tessa Pia
tessa.pittrof@3s.co.at, 3s research & consulting GmbH, Vienna

Markowitsch, Jörg
joerg.markowitsch@3s.co.at, 3s research & consulting GmbH, Vienna

Scharle, Ágota
agota.scharle@budapestinstitute.eu, Budapest Institute, Hungary

Steinheimer, Eva
eva.steinheimer@3s.co.at, 3s research & consulting GmbH, Vienna

Abstract

Context: This paper explores the contributions of non-profit, non-governmental organisations (NGOs), towards the inclusion of vulnerable and socially disadvantaged groups through education and training in three country cases with three different intervention types.

Approach: This paper employs a mixed-methods approach, integrating a literature review, semi-structured expert interviews for case study development, and an online survey.

Findings: NGOs can provide flexible, needs-based training for marginalised groups increasing opportunities for upskilling and reskilling in an evolving labour market. Their strong social networks enable them to engage hard-to-reach groups, while decentralized, locally adapted models showcase their ability to address diverse regional needs effectively. However, persistent challenges include securing employer engagement, ensuring formal recognition of qualifications, and navigating complex and often unstable funding structures, which particularly impact smaller NGOs.

Conclusions: NGOs have gradually become key players in the European vocational education and training (VET) landscape, though they still account for only about 1% of total training provision. Their ability to offer flexible, tailored training programmes makes them valuable partners in addressing skills gaps and labour market challenges, especially for socially disadvantaged groups. However, significant obstacles remain such as financial instability, regulatory barriers, and limited collaboration with employers. As Europe faces ongoing demographic, economic, and technological shifts, NGOs will continue to play a crucial role in providing training and education for the most marginalised communities. Their long-term impact, however, will depend on strong policy support, sustainable funding, and greater integration into national qualification frameworks.

Keywords

socially disadvantaged, access to education and training, non-governmental organisations, third sector

1   Introduction

This paper explores the evolving role of non-governmental organisations (NGOs) in vocational education and training (VET) systems in supporting socially disadvantaged groups in Europe. It examines their contributions in offering initial vocational training, continuing vocational education, and adult learning, focusing on their impact on marginalised populations.

Labour markets have become much more inclusive over the past decades, offering more opportunity to groups traditionally underrepresented in the primary labour market, such as women, people with disabilities, older workers, migrants or refugees and individuals not in education, employment or training (NEET). At the same time, globalisation, accelerating technological change, new forms of work, and most recently, the transition towards a greener and digitalised economy, have greatly increased the volatility of labour markets and created new risks and demands for jobseekers, often implying the need for adaptation and continuous learning throughout life.

While economic and demographic changes may have evolved at a different pace across European countries, the nature of these new demands and the rising share of new risk groups in the population has been commonly observed. Vulnerable or disadvantaged jobseekers often face multiple barriers to employment, such as low skills, care responsibilities, addiction, health limitations, or housing deprivation. This implies that they often need a personalised combination of several services, more attention and effort compared to the 'typical client' that e.g. public-employment services were traditionally designed for.

In many European countries, NGOs have been seen to try fill this gap with an increasingly offer of formal or non-formal VET. Over the past two decades, there has been a notable rise in NGOs stake in delivering VET programmes or forms of education and training, both for young and adult participants.

2   Methodology, Scope and Definitions

This paper is based on the study *The Role of NGOs in Up- and Reskilling: Exploring ESF+ Supported Initiatives in Austria, Italy, Slovenia, and Spain* (Markowitsch et al., 2025).

A mixed-methods-approach was applied, consisting of literature review, case studies with expert interviews and a survey conducted among members of the European Social Fund+ Community of Practice on Employment, Education and Skills (ESF+ COP EES) to gather information from other Member States. This paper will include three types of interventions across three EU countries, one intervention per country, of the initial study. Furthermore, the study analysed the Social Innovation Match (SIM)[1,2] database, which contains over 200 cases, along with other data collections, to identify innovative training practices involving NGOs.

When deciding on the case study countries and interventions, several parameters were considered in order to narrow down the selection, including the type and focus of VET system, country size and demographic representation (of different European regions). The decision was made to concentrate on Austria with the intervention of adult basic education, Work Integration Social Enterprises (WISE) in Spain, and Salesian VET centres for NEETs in Italy.

The following definitions are applied to conceptualize re-occurring notions throughout this paper: The notion of vulnerable or socially **disadvantaged** groups will be used in this research to include individuals that experience a higher risk of poverty, social exclusion and discrimination than the general population (Cedefop, 2020a).

---

[1]   which due to scope limitations will not be included in this paper
[2]   https://european-social-fund-plus.ec.europa.eu/en/social-innovation-match

Non-governmental organisations (NGOs)[3] will include any non-profit group organised on a local, national or international level that perform a variety of service and humanitarian functions around specific topics (United Nations, 2003). NGOs are usually organisations operating outside public administration, concentrated on mission-based activities (e.g. social or environmental issues). Most NGOs are not directly state-funded, nor do they partake in the legitimacy of public administration. They operate independently of state governance but are widely recognised as key partners in implementing public policies and contributing to the third sector. They however often receive significant public funding (and are often heavily reliant on it). This research concentrates on non-profit organisations with social missions and a training component, however not as their sole purpose.

3 Non-formal Training Provider Landscape in Austria, Italy and Spain

Across all three case study countries, non-formal education and training providers consistently emerge as the most significant providers of employer-sponsored training, second only to employers themselves[4]. In contrast, non-profit associations play a relatively minor role, accounting for approximately 1% or less of total training provision in Austria, Italy and Spain (Cedefop, 2015; Hefler & Studená, 2023; Markowitsch et al., 20 3).

Despite their limited overall contribution, these associations—alongside trade unions, employers' organisations, and other entities—form part of the broader landscape of non-formal education and training providers, often focusing disproportionately on disadvantaged groups.

A closer comparison between the four countries reveals notable differences. In Austria, the share of non-profit organisations involved in training is higher than in Italy and Spain: 1.9 % in Austria, 0.6 % in Italy and 0.8 % in Spain when looked at the number of hours of education and training per adult broken down in non-formal education and sub-type of provider in the case of non-profit associations (job related training employer and non-employer sponsored) (Molyneux et al., 2020). While in Spain, formal educational institutions such as vocational schools and universities play a more substantial role in non-formal vocational education, their influence is notably less pronounced in Austria and Italy. Austria's relatively high proportion of non-formal education institutions providing non-employer-sponsored training may reflect the extent to which active labour market policies invest in training initiatives. Consequently, the capacity to identify emerging trends and best practices in vocational education and training (VET) and adult education—particularly for socially disadvantaged groups—varies significantly across Member States. NGOs and non-profit education providers often step in to fill gaps left by public education and training systems, but their impact and visibility differ from country to country.

4 The Role of NGOs in Submitting VET for Disadvantaged Learners

The inclusion of disadvantaged groups through VET has seen a rise in research in recent years (Husny & Fasching, 2022; Jørgensen et al., 2021; Kimmelmann et al., 2022; Ludolph, 2023; Schmid & Garrels, 2022; Ulrich et al., 2022; Zakariás & Al-Awami, 2023). This has included the integration of migrants which has since evolved to a continuous concern, even after the migration reflux of 2015, with Ukrainian refugees seeking aid in neighbouring countries following Russian invasion in 2022. Not only for migrants (seen in Europe in e.g. Austria or Denmark) but for other vulnerable groups it stays volatile to be fully integrated into the

---

[3]   or non-profit associations which will be used synonymously throughout this paper

[4]   Employers remain key sponsors and providers of work-based non-formal education, with the workplace serving as the primary setting for learning. However, their training efforts are typically focused on enhancing labour productivity rather than on facilitating the labour market integration of disadvantaged groups.

workforce (Jørgensen et al., 2021). Studies on the inclusion of youth with disabilities e.g. emphasis systematic barriers, overlapping jurisdictions and lack of incentives complicating the entrance into first labour market (Husny & Fasching, 2022).

While NGOs initially operated on the periphery of education and training systems, they have progressively become a vital complement to non-formal education for disadvantaged learners and jobseekers. Related to skills and employment, NGOs have been particularly active in six key areas:

1. Adult basic education and second-chance programmes
2. Vocational training and apprenticeships
3. Work Integration Social Enterprises
4. Vocational rehabilitation
5. Sheltered workshops
6. Vocational counselling and guidance.[5]

The following sub-chapters will give a short overview of the three cases and NGOs roles in providing forms of training and education for disadvantaged groups.

Austria

The first key area of action focused on in the Austrian case study demonstrated an evolving role in offering specialised educational programmes combined with social support services that reach people who are often excluded from traditional education and whose education is incomplete, such as refugees, migrants and generally individuals with low formal qualifications. One positive example is the *Level Up – Adult Education* initiative launched in 2011 through a collaboration between the Austrian government, regional authorities, and adult education experts and since provides literacy and basic skills courses, as well as preparatory programmes for obtaining a school-leaving. It includes 53 providers that offer courses under their framework.

The historical underfunding and -development of adult basic education in Austria, combined with the challenges posed by migration and the demands of the labour market, formed the basis for initiatives such as 'Level Up', which relies on NGOs to provide tailor-made educational solutions (Level Up - Erwachsenenbildung, 2024). Under 'Level Up' organisations receive funding for adult education activities. Since co-funded by European Social Fund (ESF) in 2015, the impact and reach of the measure could further be enhanced. One positive example under the 'Level Up' umbrella is the organisation ISOP which started in the 1990s as a small NGO with fewer than ten employees and is now offering German courses for migrants and has developed into a professional organisation with around 200 employees. And in 2024, around a third (17%) of all providers under 'Level Up' are based in the fields of migration and refugee assistance, with almost half of these organisations targeting women. Around 20 % of providers have a background in social work or youth social work.

The involvement of NGOs in adult basic education in Austria has expanded considerably over the last decades due to national policy on the one side but also the influence of European funding, particularly through the ESF. NGOs have since proven to be important actors in meeting the educational needs of vulnerable and marginalised groups, especially migrants, refugees or individuals with low formal education in Austria. Their capacity to combine educational programmes with social support services allows them to reach groups that are often hard to

---

[5]   The discussed case studies in this paper focus on selection of these interventions as including all would necessitate a separate study

engage through traditional educational pathways and gives marginalised groups the opportunity of social networks and integration.

Italy

Italy remains to have one of the EU's highest rates of youth not in employment, education or training (NEET), with nearly one in five youngsters not engaged in employment or education (Eurostat, 2024). Vocational training for NEETs outside the regular education system arose three to four decades ago from this persistent youth unemployment and their social exclusion in Italy. These training providers were organisations that focused on offering alternatives for young people who had problems in the regular education system, often developed by private organisations and NGOs with social mission, using diverse outreach mechanisms to better address NEETs.

Salesian VET centres in Italy emerged, providing secondary education that has managed to meet the needs of the various local labour markets while ensuring formal qualifications that demonstrate students' skills. The case study examined *CNOS-FAP Federation, the National Centre of Salesian Works*, part of Don Bosco Italia, a non-profit organisation specialising in vocational education and training services for disadvantaged youth (CNOS-FAP, 2024a). At the federation the structure and content of the training programmes are aligned with regional regulations, differing across Italy. Training pathways are tailored, address individual education needs and are available for vulnerable and disadvantaged learners. Data from the 63 vocational training centres of CNOS-FAP in 16 Italian regions underscores the success of the programme: In 2024, only 5.4% of their graduates remain NEET, while 41.9% have entered the labour market and 51.2% will continue their training. Due to structured vocational training courses tailored to the needs of the labour market, active cooperation with employers through internships, continuous professional development of trainers and practical learning through internships and apprenticeships the federation has been successfully integrated youth NEETs and many of them find employment with their internship employers, highlighting the effectiveness of the initiative (CNOS-FAP, 2024b).

In this, VET centres have illustrated a structured and targeted approach to vocational training that ensures a smooth transition into employment or further education, an example of the potential of well-integrated, non-traditional education models to support vulnerable groups through customised training initiatives.

Spain

Due to lower welfare spending and less developed state-provided social services compared to other Western European countries, NGOs—particularly Work Integration Social Enterprises (WISEs)—have stepped in to address gaps in employability and social inclusion in Spain (Galera et al., 2022). WISEs provide education and training as well as social inclusion by employing individuals for up to three years, preparing them for transition into the mainstream labour market (Marhuenda-Fluixá, 2021). They often provide low-skilled jobs and pathways to recognized vocational qualifications.

They have played an increasingly important role in Spain's labour market as enterprises hiring individuals out of social exclusion (Fundación Secretariado Gitano, 2024; Marhuenda-Fluixá, 2018). They have shown to effectively combine structured and informal learning within practical work environments, providing hands-on training and personalized support that enhance both social cohesion and professional development. Their ability to tailor work-based learning to the needs of marginalised groups makes them a crucial bridge for inclusion of disadvantaged groups.

Through a hybrid model and being part of the social economy, WISEs generally integrate partial for-profit activities to enhance financial sustainability. Nonetheless, this dual role—combining educational aims with economic sustainability—poses ongoing challenges (Palomares-Montero et al., 2022). WISEs operate under social economy principles, often prioritising social goals, yet they must also remain competitive in a market-driven environment. This tension can place strain on their educational mission, especially when economic pressures take precedence. The funding landscape therefore remains unstable, with WISEs heavily reliant on (private and) public subsidies.

One prominent example of a successful approach is 'Acceder', an employment programme concentrated on vocational training, job search and guidance under the Fundación Secretariado Gitano which employs three WISE (Fundación Secretariado Gitano, 2024). Acceder's WISE concentrate on the Roma community, who face disproportionately high levels of unemployment and social exclusion and who are often overlooked by state-run programmes in Spain (Fundación Secretariado Gitano, 2024). They have shown over the years, that an ability to deliver tailored work-based learning and in-company training, is key in addressing the needs of vulnerable populations and traditionally marginalised groups.

Despite structural and financial constraints, social enterprises in Spain have shown that with their flexibility and proximity to vulnerable groups, they fill a gap in the integration of disadvantaged groups into vocational training and society. Moving forward, the sustainability and scalability of this will depend on continued policy support and funding, stronger cross-sectoral partnerships, and a regulatory environment that facilitates training accreditation without compromising mission integrity.

5 Challenges and Potentials for NGOs in Training

The study showed that in all three cases, initiatives helped bridge gaps in training provision for disadvantaged groups, a challenge that has grown over the last three decades due to increasingly fragmented labour markets and the push for greater inclusivity in VET and adult education. In this context, NGOs have, in many cases, become indispensable components of vocational and adult education systems, even though NGOs' contributions are often not formally recognised as vocational training. Which will be leading to the challenges (and potentials) presented for NGOs when trying to help close the education and training gap for disadvantaged learners in Europe.

Non-profit organisations that provide training often cater to individuals who face barriers to accessing mainstream education and training. Unlike traditional VET providers, the case studies have shown that NGOs frequently adopt a more flexible and needs-based approach, tailoring their programmes to address the specific challenges of their target groups, with their training initiatives frequently leading to level 3 or 4 qualifications under ISCED and EQF, helping participants gain recognized credentials that improve their employability. The initiatives in question have been particularly effective in integrating migrants and low-skilled workers into the labour market.

Through an ability to build strong social networks they can connect with hard-to-reach groups, evident in the case of Austria and Spain where personalised contact plays a vital role in effective engagement. Similarly, the intervention in Italy of Salesian VET-centres demonstrated benefits of a decentralised model, with strategic distribution of the centres and addressing diverse regional challenges through tailored approaches in alignment with local needs. NGOs seem to have further potential in their adaptability, flexibility and responsiveness regarding challenges like migration flows or economic crisis. NGOs may also lower service costs by developing methodologies that rely on voluntary work.

A capacity to act as intermediaries between disadvantaged jobseekers and employers willing to offer training placements, seen in Italy, as well as public funders, private enterprises and

beneficiaries can give NGOs a unique role in bridging gaps and ensuring that resources and opportunities reach those most in need, seen in Austria. Spanish WISE initiatives exemplify this by combining training with social assistance, fostering social cohesion and inclusion. Similarly, the Salesian model in Italy demonstrated how integrating vocational training with shared values and social support can create environments that promote both personal and professional growth.

NGOs can act as drivers of innovation in education, developing tailored approaches to meet the specific needs of marginalised groups, seen in the Austrian case through possibilities in providing context-sensitive basic skills training, while hybrid models like WISE integrate non-profit and for-profit activities to enhance financial sustainability. Which ultimately offers them resilience during (financial) crises, highlighting their ability to sustain operations and continue supporting vulnerable populations despite economic challenges. This adaptability, combined with organisational diversity and a commitment to shared values, underscores the vital role of NGOs in making education more accessible and inclusive, strengthening social cohesion, influencing labour market outcomes across Europe.

However, challenges remain in issues like securing employer engagement and ensuring that training leads to sustainable employment opportunities and formal recognition, as vocational training credentials are often enough not formally recognised.

Regulatory complexities further restrict access to public funds, seen in the case of Spain. Funding can as well as being a potential quite certainly act as a challenge, with economic uncertainty and shifts in e.g. reduced contributions through economic crises, a general instability and inefficiency in funding and demand for services is brought upon the nature of most NGOs depending on different funding agencies, being national or regional authorities as well as voluntary funders. If non-stable funding is at the core, competition is made harder especially with larger and public institutions. To ensure equitable funding access and establishing strong collaboration to secure long-term viability are therefore a re-occurring concern for most (smaller) non-traditional training providers in the realm of non-profit organisations.

6 Conclusion

The paper took on the topic of non-traditional training providers in the case of NGOs and their potential to aid close the gap in delivering vocational training and educational activities in Europe (exemplary in Austria, Italy and Spain) for disadvantaged groups. It became visible that NGOs have emerged as a small yet significant actor in promoting inclusion and integration playing however a relatively minor role when looked at the provision of education and training in Europe, particularly in comparison to employers. NGOs can address social and educational inequalities that are often difficult to support for other providers, shown through the case study examples as well as good practice examples drawn from the SIM database.

In some European countries, NGOs have become indispensable providers of initial vocational training, continuing education, and adult learning, particularly for groups with displacement or migration background (especially seen in the case of Spain and Austria). This role has grown in significance, with some NGOs even offering formal VET qualifications in certain contexts (seen in Italians VET centres provided by Salesians). Their influence is expected to continue increasing, provided public funding for social and employment policies remains stable. The Spanish case highlights NGOs' vital role in the national VET landscape, shifting from social support to formal vocational training that combines skill development with work experience. These developments have blurred the boundaries between formal and non-formal VET, as well as between publicly and privately organised provision, contributing to the overall 'opening up' of vocational education and training systems (Cedefop, 2020b; Eigenmann et al., 2021). Furthermore, NGO's specific approach to education has provided an innovative impetus for the

mainstream school system. For instance, the flexibility, personalisation, and practical skills acquisition emphasised by WISE have been adopted by other VET providers in Spain.

7   Limitations and Outlook

While given research around this paper provides valuable insights into the role of NGOs in VET and education and training programmes, several limitations must be acknowledged. The availability of data varies across countries, making cross-national comparisons challenging and no possibility of a systematic overview. Additionally, the effectiveness of NGO-led training programmes is often difficult to measure due to differences in evaluation methods and reporting standards. Further research is needed to assess the long-term employment outcomes of participants and to explore how NGO-led training can be better integrated into national VET policies. Despite these limitations, the study highlights the growing importance of NGOs in delivering inclusive and flexible vocational education, underscoring the need for continued policy support.

NGOs have become increasingly important players in the European VET landscape, particularly in supporting socially disadvantaged groups. Their ability to offer flexible, tailored training programmes has made them valuable partners in addressing skills gaps and labour market challenges. However, financial instability, regulatory barriers, and difficulties in employer cooperation remain key obstacles. As Europe faces ongoing economic and technological shifts, NGOs will continue to play a critical role in vocational education, but their long-term impact will depend on policy support, sustainable funding, and stronger inclusion into national qualification frameworks.

To address these limitations, future research could explore how a more systematic and comprehensive overview of NGO involvement in vocational education and training in Europe can be achieved. This includes exploring what additional resources are needed to improve data collection on NGO-led VET programmes, particularly in a wider range of European countries and especially Eastern European. It might be crucial to explore how cross-country data collection can be improved to mitigate national limitations. Finally, continuous focus on innovative practices such as training provided through non-profit organisations could further enhance long-term impacts, find solutions to said challenges and help integrate the most marginalised not only into the labour market but into European society.

References

Cedefop. (2015). *Job-related adult learning and continuing vocational training in Europe: A statistical picture.* Cedefop Research Paper, No. 48. Publications Office of the European Union. https://doi.org/10.2801/392276

Cedefop. (2020a). *Terminology of European education and training policy: Disadvantaged group / vulnerable group / group at risk.* Retrieved 17.02.2025 from https://www.cedefop.europa.eu/en/tools/vet-glossary/glossary/achterstandsgroep-kansarme-groep-kwetsbare-groep-risicogroep

Cedefop. (2020b). Vocational education and training in Europe, 1995-2035: scenarios for European vocational education and training in the 21st century. (Cedefop reference series, Issue. http://data.europa.eu/doi/10.2801/794471

CNOS-FAP. (2024a). *CNOS-FAP Transparency Reports.* Retrieved 17.01.2025 from https://www.cnos-fap.it/trasparenza-e-pubblicita

CNOS-FAP. (2024b). *Salesiani per la Formazione Professionale.* Retrieved 13.01.2025 from https://www.cnos-fap.it/en/en-home-page

Eigenmann, P., Gonon, P., & Weil, M. (2021). *Opening and extending vocational education.* (Vol. 18). Peter Lang.

Eurostat. (2024). *Statistics on young people neither in employment nor in education or training.* Retrieved 17.10.2024 from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Statistics_on_young_people_neither_in_employment_nor_in_education_or_training

Fundación Secretariado Gitano. (2024). *Work Integration Social Enterprises.* Retrieved 10.01.2025 from https://www.gitanos.org/que-hacemos/areas/employment/acceder_empresas_insercion.html

Galera, G., Carini, B., Franchini, G. A., Signoretti, A., Bossuyt, L., Messely, L., Belafatti, F., Bezzina, L., García, J. J., Moder, C., & Baturina D. (2022). *Report on trends and challenges for work integration social enterprises (WISEs) in Europe. Current situation of skills gaps, especially in the digital area.* EURICSE (European

Research Institute on Cooperative and Social Enterprises). https://euricse.eu/en/publications/report-on-trends-and-challenges-for-work-integration-social-enterprises-wises-in-europe-current-situation-of-skills-gaps-especially-in-the-digital-area/

Hefler, G., & Studená, I. (2023). The interplay of organisational and individual bounded agency in workplace learning: A framework approach. In J. Holford, P. Boyadjieva, S. Clancy, G. Hefler, & I. Studená (Eds.), *Lifelong Learning, Young Adults and the Challenges of Disadvantage in Europe* (pp. 247-271). Springer International Publishing. https://doi.org/10.1007/978-3-031-14109-6

Husny, M., & Fasching, H. (2022). The consulting of executive practitioners in participative cooperation: how professionals view the inclusive transition process of youths with disabilities in Austria. *European Journal of Special Needs Education*, *37*(2), 206-219. https://doi.org/10.1080/08856257.2020.1862338

Jørgensen, C. H., Hautz, H., & Li, J. (2021). The role of vocational education and training in the integration of refugees in Austria, Denmark and Germany. *International journal for research in vocational education and training*, *8*(3), 276-299. https://doi.org/10.13152/IJRVET.8.3.2

Kimmelmann, N., Miesera, S., Moser, D., & Maag, S. P. (2022). Inclusion for all in VET? A comparative overview of policies and state of research about migration, integration and inclusion in Germany, Austria and Switzerland. In L. Moreno Herrera, M. Teräs, P. Gougoulakis, & J. Kontio (Eds.), *Migration and Inclusion in Work Life - The Role of VET. Emerging Issues in Research on Vocational Education & Training Vol.7* (pp. 117-165). Atlas Akademi.

Level Up - Erwachsenenbildung. (2024). Programmplanungsdokument Level Up - Erwachsenenbildung. Länder-Bund-Programm zur Förderung von Bildungsmaßnahmen im Bereich Basisbildung und zum Nachholen des Pflichtschulabschlusses. 2024 – 2028. Draft version. https://www.levelup-erwachsenenbildung.at/DOWN-LOADS/PPD_2024-2028_Entwurf_V31_LevelUp.pdf

Ludolph, L. (2023). The value of formal host-country education for the labour market position of refugees: Evidence from Austria *Economics of Education Review*, *92*, 102-334. https://doi.org/10.1016/j.econedurev.2022.102334

Marhuenda-Fluixá, F. (2018). Learning at work: Researching personal development and competence building in work integration companies. *Educar*, *54*(2), 491-509.

Marhuenda-Fluixá, F. (2021). Apprenticeship for Adulthood: The Contribution of the Third Sector to Non-Formal Vocational Education. In P. Eigenmann, P. Gonon, & M. Weil (Eds.), *Opening and Extending Vocational Education. Studies in Vocational and Continuing Education* (Vol. 18). Peter Lang.

Markowitsch, J., Käpplinger, B., & Hefler, G. (2013). Firm-provided training in Europe and the limits of national skills strategies. *European Journal of Education*, *48*(2), 281-291.

Markowitsch, J., Scharle, Á., & Csillag, M. (2025). *The Role of NGOs in Up- and Reskilling: Exploring ESF+ Supported Initiatives in Austria, Italy, Slovenia, and Spain*. Brussels: European Commission. https://social-innovationplus.eu/app/uploads/2025/02/2025-CoP-EES-Study-on-the-Role-of-NGOs-in-Up-and-Re-skilling-FINAL.pdf

Molyneux, J., Cutmore, M., & Biundo, I. (2020). Adult learning statistical synthesis report - A synthesis report drawing on statistical data relating to participation in, and the financing of adult learning in the European Member States. Brussels: Publications Office of the European Union. https://doi.org/10.2767/183669

Palomares-Montero, D., Chisvert-Tarazona, M. J., & Ros-Garrido, A. (2022). Work integration social enterprises as promoters of knowledge and workplace learning: three cases in the waste collection sector. *International Journal of Knowledge and Learning*, *15*(3), 274-291. https://doi.org/10.1504/IJKL.2022.123962

Schmid, E., & Garrels, V. (2022). Inclusion in vocational education and training (VET). *Nordic Journal of Comparative and International Education*, *6*(3), 1-7. https://doi.org/10.7577/njcie.5073

Ulrich, A., Conrads, R., & Freiling, T. (2022). Assisted Vocational Training in Germany: Individual Support for Disadvantaged Young People in their Transition to Vocational Training. *Nordic Journal of Transitions, Careers & Guidance*, *3*(1), 43–52. https://doi.org/10.16993/njtcg.52

United Nations. (2003). *Handbook on Non-Profit Institutions in the System of National Accounts.* New York: Department of Economic and Social Affairs.

Zakariás, I., & Al-Awami, N. (2023). Adult Migrants' Language Training in Austria: The Role of Central and Eastern European Teachers. *Social Inclusion*, *11*(4), 69-79. https://doi.org/10.17645/si.v11i4.7220

Biographical Notes

Tessa Pia Pittrof, junior researcher at 3s, focuses in her work on EU projects and minorities as well as disadvantaged groups. She contributed to evaluation studies of ESF+, EU-tender consultations and is involved in the DG EMPL Pact for Skills Support Services as well as a larger Horizon Europe project, Skills2Capabilities.

Jörg Markowitsch is a co-founder of 3s, researcher and international policy adviser for vocational training and adult learning. He has been working as team leader or senior expert for over 20 years and is currently contracted as lead expert for the ESF+ CoP for Employment Education and Skills (EES).

Ágota Scharle is a founding partner and senior researcher at the Budapest Institute for Policy Analysis where her areas of work include impact evaluation and design of social policy and active labour market policies. She has led projects commissioned by DG EMPL, the OECD and the ILO and is currently contracted as lead expert for the ESF+ CoP EES.

Mag.a Eva Steinheimer is a senior researcher at 3s. Since 2017, she has been working at 3s in national and international research projects on lifelong learning, workplace learning and adult education policies.

Apprenticeships in England – Initial or Continuing VET?

Pullen, Charlynne

c.pullen@shu.ac.uk, Sheffield Hallam University

Abstract

Context: Initial Vocational Education and Training (IVET) and Continuing Vocational Education and Training (CVET) are useful ways to categorise vocational education and training (VET) in many countries, helpful to identify the purpose and appropriateness of different programmes for different types of learners. This paper aims to consider whether the IVET and CVET distinctions are useful in England, both in terms of policy implementation and political rhetoric, and what lessons that might hold for a range of countries.

Approach: The paper uses a triangulation approach, bringing together government data and reports on the design and implementation of the policy, political rhetoric from Education and Skills Ministers, and interviews with staff supporting the recruitment of degree apprentices in two universities. This approach allows for the mapping of apprenticeships in England to international IVET and CVET definitions, in terms of delivery and political rhetoric.

Findings: We find that apprenticeships in England in general can be mapped to either IVET or CVET. The political rhetoric around apprenticeships has considered them to be IVET at their core. The interviews suggest that individuals recruiting and supporting apprentices focus their activities on young people, as though IVET was the main focus, but find that apprentices are a range of ages with different prior qualifications and levels of work experience.

Conclusion: Although the delivery and implementation of apprenticeships in England is relevant to both IVET and CVET, the political rhetoric and societal perception of apprenticeships is that they are solely for young people and fit the definition of IVET. This creates a mismatch whereby some young people and adults could be missing on apprenticeships, while some apprentices may not be getting all the support they need, e.g. due to age. It highlights the importance of being clear on the purpose of apprenticeships for all countries.

Keywords

apprenticeships, vocational education and training, initial vocational education and training, continuing vocational education and training

1 Introduction

Apprenticeships in most countries are considered to be initial vocational education and training (IVET) as they enable young people to transition in the labour market by developing work-relevant skills. Continuing vocational education and training (CVET) is considered to be of shorter duration and intended for adults to upskill or reskill (Cedefop, 2023). However, in England the prevailing perception is that apprenticeships are IVET, while the actual delivery of apprenticeships tends towards CVET. However, if the delivery of English apprenticeships is predominantly CVET, it follows that there is insufficient work-based learning at IVET. This

paper explores this contrasting narrative and delivery of apprenticeships in England. It asks to what extent apprenticeships in England are IVET or CVET, and what this means for the future development of apprenticeships in England and elsewhere if IVET and CVET definitions are blurring. Our exploration contributes to the debate around the purpose and delivery of apprenticeships in England since policy changes over the past decade, through the lens of IVET and CVET.

1.1   IVET and CVET

Different provision for young people and adults to develop work-relevant skills known as IVET and CVET exists in many European countries (Cedefop, 2023). Whilst initially strict boundaries that developed as part of social democratic post-war consensus have blurred over time, IVET is generally considered to be vocational education and training (VET) for those without work experience, or at least without relevant work experience, while CVET is VET for adults and those who have entered the labour market (Cedefop & Tissot, 2014). Definitions can be summarised as follows:

Table 4
Distinctions Between IVET and CVET

Distinction	IVET	CVET
Age	Young (usually under 18)	Adult (usually over 18)
Qualification	Full qualifications	Partial qualifications
Funding	State	Employer or individual
Provider	Public/state schools/colleges	Private schools/colleges/providers
Work experience	Prior to working life	During working life
Type of learning (as defined by UNESCO, 2009)	Formal	Formal or informal
Purpose	Entry to working life	Improve or update knowledge or skills (upskilling); acquire new skills for a move to a different job or career in a different field (reskilling); personal and professional development

Note. Adapted from Cedefop (2023)

As shown above, the related concepts of 'reskilling' and 'upskilling' remain exclusively a pursuit for adults, as CVET. Other disciplines use other definitions for types of education and training, but they can be broadly mapped to IVET and CVET. For example, in human capital theory (Becker, 1993), general education is principally for young people and could include some elements of IVET, while specific training relates to a particular job role for a particular employer (Acemoglu and Pischke, 1999), covering some IVET but mainly CVET.

England, like other English-speaking countries (e.g. Australia as detailed in Circelli and Stanwick, 2020), does not have strict boundaries between IVET and CVET (Winch, 2013). In England, there is a greater focus on language like 'upskilling' and 'reskilling' for adult VET, while most VET for young people is considered to be IVET, and is mostly classroom based, for example T-Levels, a technical qualification specifically for 16–18-year-olds. Apprenticeships, however, sit outside of these definitions.

1.2   Perceptions of English Apprenticeships

In England, apprenticeships are typically defined by government as "a job that requires substantial and sustained training" (BIS, 2013, p.9) or "a real job where individuals earn while

they learn and gain valuable skills and knowledge tailored to a specific role" (IfATE, 2024). These definitions do not specify an age or work experience level and fulfil Becker's notion of specific training. Similarly, these definitions would fit either upskilling or reskilling and could be either IVET or CVET.

However, the cultural understanding of apprenticeships is different. For example, an influential policy report recently defined an apprenticeship as solely being for young people: "The central concept of an apprenticeship is to introduce young people to the world of work, with suitable training and apprenticeship" (Layard et al., 2023). Similarly, Winch et al. (2024) describes apprenticeship in the following way:

> Apprenticeship... is a form of initial vocational education based on the learner (the apprentice) as a junior employee. It serves as part of the transition from compulsory schooling to adulthood through a lengthy structured introduction, not just to the techniques required in an occupation, but also to a broader occupational competence. (Winch et al., 2024 p2)

Both these well-regarded papers highlight the role of apprenticeships specifically for young people entering the workplace for the first time. So, whilst government is clearly neutral in positioning apprenticeships as either IVET or CVET, cultural expectations, as described above often consider apprenticeships in England to be IVET.

2   Research Questions

This paper uses the definitions of IVET and CVET as different types of vocational education and training with different purposes to reflect on the current policy development of English apprenticeships. This framework allows us to look beyond simply age or level of apprenticeships as individual factors and consider the system as a whole. Other framings for apprenticeships include the expansive-restrictive continuum (Fuller and Unwin, 2003), which is comprehensive but focuses more on the content and delivery of the apprenticeship than the system and the perceptions of the system, which are the focus here.

The research questions are:

- To what extent can English apprenticeships be defined as IVET or CVET?
- To what extent does this align with the political and societal narratives about and perceptions of apprenticeships in England?
- How does this relate beyond the English context?

3   Method

The approach to this policy analysis is to triangulate information from government documentation about apprenticeships since 2012, speeches by government ministers and related independent policy reports, and interviews with individuals involved in designing and delivering degree apprenticeships. The year 2012 was chosen as the earliest date for government documentation as three key documents were published in that year that led to a significant response from the government (BIS, 2013) with a raft of policy changes. These are – a Select Committee Report scrutinising the delivery of apprenticeships (BIS, 2012), an independent review undertaken for government by a businessman, Doug Richard ("The Richard Review", 2012) and a report from the government body tasked with assessing value for money (National Audit Office, 2012). Further documents relating to policy changes were reviewed, with additional changes in 2015 that build on the new system, then more recent smaller amendments since 2022. The system which currently exists has been in operation since 2017, with only minor changes made.

We reviewed speeches by government ministers about apprenticeships from 2013 onwards. There has been significant turnover in Education Secretaries since 2012, with 11 individuals having held the post between 2010 and 2025. In 2022 alone there were five different Education Secretaries. Each Education Secretary has a Minister responsible for Skills, although the responsibilities for that Minister have differed since 2012. In that vein, we have focused on speeches from the most prominent holders of either the Education Secretary or Skills Minister role from 2012 until 2025.

Interviews with individuals at two universities working on outreach, recruitment and policy for degree apprenticeships were also included in the triangulation methodology. Both universities have high numbers of degree apprenticeships but differ in terms of overall student numbers, location, and number of courses offered. These online interviews took place in autumn and winter of 2023/4, following ethical guidelines (BERA, 2024). Interviews took place online and were recorded and transcribed. In total, nine interviews took place--seven with university staff and two with relevant policy makers. The interviews included questions on the perceptions of degree apprenticeships amongst young people and their parents, engagement with employers for recruitment, and with schools for outreach.

Additionally, we reviewed secondary data analysis of publicly available data (DfE, 2025) on apprenticeship starts by age, subject, and level, and government reports on apprenticeships, particularly the biannual survey of apprentices and employers (e.g. IFF Research, 2022).

We analysed all these sources comparatively, with reference to the IVET and CVET frameworks set out in Table 1. In particular, we compared perceptions and political statements about apprenticeships with the actual implementation of the apprenticeship system. First, we summarised evidence from the government documents and figures about apprenticeship delivery and mapped to IVET and CVET distinctions. Then, we considered the mapping in the context of political speeches and perceptions, to identify any divergence. Finally, we reflected on how this might create challenges for politicians, individuals, and society.

4 Findings

Since the full implementation of the apprenticeship reforms in 2017, three key phenomena have occurred. Firstly, the total number of individuals completing apprenticeships has fallen, both because the number participating in apprenticeships overall has fallen, and because completion rates decreased. Secondly, adults are increasingly taking higher level apprenticeships. Lastly, the number of 16–18-year-olds taking entry level apprenticeships has dramatically reduced (DfE, 2025). Apprenticeships must be offered by employers, so we can infer that some of these changes are a result of changes in the labour market. We surmise that, on the part of employers, these changes reflect growing demand for higher level skills in those with prior work experience and falling demand young people to be trained to complete lower skilled roles. In Table 2, we map this new characterisation of apprenticeships against the definitions of IVET and CVET.

This mapping highlights that apprenticeships could be categorised as either IVET or CVET in most cases, although for some roles and in some circumstances, having work experience is beneficial, making CVET the most appropriate category in those cases. Whether a specific apprenticeship in England is IVET or CVET can be decided by the employer offering that apprenticeship. This variation in apprenticeship makes it difficult to understand for prospective apprentices and their families, and difficult to describe for politicians.

Table 5

Mapping English Apprenticeships to IVET and CVET

Distinction	IVET	CVET	English Apprenticeships
Age	Young (usually under 18)	Adult (usually over 18)	Any age
Qualification	Full qualifications	Partial qualifications	Either no or full qualifications
Funding	State	Employer or individual	Employer and state
Provider	Public/state schools/colleges	Private schools/colleges/providers	Any approved apprenticeship provider
Work experience	Prior to working life	During working life	Best for those with work experience
Type of learning	Formal	Formal or informal	Formal and informal
Purpose	Entry to working life	Improve or update knowledge or skills (upskilling); acquire new skills for a move to a different job or career in a different field (reskilling); personal and professional development	Training for a specific job – could be entry to workforce, upskilling or reskilling

Note. Adapted from Cedefop (2023) in Table 1.

4.1 Political Rhetoric Around Apprenticeships

The political rhetoric around apprenticeships, has a common theme that they are most suitable for young people to effectively transition into the world of work. Politicians, in their aspiration to bring parity of esteem to vocational education, can be found to speak to the value of apprenticeships for young people. For example, Robert Halfon, Skills Minister in a previous Conservative government frequently used the phrase "*ladder of opportunity*" when speaking about apprenticeships, and said in 2023:

> To every young person I meet my message is that no matter who you are, or where you're from, or whatever career you want to do, an apprenticeship will open doors for you. (Halfon, 2023, para.11)

Commenting that apprenticeships can open doors and that there is a ladder of opportunity takes this beyond a simple reference to age towards an understanding of apprenticeships as IVET. The notion that an apprenticeship can take individuals on a journey is not necessarily only relevant to IVET but the reference to age means it has most relevance for those with limited prior work experience who are undertaking an apprenticeship as a transition into the workplace for the first time.

The Labour government elected in 2024 have also given speeches promising to address challenges that young people face in accessing apprenticeships, although in relation to a new form of apprenticeship, the Foundation Apprenticeship. Skills Minister Baroness Jacqui Smith said in 2024 when speaking about the new policy:

> Too many young people, who have the most to gain from apprenticeships, have been locked out of accessing these opportunities. (Smith, 2024, para.46)

There has been additional messaging from both recent governments that focus on the value to employers of apprenticeships (see Pullen, 2025). Overall, there is very little to be found in politician's speeches that actively encourages adults to consider apprenticeships.

4.2 Perceptions of Apprenticeships by Recruitment Staff

Apprenticeships at higher levels, particularly degree apprenticeships, have been a key part of the reforms that were fully implemented in 2017. From 2015, degree apprenticeships were available and now around 100 universities in England offer them (as of 2023, see McLaughlin, 2023). Staff in outreach and recruitment in universities had previously focused mostly on encouraging individuals from disadvantaged backgrounds to apply to university as part of efforts to widen participation (McCaig and Squire, 2022) and recruiting 18- or 19-year-olds who would attend university full-time for three years before moving into the workforce or further study. The staff we interviewed had also been tasked with outreach and recruitment for degree apprenticeships that were being offered by the universities. Both universities take a higher proportion of students from disadvantaged backgrounds than elite institutions and have less strict entry requirements.

The staff described a situation where they usually give talks on higher education to schools with a range of pupils and around average results, as well as at Sixth Form and Further Education Colleges where students are more likely to study vocational or mixed programmes than purely academic courses. Regarding degree apprenticeships, they reported being asked to speak to high achieving students from more privileged backgrounds in schools they had not visited before. At higher education fairs, that bring together a range of post-18 options in one place and invite a range of local schools and colleges, they had been asked questions about degree apprenticeships from students at fee-paying schools, who were not interested in the full-time undergraduate programmes. Despite this situation, where individuals from higher socio-economic backgrounds and higher attaining academic programmes were interested in degree apprenticeships, the outreach and recruitment staff found it more difficult to encourage those from lower socio-economic backgrounds to consider a degree apprenticeship. One staff member described their experience:

> For a lot of working-class families, you know that I'd speak to the mums and dads and they're like, oh, yeah, but, you know, they want them to go to university. They see that as their way out of poverty or their way out. But actually, a degree apprenticeship is also a way through and a way out. But they don't see that at all. No, no, no. That's like the YTS scheme [government scheme from the 1980s associated with poor levels of training for young people]. And that's back in the day. They're not seeing it now or how it's changed and moved on. (outreach staff member)

Regardless of the socio-economic backgrounds, the perception of apprenticeships is as the next step at age 18 to help transition into the workforce. Unfortunately, none of the outreach or recruitment was for adults, it all took place in schools or fairs for young people and was all delivered by the university. The staff reported that some employers asked for support in recruiting degree apprenticeships, but mainly administrative support and a final check to ensure that individuals would be capable of completing the relevant degree. Some employers wanted to target individuals from particular backgrounds, to help ensure their workforce was representative of the local population but spoke to the universities for support in outreach to local schools and colleges.

4.3 Apprentices on Programme

During their degree apprenticeship, which for both universities included individuals from age 18 to well into their 40s and 50s, apprentices are offered support, similarly to full-time students. In many cases, the staff reported that they didn't use the support, partly because they saw themselves predominantly as workers, understandably given they spend on average 4 days

out of 5 at work, rather than students. They also highlighted that the different ages mean apprentices had different priorities. One staff member said:

> A lot of students are more mature, they've got lives and they've got commitments, responsibilities, they've got kids at dance camps, they do their work from community centres…they probably feel that they live in their workplace and the university is secondary to that and so therefore access to things like support systems or just tapping into knowing where to go and ask for support, I think all that is much harder. (outreach staff member)

The staff also told us that some apprentices, particularly the adults, did not often use the word 'apprentice' to describe themselves. Instead, they talked about receiving training whilst in a specific job.

5   Conclusions

In theory, it should not matter whether an apprenticeship is considered IVET or CVET. In practice, to make sure that providers target appropriate applicants, that apprentices are well-provided for in an appropriate way, and to have an appropriate societal understanding of apprenticeships, it is important to be able to characterise apprenticeships as IVET or CVET. The findings show that there is confusion about the purpose of apprenticeships in England and whether they are IVET or CVET. The political rhetoric and societal understanding mostly see apprenticeships as IVET, while providers are designed to target younger people for recruitment and provide relevant services for young people, so again mostly IVET in characterisation. However, the delivery of apprenticeships in England is rather different, and at times most relevant to a CVET characterisation. This confusion of messaging and implementation of apprenticeships can lead to both young people and adults missing out, as they do not consider apprenticeships to be for them. It can also mean that some adults in apprenticeships do not receive the support they need as it is not designed to be appropriate for adults.

There are some changes underway, in that the current government is explicitly creating apprenticeships designed for young people under the banner of Foundation Apprenticeships, a form of apprenticeships which functions in Scotland (SDS, 2025). Developing a new policy specifically for young people to better access apprenticeships requires both a recognition that the 2017 reforms have not provided sufficient opportunities for young people to undertake apprenticeships, and a view that apprenticeships should be for young people in the main. This is arguably an admission that although apprenticeships have been a successful form of CVET they should be focused more on young people and IVET.

Reflections on this misalignment for the wider apprenticeship community is important for full understanding of the existing societal perception of an apprenticeship. Consequently, we can attempt to either design a programme which fits that perception or actively seek to change the perception to fit the design of a new policy. The challenge with the IVET-CVET misalignment in England is that although the policy has been changed to better reflect the definitions of CVET, the political rhetoric has maintained that apprenticeships are and should be IVET. The development of Foundation Apprenticeships could be seen as a recognition of the disconnection in policy and practice, and an attempt to align them.

References

Acemoglu, D., & Pischke, J.-S. (1999). Beyond Becker: Training in imperfect labour markets. *The Economic Journal (London), 109*(453), 112–142. https://doi.org/10.1111/1468-0297.00405

Becker, G. S. (1993). Human capital: A theoretical and empirical analysis, with special reference to education (3rd ed.). The University of Chicago Press.

British Education Research Association (BERA). (2024). *Ethical guidelines for educational research, fifth edition.*

https://www.bera.ac.uk/publication/ethical-guidelines-for-educational-research-fifth-edition-2024.

Department for Business, Innovation and Skills (BIS) Select Committee. (2012). *Fifth report – apprenticeships*. HM Government.   https://publications.parliament.uk/pa/cm201213/cmselect/cmbis/83/8302.htm

BIS. (2013). *The future of apprenticeships in England: implementation plan*. HM Government, London, UK. https://assets.publishing.service.gov.uk/media/5a7c95aded915d12ab4bbc19/bis-13-1175-future-of-apprenticeships-in-england-implementation-plan.pdf

Cedefop, & Tissot, P. (2014). *Terminology of European education and training policy.* Publications Office. http://www.cedefop.europa.eu/en/publications-andresources/publications/4064

Cedefop (2023). The future of vocational education and training in Europe: Volume 4: delivering lifelong learning: the changing relationship between IVET and CVET. Publications Office. Cedefop research paper, No 91. http://data.europa.eu/doi/10.2801/726631

Circelli, M and Stanwick, J. (2020). *Initial and continuing VET in Australia: Clarifying definitions and applications*, NCVER, Adelaide. https://files.eric.ed.gov/fulltext/ED605789.pdf

Halfon, R. (2023) *Apprenticeships minister Robert Halfon's AAC 2023 speech in full.* FE Week https://feweek.co.uk/apprenticeships-minister-robert-halfons-aac-2023-speech-in-full/

Institute for Apprenticeships and Technical Education (IfATE). (2024). *Apprenticeships.* https://www.instituteforapprenticeships.org/developing-new-apprenticeships/

IFF Research. (2022). *Apprenticeships evaluation 2021 – learners*. Department for Education. https://assets.publishing.service.gov.uk/media/629ddf52d3bf7f0372734740/Apprenticeships_evaluation_2021_-_learners_research_report.pdf

Layard, R., McNally, S., & Ventura, G. (2023). *Applying the Robbins principle to further education and apprenticeships.* Steering Economic Change: The Economy 2023 Inquiry. Resolution Foundation. https://economy2030.resolutionfoundation.org/reports/applying-the-robbins-principle-to-further-education-and-apprenticeships/

Mccaig, C., & Squire, R. (2022). What drives widening participation policy in the English market? In *What Drives Widening Participation Policy in the English Market?* Emerald Publishing.

McLaughlin, O. (2023)*, Standards, starts and achievements: Quality and growth in the HE apprenticeship market.* HEPI. https://www.hepi.ac.uk/2023/07/14/standards-starts-and-achievements-quality-and-growth-in-the-he-apprenticeship-market/

Pullen, C., Mccaig, C., Emms, K., & Laczik, A. (2024). *Widening participation and degree apprenticeships.* Edge Foundation.   https://www.edge.co.uk/documents/520/DD1576_-_Edge_SHU_widening_participation_report_2_FINAL.pdf

Pullen, C. (2024). *Apprenticeships - a system build for adults?* University Vocational Awards Council. https://uvac.ac.uk/apprenticeships-a-system-built-for-adults-uvac-publishes-new-concept-paper/

Pullen, C. (2025) *Apprenticeships aren't for young people anymore.* The Conversation, UK. https://theconversation.com/apprenticeships-arent-designed-for-young-people-any-more-249640

Richard, D. (2012). *The Richard review of apprenticeships*. Department for Business, Innovation and Skills (BIS). https://www.gov.uk/government/publications/the-richard-review-of-apprenticeships

Smith, J. (2024). Skills Minister Jacqui Smith sets out vision for skills reform. Department for Education (DfE) in FE News.

UNESCO. 2009. Global report on adult learning and education. UILL

Winch, C. (2013). Learning at work and in the workplace: Reflections on Paul Hager's advocacy of work-based learning. *Educational Philosophy and Theory*, *45*(12), 1205–1218. https://doi.org/10.1080/00131857.2013.763594

Biographical Notes

Charlynne Pullen is a Principal Research Fellow at Sheffield Hallam University. Her research interests include apprenticeships, VET, and work-related learning. She has been researching post-16 education for 20 years, and holds degrees from Oxford University, Birkbeck College University of London, and the Open University.

The Challenge of Student Dropout in Vocational Education and Training in Spain: Current situation, Causes and Solutions[1]

Quintana-Murci, Elena
elena.quintana@uib.cat, University of the Balearic Islands, Spain

Salvà-Mut, Francesca
f.salva@uib.es, University of the Balearic Islands, Spain

Moso-Díez, Mónica
mmoso@caixabankdualiza.es, CaixaBank Dualiza's Knowledge and Innovation Center and the Vocational Training Research

Mondaca Soto, Antonio
amondaca@caixabankdualiza.es, CaixaBank Dualiza's Knowledge and Innovation Center and the Vocational Training Research

Mestre Hernández, Antoni
antoni.mestre@uib.cat, University of the Balearic Islands, Spain

Abstract

Context: Student dropout in Vocational Education and Training (VET) in Spain has become a pressing issue, influencing both education policies and socio-economic strategies. The increasing relevance of VET within the education system, alongside its role in addressing educational challenges and fostering economic and social development, has made dropout prevention a key priority. Despite ongoing efforts, dropout rates remain particularly high in Basic and Intermediate VET, requiring a comprehensive analysis of the factors contributing to dropout.

Methods: This study employs a mixed-methods approach, combining quantitative analysis of student progression data from national education statistics with qualitative insights gathered through expert focus groups. Statistical tracking of dropout trends over four academic years provides an in-depth understanding of territorial disparities and influencing factors, while focus groups explore the underlying causes of dropout and potential intervention strategies.

Results: Findings indicate that prior educational pathways, socio-economic background, and the characteristics of the VET system significantly influence dropout rates. Regional differences are apparent, with higher dropout rates in areas characterised by lower academic achievement and a more precarious labour market. Additionally, guidance deficiencies and limited educational support services contribute to student disengagement.

---

[1] This study was conducted by the Laboratory of Research and Innovation in Vocational Education and Training at the University of the Balearic Islands in collaboration with CaixaBank Dualiza's Knowledge and Innovation Center.

Conclusions: The study highlights the need for targeted policies in four key areas: enhancing VET organisation, improving academic and career guidance, implementing socio-educational support mechanisms, and strengthening socio-economic interventions. These measures aim to improve student retention and align VET pathways with both individual aspirations and labour market demands.

Keywords

1 Introduction

The issue of dropout rates and academic performance in Vocational Education and Training (VET) in Spain has gained increasing political and social relevance. This growing attention is largely due to the expanding role of VET within the education and training system and its strategic importance in addressing educational challenges as well as contributing to the country's economic and social development. The strategic significance of VET in tackling these challenges is formally recognised in Organic Law 3/2022, of 31 March, on the regulation and integration of vocational education and training. This legislation highlights VET's role in reducing high rates of Early Leaving from Education and Training (ELET), youth unemployment, and the proportion of young people who are neither in employment nor in education or training (NEETs). Additionally, it underscores VET's contribution to increasing the proportion of the population with intermediate-level qualifications. The law also emphasises VET's role in ensuring that education and training provision aligns more closely with labour market demands, particularly in response to the green and digital transitions and demographic shifts.

Ensuring the quality and effectiveness of the VET system is essential for it to fulfil this strategic function. In this regard, the Organic Law 3/2022 adopts the European Quality Assurance in Vocational Education and Training (EQUAVET) framework, as established by the Council of the European Union (2020). Within this framework, academic performance and dropout rates are recognised as key indicators of VET quality. Specifically, the completion rate of VET programmes—measured as the ratio of students who successfully complete their training to those who drop out—is identified as a core benchmark for evaluating system performance. In this paper, we present the findings of *Dropping Out of Vocational Education and Training in Spain: Diagnosis and Proposals for Improvement* (Salvà-Mut et al., 2024), a pioneering study in Spain that analyses statistical data on the academic progression of VET students. This study offers a holistic analysis of the current situation and the main influencing factors. Understanding the issues related to academic performance and dropout rates in Spanish VET provides a stronger foundation for improving student achievement and reducing dropout rates through evidence-based guidance and recommendations.

Specifically, the research seeks to answer the following questions:

1. What are the trends and territorial differences in VET dropout rates in Spain across different educational levels?
2. What explanatory factors, identified through statistical indicators and focus groups, influence dropout rates in Vocational Education and Training in Spain?
3. What strategies and policies can help prevent dropout in Vocational Education and Training?

2 Theoretical Framework

Dropout process is a complex and multidimensional phenomenon influenced by individual, institutional, and contextual factors (Cedefop, 2016; Rumberger, 2011; Salvà-Mut et al., 2014). Research highlights the multitude of factors that shape students' decisions to leave, both before entering VET and during their training (Böhn & Deutscher, 2022; Bosset et al., 2022; Findeisen et al., 2022). The following sections summarise the key findings from studies on the factors influencing dropout in VET.

2.1 Individual and Family-Related Factors

Students' prior educational experiences play a crucial role in their likelihood of dropping out. Negative schooling experiences, low academic performance, and grade repetition undermine students' confidence in their educational abilities (Elffers, 2013; Nielsen, 2016). Low motivation and a lack of trust in the educational system can result in disengagement from training programmes (Cerdà-Navarro et al., 2019; Nielsen & Tanggaard, 2015).

Emotional well-being is also a strong predictor of dropout. Factors such as emotional instability, substance use, and low self-efficacy impact students' ability to adapt and seek support (Aarkrog et al., 2018; Bunting et al., 2017). Moreover, family socio-economic status significantly influences dropout risk. Low parental education levels, financial difficulties, and a lack of family support increase the likelihood of leaving education prematurely (Dæhlen, 2017; Michaelis & Richter, 2022).

Students from migrant backgrounds are at greater risk of dropping out due to economic hardship, limited family support, and challenges in adapting to the educational environment (Cerdà-Navarro et al., 2022; de Graaf & van Zenderen, 2013). Gender also plays a key role: male students are more likely to leave education due to prior academic difficulties, whereas female students often face additional challenges related to childcare and family responsibilities (Cedefop, 2016; Olmos Rueda et al., 2020).

2.2 Educational Organisation-Related Factors

The way students choose their vocational training significantly impacts retention. Decisions based on a lack of alternatives or external pressure increase the risk of dropout (Cerdà-Navarro et al., 2019). In addition, inadequate academic and career guidance can lead to unrealistic expectations and demotivation (Pérez-Benavent, 2016; Psifidou et al., 2021).

The quality of training is another crucial factor. A poor match between students' interests and their chosen programme increases the risk of dropout (Bosset et al., 2022; Krötz & Deutscher, 2022). Conversely, perceiving training as relevant and useful encourages students to continue their studies (Findeisen et al., 2022). Student-teacher relationships also play a fundamental role. Supportive and trusting relationships with teachers enhance motivation and foster a sense of belonging, which in turn reduces dropout intentions (Schmid & Haukedal, 2022; Van Houtte & Demanet, 2015).

Pedagogical approaches further influence dropout rates. Overly theoretical teaching methods can be a barrier, especially for students with prior academic difficulties (Lyngsnes & Rismark, 2018). In contrast, practical, labour-market-oriented learning supports student engagement and retention (Dubeau et al., 2017; Schmid et al., 2021).

2.3 Labour Market-Related Factors

The characteristics of local labour markets and the employment opportunities available to young and/or low-skilled workers can impact VET dropout rates (Cedefop, 2016). In this regard, the Spanish labour market—particularly in tourist areas—has traditionally provided opportunities for individuals with low levels of formal education, attracting young people with

limited motivation to continue their studies (Adame-Obrador & Salvà-Mut, 2010, Salvà-Mut et al., 2020). However, unfavourable labour market conditions, such as low wages, job instability, long working hours, and difficulties in securing employment, may discourage young people from pursuing vocational training, either leading them to drop out or seek alternative educational pathways that offer better career prospects (Böhn & Deutscher, 2022; Bosset et al., 2022; Cedefop, 2016; de Graaf & van Zenderen, 2013; Tønder & Aspøy, 2017; Pérez Benavent, 2016; Psifidou et al., 2021).Conversely, regions with low unemployment rates, fewer workers in elementary occupations and the service sector, and higher employment in the industrial sector tend to exhibit lower VET dropout rates (Salvà-Mut et al., 2020).

3   Methods and Sample

To address the research questions, the study was carried out using both quantitative and qualitative approaches to address the research questions. The quantitative part is based on statistical tracking of students enrolled in VET across three levels: Basic VET, Intermediate VET, and Higher VET. It uses the Statistics on the educational follow-up and academic performance of students entering vocational training (Ministry of Education and Vocational Training, 2022), based on individualised student records and pathways followed over four academic years. The initial cohort includes new entrants from the 2016-17 academic year, with tracking continued through to the 2019-20 academic year.

Following this, a statistical analysis was conducted to explore explanatory factors through VET level and regional-based perspective. To supplement this data, discussion groups with experts, trainers, and stakeholders provided further insights into regional characteristics and differences across educational levels, particularly in the basic and intermediate VET where dropout rates are highest, facilitating targeted proposals for dropout prevention. A total of four focus groups were organised: two at the territorial level (regions with the highest and lowest dropout rates) and two based on educational levels (Basic and Intermediate VET).

4   Results

The results are structured across four sections, each addressing key dimensions of dropout in VET. Section 4.1 examines dropout trends by educational level and region, highlighting disparities in completion rates. Section 4.2 explores quantitative influencing factors, linking dropout to territorial education indicators and labour market conditions. Section 4.3 provides a qualitative perspective, identifying influencing factors through focus group insights. Finally, Section 4.4 outlines policy recommendations aimed at improving retention by addressing institutional, academic, and socio-economic challenges.

4.1 Dropout Trends: An Analysis Based on Educational and Territorial Level

In general terms, dropout is particularly high in Basic and Intermediate VET (41.7% and 30.7% respectively after four years), while in Higher VET it is significantly lower (18.8%). This trend is maintained in all the years studied. The first year is crucial at all levels: in Higher VET because dropout stabilises after the first year, and in Basic and Intermediate VET due to high initial dropout rates. These patterns coincide with the literature and reflect a structural problem in the Spanish education system: the shortage of population with intermediate educational levels and a high percentage with low qualifications.

The analysis by gender shows lower dropout rates among women across all courses and VET levels, except for the first year in Basic VET where the dropout rate is 0.4 percentage points higher than that of men. The differences are more pronounced and increase to a greater extent in Intermediate and High VET.

Furthermore, men drop out more in training courses with a degree of feminisation above 85%, while women have higher dropout rates in training courses with masculinisation above 85%. This reinforces the hypothesis that permanence in VET is not only determined by gender, but also by the training modality and the context of socialisation within each speciality.

In terms of nationality, foreign students have lower graduation rates at all levels of VET. These differences are less marked in Basic VET and more significant in Intermediate and High VET.

Graphic 1

Students by Educational Situation and VET Level (2016-17 to 2019-20)
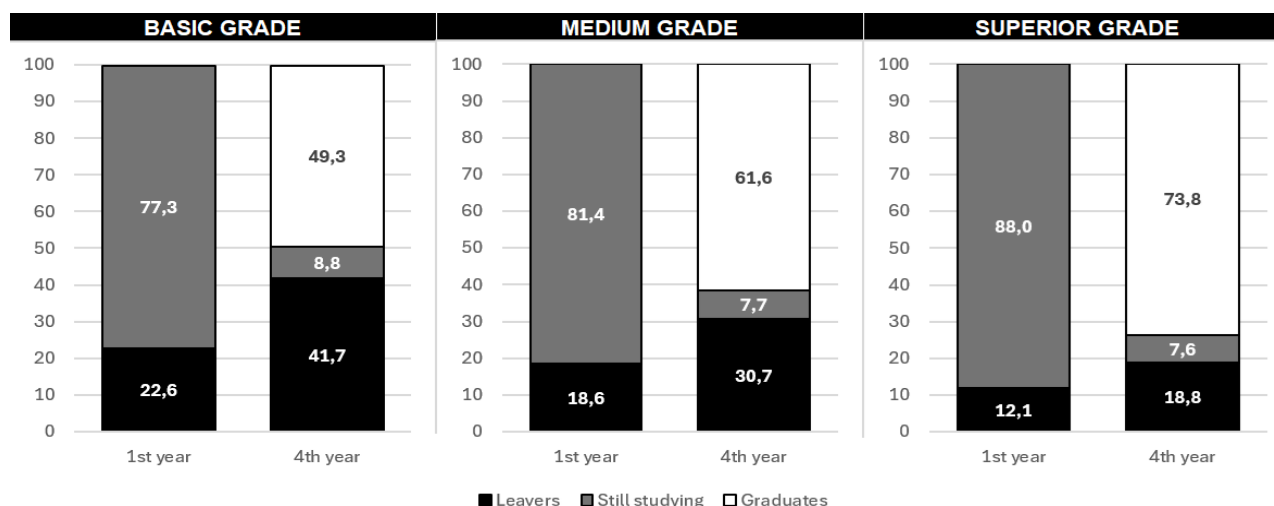
Note. Own elaboration based on Statistics on the educational follow-up and academic performance of students entering vocational training (Ministry of Education and Vocational Training, 2022).

Graphic 2

Graduated Students By VET Level and Nationality
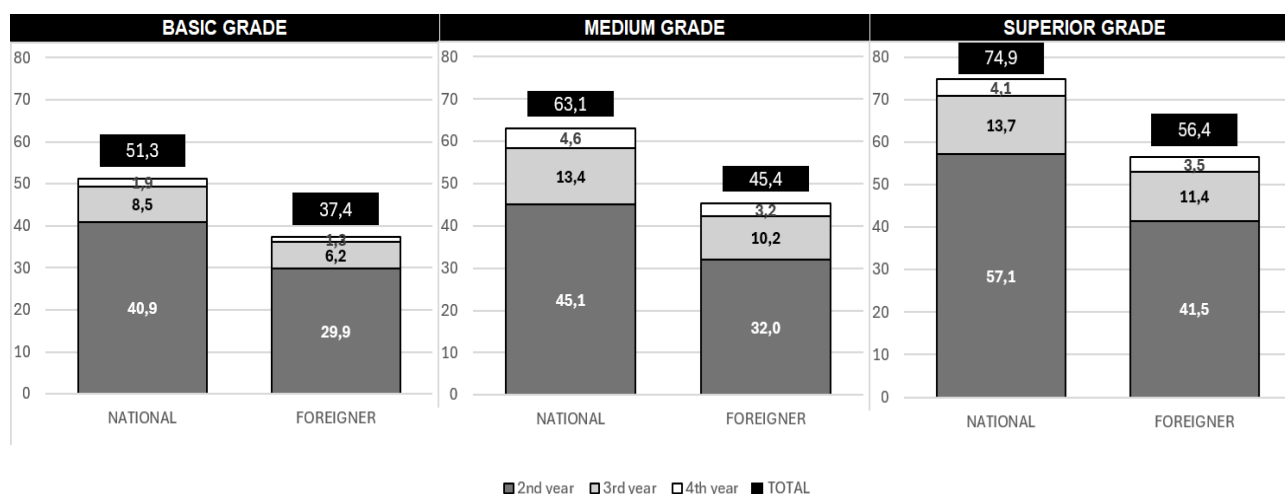
Note. Own elaboration based on Statistics on the educational follow-up and academic performance of students entering vocational training (Ministry of Education and Vocational Training, 2022).

The qualification gap between Spanish and foreign students is smallest in the lowest level of VET and largest in the highest level. Foreign students are more concentrated in lower levels, where academic entry requirements are less demanding, and their participation decreases as

these requirements increase. This gap widens over time, especially in intermediate VET. Foreign students who do not qualify within the standard period are less likely to do so later than their Spanish peers. These findings highlight the need for targeted support to foreign students to improve completion rates and ensure educational continuity through educational reinforcement measures and joint work between training centres, families and available social care resources.

Dropout rates show significant disparities across different regions, with the common feature being that, in all cases and without exception, the general trend observed in the analysis of dropout rates by educational level is present: dropout is higher at lower levels of vocational education and, conversely, lower at higher levels. Therefore, in all regions, dropout rates in Basic VET are higher than those in Intermediate VET, and these, in turn, are higher than those in High VET.

To deepen the study of the territorial dimension of dropout at the two educational levels where it is most prevalent, the data have been analysed based on the concept of early dropout from VET which refers to dropout occurring at Basic and Intermediate VET levels.

The K-Means cluster analysis using the Ward method with the dropout data from Basic and Intermediate VET has allowed us to classify the Spanish regions or Autonomous Communities according to their degree of dropout: (a) those with the highest dropout (Canary Islands, Madrid, and Asturias); (b) those with the lowest dropout (Basque Country, Galicia, Navarre, and Extremadura); and (c) those in an intermediate situation (Aragon, Andalusia, Cantabria, Castilla-La Mancha, Castile and León, Valencian Community, Balearic Islands, La Rioja).

Graphic 3
Clusters of Autonomous Communities with Dropout Data from Basic and Intermediate VET
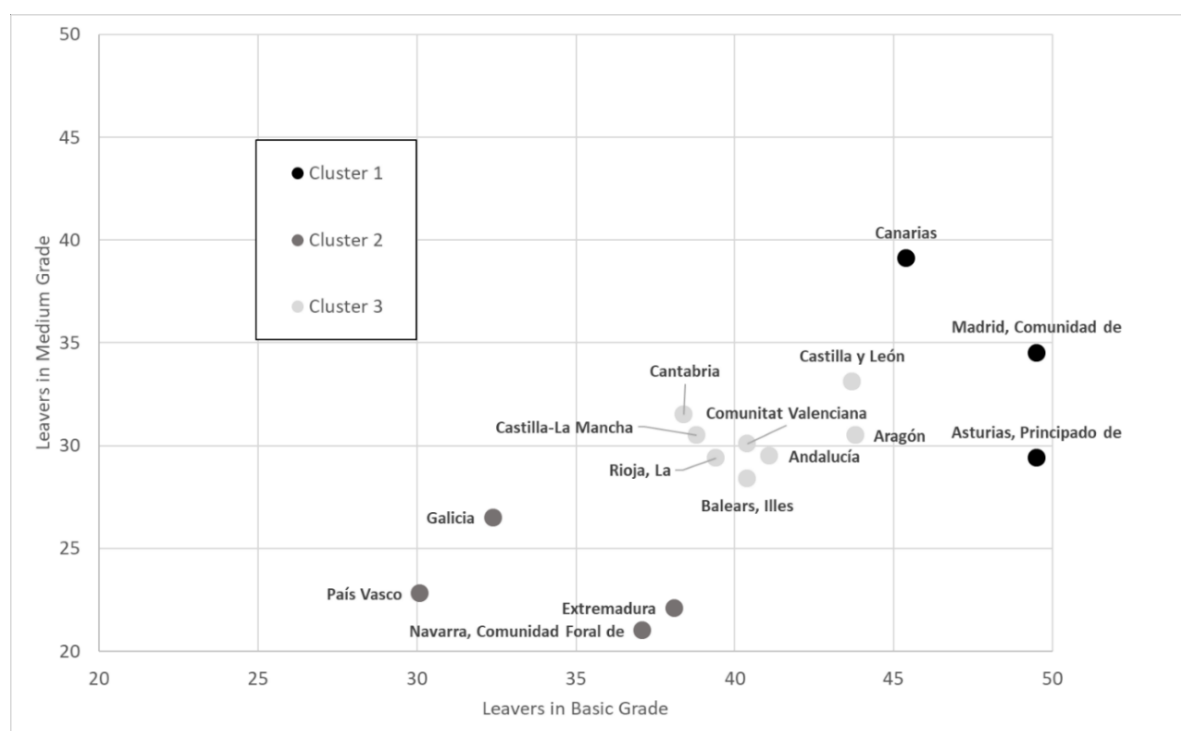
Note. Own elaboration based on Statistics on the educational follow-up and academic performance of students entering vocational training (Ministry of Education and Vocational Training, 2022).

4.2 Influencing Factors of Dropout in Spanish VET From A Quantitative Approach

The analysis of dropout factors in VET based on available territorial statistical indicators (regions and autonomous cities) provides empirical evidence on the relationship between the

education and training system, labour market characteristics, and dropout rates across VET levels.

In general, indicator correlations are more significant in Basic and Intermediate VET, sharing directionality and strength, while Higher VET shows fewer significant correlations, particularly concerning female dropout rates. Regions with higher VET dropout rates also exhibit poorer educational outcomes in compulsory education. Dropout is higher across all VET levels in areas with lower secondary education completion rates, greater academic delay, and higher participation in High VET. These findings align with previous research on educational pathways before VET enrolment (Böhn & Deutcher, 2022; Bosset et al., 2022), adding a territorial dimension to the understanding of inequalities in VET dropout in Spain.

Regarding labour market factors, higher employment in the service sector correlates with increased dropout across all VET levels, linked to a deregulated labour market with abundant low-skilled jobs (Cedefop, 2016; Salvà-Mut et al., 2020). Similarly, high youth unemployment and the percentage of young people not in employment, education, or training (NEETs) are associated with dropout, as returning to education in times of economic crisis does not necessarily lead to graduation due to system inadequacies (Salvà-Mut et al., 2018).

Conversely, lower dropout rates are linked to higher prior academic achievement. In the labour market, a higher proportion of industrial employment is associated with lower dropout rates, likely due to its greater regulation and higher qualification requirements (Cedefop, 2016; Salvà-Mut et al., 2020).

These findings enhance the understanding of territorial factors influencing VET dropout. The multidimensional and processual nature of dropout identified at the individual level is also exposed in the territorial analysis. The interrelations between contributing and protective factors are complex and dynamic, reflecting broader educational trends: territories with stronger academic performance experience lower dropout rates, while those with weaker educational outcomes show higher dropout rates in VET.

4.3   Influencing Factors of Dropout in Spanish VET From A Qualitative Approach

In this section, the contributions made in the focus groups are summarised, while being complemented by a review of the literature developed for the preparation of this research.

Regarding the explanatory factors associated with higher dropout rates, the findings highlight the profile of students in VET, characterised by educational vulnerability (previous educational trajectories marked by low academic performance), social vulnerability (immigration, complex family situations, disadvantaged socioeconomic backgrounds, lack of family support), and personal vulnerability (emotional health issues, behavioural problems, addictions). This evidence underscores the absence of early detection programmes for at-risk students and intervention measures to prevent dropout at the compulsory secondary education level. It also points to lower motivation for education, low self-esteem, and diminished self-efficacy among students—factors that contribute to dropout (Cerdà-Navarro et al., 2019; Nielsen & Tanggaard, 2015).

These background factors influence the guidance processes towards VET, which are often based primarily on students' academic performance rather than their competencies and professional interests. Additionally, a lack of information among teachers, families, and students regarding the structure and organisation of VET results in adaptation difficulties. Misdirected placement leads to struggles with more theoretical subjects (such as Mathematics and Languages) and the realisation that VET does not align with their expectations (e.g., regarding the balance of practical content). This mismatch increases the risk of academic failure and, consequently, a higher likelihood of dropping out of the education and training system (Pérez-Benavent, 2016; Psifidou et al., 2021; Schmid, 2017).

Furthermore, the limited availability of training programmes and entry requirements (such as grade thresholds for intermediate-level cycles) mean that many students are unable to enrol in their first-choice programme. Being unable to pursue their preferred training is a significant predictor of dropout (Bosset et al., 2002; Findeisen et al., 2022; Michaelis & Richter, 2022).

The complexity of the administrative process for enrolling in intermediate-level VET programmes necessitates individualised support for students and families, as well as improved training for teachers regarding the functioning of VET. A poorly informed choice can negatively impact students' future educational and training pathways.

The lack of resources allocated to guidance departments—both in secondary schools and integrated VET centres—along with insufficient involvement from teaching staff and tutors in the guidance process, hinders the ability to provide adequate support to students throughout their educational and training trajectories.

Additionally, there is a notable absence of stable, well-funded programmes aimed at preventing dropout in VET, such as academic support, inclusion initiatives, and family engagement measures. This, coupled with high student-teacher ratios (Cerdà-Navarro et al., 2017; Pinya-Medina et al., 2017; Tanggaard, 2013) and a shortage of qualified teachers capable of addressing the diverse needs of students, restricts the individualisation and flexibility of learning processes. It also limits the implementation of active learning methodologies (Lyngsnes & Rismark, 2018; Merino Pareja & García-Gracia, 2022; Pérez-Benavent, 2016; Pinya-Medina et al., 2017), factors that are crucial for fostering strong relationships between teachers, students, and peer groups (Fix et al., 2019) and for enhancing students' educational engagement (Keijzer et al., 2022).

The requirements for entering the teaching profession and the administrative mechanisms for teacher selection often result in VET institutions employing staff who may lack the necessary experience, motivation, and competencies to effectively address students' needs and interests. Additionally, the instability of teaching staff prevents the establishment of long-term educational projects within institutions, further limiting the effectiveness of VET programmes.

4.4 Main Recommendations for the Prevention of Dropout in Spanish VET

These recommendations aim to address the multifaceted factors influencing dropout rates in VET, focusing on actions that can be implemented at the organisational level in educational institutions to mitigate the impact of individual, family, and socio-economic factors linked to dropout. The different proposals stem from the analysis of relevant literature, statistical data, and focus groups as part of the methodology used in this study.

Axis 1: Organisation and Functioning of Vocational Education

- Systematically collecting and analysing educational outcomes and dropout data, with an emphasis on public access to microdata for research purposes.
- Enhancing collaboration between educational administrations, vocational training centres, and businesses to improve VET quality, planning, and student support.
- Strategic planning aligned with workforce needs, technological innovation, and employability prospects for students.
- Strengthening integrated VET centres, ensuring adequate infrastructure and human resources, and promoting access through public transport.
- Ensuring inclusivity and quality in VET, with investments in teacher training and infrastructure.

Axis 2: Academic and Career Guidance

- Establishing academic and professional guidance departments in vocational centres, with dedicated teams to offer integrated support for students.
- Promoting effective coordination between secondary education institutions, vocational centres, and community resources to ensure seamless transitions.
- Providing information and guidance on the value and organisation of vocational education to both students and families.
- Offering individualised, continuous career guidance to help students make informed decisions about their academic and professional future.

Axis 3: Socio-educational Intervention in Vocational Centres

- Early detection of students at risk of dropout, with tailored interventions addressing personal, educational, and social issues.
- Adapting teaching methods to meet individual student needs, ensuring inclusive support for students with lower prior academic performance.
- Implementing flexible curricula and reducing the duration of vocational courses to accommodate students' learning needs.
- Promoting active learning methodologies that engage students and connect education with professional practice.

Axis 4: Socio-economic Environment Policies and Actions

- Fostering collaboration between businesses, educational administrations, and vocational centres to create training programmes that meet labour market demands.
- Developing policies to encourage family involvement in vocational education, ensuring access to social and educational resources for vulnerable families.

These proposals aim to reduce dropout rates by addressing educational, socio-economic, and institutional factors that affect students' persistence in VET. By implementing these strategies, the system can ensure a more inclusive, accessible, and effective vocational education model that meets the needs of all students.

5   Conclusions and Discussion

This study provides a comprehensive analysis of student dropout in Vocational Education and Training (VET) in Spain, highlighting the complexity of the phenomenon and its connection to educational, socio-economic, and institutional factors. The findings confirm that dropout rates are particularly high in Basic and Intermediate VET, with significant variations based on gender, nationality, and regional economic and education conditions. The research emphasises the critical role of early academic experiences, socio-economic background, and the labour market in shaping student pathways within VET.

Furthermore, students face educational, social, and personal vulnerabilities, exacerbated by the absence of early detection and intervention programmes. Guidance processes often rely on academic performance rather than students' competencies and interests, while inadequate information about VET leads to adaptation difficulties and misdirected placement, increasing dropout risks. Limited programme availability and complex enrolment procedures further hinder students' ability to pursue their preferred training. Insufficient resources for guidance departments, high student-teacher ratios, and a lack of stable, well-funded dropout prevention programmes restrict individualised support and active learning methodologies. Additionally, recruitment processes often result in unqualified or unstable teaching staff, preventing the long-term development of effective educational projects in VET institutions.

One of the key contributions of this study is its territorial approach, which reveals how dropout rates correlate with local education and employment conditions. Regions with higher youth unemployment, lower academic performance in compulsory education, and a prevalence of low-skilled jobs exhibit higher dropout rates, reinforcing structural inequalities in the Spanish education system. Additionally, gender disparities persist, with male students more likely to drop out, particularly in traditionally female-dominated vocational fields, while female students face barriers related to family responsibilities and career expectations. The study also highlights the challenges faced by migrant students, who tend to have lower completion rates in all VET levels.

The study highlights the need for multi-level interventions to reduce dropout rates and improve student retention, identifying four key areas for action. Firstly, enhancing VET organisation and structure requires strengthening dual VET models, improving coordination between institutions and employers, and using data-driven strategies to track dropout trends. Secondly, academic and career guidance should be expanded through early career counselling, individualised mentoring, and better alignment of curricula with student expectations. Thirdly, socio-educational support must focus on targeted assistance for disadvantaged students, financial aid, and inclusive teaching practices. Finally, aligning VET with labour market needs involves boosting industry collaboration, promoting sector-specific training, and addressing labour market instability to ensure students remain engaged in education.

While this study provides valuable insights into VET dropout in Spain, further research is needed to explore the long-term impact of dropout prevention measures, particularly in the context of the new regulatory frameworks introduced by Organic Law 3/2022. Future studies should also examine the effectiveness of intervention strategies across different regions and evaluate the impact of socio-economic policies on educational retention. Additionally, a comparative international approach could offer deeper insights into best practices that could be adapted to the Spanish context.

By addressing these challenges through coordinated policy efforts and evidence-based strategies, Spain can work towards a more inclusive and effective VET system, ensuring that students are better supported in their educational and professional pathways.

References

Aarkrog, V., Wahlgren, B., Larsen, C. H., Mariager-Anderson, K., & Gottlieb, S. (2018). Decision-making processes among potential dropouts in vocational education and training and adult learning. *International Journal for Research in Vocational Education and Training (IJRVET)*, *5*(2), 111-129.

Adame-Obrador, T., & Salva-Mut, F. (2010). Abandono escolar prematuro y transición a la vida activa en una economía turística: El caso de Baleares. *Revista de Educación 351*, 185–201.

Böhn, S., & Deutscher, V. (2022). Influence of previous educational trajectories on vocational training outcomes. *Journal of Vocational Education and Training, 74(1),* 56-72.

Bosset, I., Hofmann, C., Duc, B., Lamamra, N., & Krauss, A. (2022). Premature interruption of training in Swiss 2-year apprenticeship through the lens of fit. *Swiss Journal of Educational Research*, *44*(2), 277-290. https://doi.org/10.24452/sjer.44.2.9

Bunting, M., Halvorsen, T. A., & Moshuus, G. H. (2017). Three Types of Tightrope Dance in the Comeback Process: Preliminary Findings from a Longitudinal Study of Young People at the Margins of Upper Secondary School in Norway. *International journal for research in vocational education and training, 4*(2), 146-163. http://dx.doi.org/10.13152/IJRVET.4.2.3

Cedefop. (2016). Leaving education early: Putting vocational education and training centre stage. Publications Office of the European Union.

Cedefop (2023). *Spotlight on VET: Spain.* Cedefop. https://www.refernet.de/dokumente/pdf/2023_SP_ES.pdf

Cerdà-Navarro, A., Sureda-Negre, J., & Comas-Forgas, R. (2017). Recommendations for confronting vocational education and training dropout: A literature review. *Empirical Research in Vocational Education and Training, 9(1).* https://doi.org/10.1186/s40461-017-0061-4

Cerdà-Navarro, A., Salvà-Mut, F., & Comas Forgas, R. (2019). A typology of students in intermediate vocational education and training programmes based on student engagement factors, sociodemographic characteristics and intentions of dropping out. *European Journal of Education*, *54*(4), 635-650.

Cerdà-Navarro, A., Quintana-Murci, E., & Salvà-Mut, F. (2022). Reasons for dropping out of intermediate vocational education and training in Spain: the influence of sociodemographic characteristics and academic background. *Journal of Vocational Education & Training, 76(*3), 619–643. https://doi.org/10.1080/13636820.2022.2049625

Council of the European Union (2020). Council Recommendation of 24 November 2020 on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience 2020/C 417/01. https://op.europa.eu/en/publication-detail/-/publication/08b9af27-3465-11eb-b27b-01aa75ed71a1

Dæhlen, M. (2017). Transition from school-based training in VET. *Education + Training, 59*(1), 47- 60. https://doi.org/10.1108/ET-10-2015-0096.

de Graaf, W., & van Zenderen, K. (2013). School–work transition: the interplay between institutional and individual processes. *Journal of Education and Work, 26*(2), 121-142. http://dx.doi.org/10.1080/13639080.2011.638622

Dubeau, A., Plante, I., & Frenay, M. (2017). Achievement profiles of students in high school vocational training programs. *Vocations and Learning, 10*(1), 101-120.

Findeisen, S., Jüttler, A., Neuenschwander, M. P., &Schumann, S. (2022). Transition from school to work–Explaining persistence intention in vocational education and training in Switzerland. *Vocations and Learning, 15*(1), 129-154. https://doi.org/10.1007/s12186-021-09282-4

Fix, G., Ritzen, H., Pieters, J., y Kuiper, W. (2019). Effective curricula for at-risk students in vocational education: a study of teachers' practice. *Empirical Research in Vocational Education and Training, 11*(1). https://doi.org/10.1186/s40461-018-0076-5

Keijzer, R., van Schooten, E., van der Rijst, R., y Admiraal, W. (2022). Individual characteristics of students in vocational education moderating the relationship between school engagement and vocational identity. *European Journal of Psychology of Education*, 37(4), 1255–1283.

Krötz, M., & Deutscher, V. (2022). Drop-out in dual VET: why we should consider the drop-out direction when analysing drop-out. *Empirical Research in Vocational Education and Training, 14*(1), 1. https://doi.org/10.1186/s40461-021-00127-x

Lyngsnes, K. M., & Rismark, M. (2018). Trajectories through vocational education and training. *International Journal of Learning, Teaching and Educational Research, 17*(11), 175-193. https://doi.org/10.26803/ijlter.17.11.11

Merino Pareja, R., y García Gracia, M. (2022). Vías e itinerarios de formación profesional: la persistencia de la asociación entre bajo rendimiento y opción profesional. ESE. *Estudios sobre educación, 43*, 157-176. http://dx.doi.org/10.15581/004.43.008

Michaelis, C., & Richter, M. (2022). Discontinuities in vocational education and training: the influence of early-risk factors and personality constructs on premature training termination and subsequent trajectories. *Empirical Research in Vocational Education and Training*, 14(1). https://doi.org/10.1186/s40461-022-00135-5

Ministry of Education and Vocational Training (2022). *Statistics on the educational follow-up and academic performance of students entering vocational training.* https://www.educacionyfp.gob.es/servicios-al-ciudadano/estadisticas/no-universitaria/alumnado/fp/rendimiento.html

Nielsen, K., & Tanggaard, L. (2015). Dropping out and a crisis of trust. *Nordic Psychology, 67(*2), 154-167.

Olmos Rueda, P., Mas Torello, O., & Salva Mut, F. (2020). Educational disengagement profiles: a multidimensional contribution within basic Vocational Education and Training. *Revista De Educacion* (389), 67-91.

Organic Law 3/2022, of 31 March, on the regulation and integration of vocational education and training. Boletín Oficial del Estado núm. 78 de 1 de abril de 2022. https://www.boe.es/eli/es/lo/2022/03/31/3/con

Pérez Benavent, M. J. (2016). De liarla a rayarse: metáfora y coherencia en los relatos de cinco jóvenes que retornan a un CFGM. *Revista de educación, 373,* 35-56. http://dx.doi.org/10.4438/1988-592X-RE-2016-373-320

Pinya-Medina, C., Pomar-Fiol, M. I., y Salvà-Mut, F. (2017). Prevenir el abandono educativo en la educación secundaria profesional: Aportaciones del alumnado y del profesorado. *Profesorado: Revista de curriculum y formación del profesorado*, *21*(4), 95-117.

Psifidou, I., Mouratoglou, N., & Farazouli, A. (2021). The role of guidance and counselling minimizing risk factors to early leaving from education and training in Europe. *Journal of Education and Work*, *34*(7-8), 810-825.

Rumberger, R.W. (2011). *Dropping out. Why students drop out of high school and what can be done about it.* Harvard University press. https://doi.org/10.4159/harvard.9780674063167

Salvà Mut, F., Moso Díez, M., & Quintana Murci, E. (Dirs.) (2024). *El abandono de los estudios en la formación profesional en España: diagnóstico y propuestas de mejora*. CaixaBank Dualiza. https://www.caixabankdualiza.es/wp-content/uploads/2024/07/ESTUDIO-ABANDONO-OK-staff.pdf

Salvà-Mut, F., Ruiz-Pérez, M., Psifidou, I., & Oliver-Trobat, M. F. (2020). Formación profesional de grado medio y abandono de la educación y la formación en España: una aproximación territorial. *Bordón: Revista de Pedagogía, 72(4),* 95-116.

Salvà-Mut, F.; Oliver-Trobat, M.F., & Comas-Forgas, R. (2014). High School Dropout: The Students' Perspective. *magis, Revista Internacional de Investigación en Educación, 6*(13), 129-142.

Salvà-Mut, F., Tugores-Ques, M. y Quintana-Murci, E. (2018). NEETs in Spain: an analysis in a context of economic crisis. *International Journal of Lifelong Education,* 37(2), 168-183.

Schmid, E. (2017). Apprenticeship contract termination and dropout from VET: a comparison of educational-political challenges and strategies in Norway and Switzerland. *Revista española de educación comparada.* https://doi.org/ 10.5944/reec.29.2017.17242

Schmid, E., Jørstad, B., & Stokke, G. (2021). How schools contribute to keeping students on track: Narratives from vulnerable students in vocational education and training. *Nordic Journal of Vocational Education and Training, 11*(3), 47–65. https://doi.org/10.3384/njvet.2242-458X.2111347.

Schmid, E., & Haukedal, C. L. (2022). Identifying resilience promoting factors in vocational education and training: a longitudinal qualitative study in Norway. *Empirical Research in Vocational Education and Training, 14*(11). https://doi.org/10.1186/s40461-022-00139-1.

Cerdà-Navarro, A., Quintana-Murci, E., & Salvà-Mut, F. (2022). Reasons for dropping out of intermediate vocational education and training in Spain: the influence of sociodemographic characteristics and academic background. *Journal of Vocational Education & Training, 76(*3), 619–643. https://doi.org/10.1080/13636820.2022.2049625

Tønder, A. H., & Aspøy, T. M. (2017). When work comes first: Young adults in vocational education and training in Norway. *International Journal for Research in Vocational Education and Training (IJRVET), 4*(3), 270-288.

Van Houtte, M., & Demanet, J. (2015). Vocational students' intention to drop out in Flanders: the role of teacher beliefs. *Profesorado, Revista de Currículum y Formación del Profesorado, 19*(3), 178-194.

Biographical Notes

Dr Elena Quintana-Murci is an associate professor at the University of the Balearic Islands (UIB). Her research interests include early school leaving, vocational education and training, youth transitions to adulthood, and gender. She also serves as the Deputy Director of the Laboratory for Research and Innovation in Vocational Education and Training at UIB.

Dr Francesca Salvà-Mut is a full professor at the University of the Balearic Islands (UIB). She actively participates in the Education and Citizenship Research Group and serves as the Director of the Laboratory for Research and Innovation in Vocational Training at UIB. Her primary research areas include the educational and work transitions of early school leavers, vocational education and training, and gender studies.

Dr Monica Moso-Diez is the Head and Principal Investigator of the R&D Centre of a private non-profit foundation (CaixaBank Dualiza) in Spain. Her research interests focus on innovation and sustainability in VET systems at both organisational and contextual levels, as well as VET indicators (Spanish VET Observatory). She is a member of the VET research network, which is part of the European Association of Educational Research (EERA).

Antonio Mondaca-Soto is a Senior Researcher in the R&D unit of the R&D Centre of a private non-profit foundation (CaixaBank Dualiza) in Spain. His research interests focus on quantitative methodologies and statistical analysis in the field of VET. His areas of interest include education, data, and indicator visualisation. His work currently centres on the Spanish VET Observatory.

Antoni Mestre-Hernández is a sociologist and PhD student at the University of the Balearic Islands. He specialises in information networks, the transformative potential of the human factor, knowledge, and quantitative research methodologies. He has worked on projects and conducted studies on VET dropout.

Education and Training for Work: Relativity and Conflict in the Distribution of Resources, Knowledge and Opportunities

Riquelme, Graciela Clotilde
griquelm@filo.uba.ar, CONICET University of Buenos Aires

Abstract

Context: A key approach of this article is to inquire into the distribution of resources, knowledge and opportunities among workers, along with the role played by social actors and the impact and demands of technological transformation: workers themselves, enterprises, grassroots and trade union organisations and the state.

Approach: This presentation emphasizes the weakness of the state as a regulator, which increases within the framework of this high diversification of education and technical training: new contents, new actors in the face of multiple social, productive, technological and scientific demands for qualifications and complex scenarios of productive transformation, requiring to consider a relative and conflictual perspective.

Findings/Results: The article shows: a) the orientations of the offer of education and training for work in local areas developed by the public sector and the various alliances between social actors as responses and in connection with socio-productive, technological and scientific demands of the regions, and b) the conflicts and regulations are the challenges to reach a consensus on the interests at stake in light of past experiences.

The studies and results of the research about the ArCaWall survey "Work and Lifelong Learning" allowed the notion of workers' educational potential to be developed and it was necessary to update and improve content related to digital technologies and prepare the design of the digital skills module.

Conclusions: The virtual consultation is designed to ascertain the views of the business sector and sectoral specialists and trade union organisations related to the topics of the digital module. By way of closing, the article establishes a dialogue with some evidence of the VETNET network.

Keywords

workers education and training market, relativity and conflict between social actors, technological transformations and digital requirements for workers

1 Theoretical and Methodological Approaches

1.1 A Research Programme in Argentina in Recent Decades

The context of education and training for work in countries in critical situations of development highlights: a) the existence of precarious situations and low productivity; b) differentiated circuits of access to the labour market, vast groups of unemployed population and/or with

precarious jobs or underemployed; and c) fragmentation of the training market with similar formal certificates, but of dubious quality and comparative achievements.

A key direction of this article is to inquire into the distribution of resources, employment, knowledge and opportunities among workers along with the role played by social actors: workers themselves, enterprises, grassroots and trade union organisations and the state. We discuss, on the one hand, the existence of pendulum movements between an illusory distribution, efficient modernisation and political discourses about rights and inclusion; and on the other hand, that relativity and conflict prevail, derived from the multiplicity of actors and interests in diverse scenarios (Riquelme et al., 2018a, 2018b).

This presentation emphasizes the weakness of the state as a regulator, which increases within the framework of this high diversification of education and technical training: new contents, new actors in the face multiple social, productive, technological and scientific demands for qualifications and complex scenarios of productive transformation, requiring to consider a relative and conflictual perspective. Recent research[1] has provided insights into the 'notion of educational potential' of workers in Argentina, starting with David Livingstone's approaches in Canada with the idea of the 'iceberg', which originated in Tough (1978). This author argues that learning is like an iceberg (Tough, 1978), of which its largest surface remains submerged and therefore is studied little. The metaphor of "iceberg" refers to the non-visible informal learning that the entire population possesses, and which is the basis on which future learning and work performance are based.

The PEET-IICE-UBA-FFyL raised the notion of workers´ educational potential, which includes formal education certificates, training outside the educational system, both in non-formal courses and in the set of informal social and labour learning. These instances intervene in the development of the occupational and life projects of the workers. To speak of educational potential corresponds to all the knowledge and skills of the subjects that are not visible, but that are based or settled on formal education plus all the learning derived from experiences and activities added to the labour trajectory, which contribute to a differentiated mix of the working subjects, which is not valued or perceived through certificates and diplomas, and moreover, is not always noticed in the mechanisms of selection of occupational strata or labour market instances.

The supply of education and training for work involves institutional circuits with differentiated institutions that have given rise to several studies in local areas. Educational circuits are stratified segments of institutions with differential characteristics - in terms of buildings, material and human resources, access to transport, and the environmental conditions that surround them - to which social classes have unequal access and which promote unequal access to and appropriation of knowledge (Riquelme et al., 2018a; Sassera, 2018, 2023).

1.2 Technological Transformation Impact and Requirements from Industry 4.0 and Digitalization

This presentation corresponds to an ongoing research[2] in a network of six teams of national universities from different regions of the country [3]it is a projection of a recently completed

---

[1] Line of studies around the application of the ArCaWall Survey adaptation of the Canadian WALL in ArCAWall 2011 and 2021 (Riquelme, 2015; Riquelme y Herger, 2024)

[2] Proyect "Basic educational level and social learning of workers and the needs for digital skills derived fromthe economic-productive heterogeneity versus the differentiation and diversification of education and training for work in Argentinean provinces" (PICTO REDES 00015, 2022)

[3] Universidad de BuenosAires, Universidad Nacional del Sur (BahíaBlanca), Universidad Nacional del Litoral (Santa Fe), Universidad Nacional de Entre Ríos, Universidad Nacional de Salta y Universidad Nacional del Comahue-Sede Atlántica (Viedma).

project at the PEET-IICE, headquarters of the UBA Node. The general objective is to contribute to the identification of digital skills needs from the perspective of: a) the 'basic educational level' of workers (employed and/or unemployed); b) the requirements of sectors of activity impacted by the transformations of digital technologies, from manufacturing industry, agricultural and extractive activities to the provision of services through platforms; c) the supply of education and training for work in provinces and local areas. Within such contexts, the educational needs of workers are also unequal in relation to the formal education attained, the possibilities of non-formal education and informal learning, which pose challenges for education and training institutions in six territorial areas of the country (Greater Santa Fe and Rosario, Paraná, Bariloche and the coastal area of Río Negro, Bahía Blanca, Salta, and Greater Buenos Aires).

a) Basic education of workers

Addressing the demand for training for the future requires rethinking the problem from the perspective of workers' education and training, i.e., it means considering the basic profile and potential of the employed and unemployed over the age of 18. The educational and labour trajectory of young people and adults who are able to work constitutes the basis on which future learning and occupational reconversions are based. It is a space of debate and controversy, a relative and conflictual arena of different interests on the part of large or small employers, trade unions or organised workers and the training institutions themselves.

Demands of the social and productive reality derive from economic and productive heterogeneity. In the planning of the offers of education and vocational training, it should be possible to develop techno-productive cards for the identification of demands according to the dynamics of the sector, the characteristics of size and organisation. The following table tests the main empirical evidence verified in a previous investigation. The presentation is organised raising the educational profile of those employed in formal and non-formal activities.

b) On the differences in educational level, inequality and territories

A first approach to the educational level of workers in the provincial and local contexts of the project shows a continuous improvement, but persistence of nuclei of the working population that have not managed to complete secondary education, who represent about a third in all the agglomerates, with the exception of the Autonomous City of Buenos Aires. The figures illustrate the inequalities in the educational level of workers that pose challenges for education and training institutions in terms of general knowledge and skills, as well as those related to the digital technologies required in different occupations.

The educational level of the employed according to the type of activity is a way to approach the techno-productive characteristics of economic activities from the workers they demand. Undoubtedly, if specialisations and degrees are also considered, we would be able to increasingly evaluate transitions, crossing boundaries, project instances of professional training, educational recovery or professional and occupational re-adaptation, as well as discuss the possibility of employment generation.

The educational profile of the Economically Active Population (EAP) expresses Argentina's history, where the City of Buenos Aires - the capital territory - has the lowest proportion of the population with a low educational level (11.3%), while all the other provincial cities have between 26% and 28%, and only the Greater Paraná has a lower proportion of 23% (but in the same province, a historical city, currently in productive decline, has 38.5% with incomplete secondary education).

In contrast or complementarily, the Autonomous City of Buenos Aires also has almost half of the employed people with higher education degrees (45.5%) and again the Greater Paraná reaches 30.7%.

The activities with the highest absorption of workers with university or higher education degrees and with a considerable proportion of incomplete secondary and tertiary education correspond to services: financial, real estate and business services, the public sector and education, health and other social services, all with more than 40% of higher education graduates. Industry in the different agglomerates absorbs between 45% and 66% of workers with completed secondary and incomplete higher education, with CABA, Neuquén and Viedma standing out for the highest percentages of industrial workers with completed higher education; while the manufacturing sector in Santa Fe, Rosario and Paraná have the highest values of incomplete secondary education.

This research has as background a study on the educational and employment situation of workers surveyed in Greater Buenos Aires (ArCaWall 2011 and 2021)[4](Riquelme, 2015; Riquelme & Herger, 2024 mimeo). The central evidence, verified from the application of ArCaWall, and in comparison, with available results from labour market surveys, has made it possible to distinguish those benefiting and those excluded from the educational expansion.

c) Territories, social and productive reality: the challenges for education and training for work

Argentina is a country of unequal geography, society and economy[5], which are the result of a historical political disparity in socio-economic development and a high productive heterogeneity between and within provinces: regional territorial and economic-productive disparities; provincial disparities in social and economic-productive development; social inequalities, in living conditions and labour market; social structure and income levels of the population; urban, urban-rural inequalities and departmental and local inequalities.

Local and departmental conditions have allowed us to make progress in the treatment of local conditions of the school or institutional production function, the construction of departmental differentiation clusters, to thus be able to carry out the analysis of favourable and unfavourable conditions in the living conditions and in the access and permanence in secondary education of the population in relation to the supply of vocational technical education (Herger &Sassera, 2022; Riquelme et al., 2021; Sassera; 2023).

Within the framework of this background, the current design considers the productive profiles of the areas, localities, provinces, and micro-regions as a context of socio-productive demands, and especially to evaluate the orientations of technical-professional education and vocational training. The meaning of the studies of the socio-productive demands and education in post-crisis Argentina and in possible recovery entails finding different relations, from total independence with respect to the demands or an adjustment, an adaptation of reproduction and attention to the requirements by the offers of public or private technical education and vocational training, or in different types of alliances between local organisations.

The productive profiles of the geographical areas show the key activities for a possible economic recovery of the country. These companies and work processes may require the incorporation of digital technologies[6].

---

[4] ArCaWall Survey "Work and lifelong learning" 2011 and 2021, CONICET-PEET-IICE-FFyL/UBA. See https://educacion-economia-trabajo-peet.org

[5] In a recent interview with political scientist Juan Carlos Torre, 'So I insist: the ideal image of a liberal and egalitarian democracy will never be completed. But perhaps if we try to imitate it, if we always keep it in mind, we can live a little better'. (Fernández Irusta, 2025).

[6] In the Geo-FONIETP - INET- PEET study (Riquelme et. alt, 2021), progress was made in a previous study in the identification of paradigmatic behaviours according to georeferenced activities or economic sectors

2 Education and training for work within contexts of territorial, economic-productive differentiation and inequality

The supply of education and training for work is centred on technical education and vocational training together with the interventions and instances developed by other social actors to meet the social or productive demands for the training of young people and adults in local spaces. This article retrieves findings from three recent researches (one in progress) that seek to interpret the relationship between the contents and type of institutional design and the social and productive reality where they are inserted removal.

2.1 Distribution of Resources, Knowledge and Opportunities

The focus of the analysis is the distribution of employment orientation, or knowledge derived from orientations towards economic sectors that can be interpreted by the titles of vocational technical education and vocational training cycles and courses. This is based on some indicators of the composition of the enrolment of the offer, which is provided by the provincial governments, mostly in education, but also of labour programmes, educational completion, social or productive development (See Table 1).

The opportunities of vocational technical education actions at the secondary level for adolescents, young people and adults seek to meet social demands and therefore coincide with programmes of educational inclusion, training recovery and second chances for young and adult dropouts.

- The distribution of knowledge translates into the type of programmes, the degrees awarded, the specialisations and at a more precise level requires the analysis of the curricular contents and prescribed activities and the study and work practices of the students. It is possible to note or infer on the basis of data on current student attendance and the composition of enrolment and types of degrees awarded
- innovative pedagogical models for the completion of the higher cycle, to facilitate the re-entry of secondary school dropouts.
- re-consideration of alternation alternatives and dual plans that are not widespread in the country.
- lack of explicit focus on digital needs.

---

with respect to the relationships between the demands of occupations, educational levels and qualifications of workers and the responses of education and training for work at the secondary, technical-vocational and vocational levels.

Table 1

Inclusion opportunities, knowledge and transition to work

	Distribution Inclusion opportunities	Knowledge	Transition to work
Technical-professional education – public-private state			
Secondary basic cycle	When dropping out, work options		Self-employment
Secondary higher cycle – specialization Termination Higher technical		X	Cases of attention to dynamic sectors of the economy, technological processes, alternation and practices.
Internships			Demands of the productive apparatus Local governments and organisations
Termination	X		
Tertiary technical		X	
Vocational training	X	For alternative courses for women Disadvantaged groups Quality improvement	Demands of the productive apparatus Local governments and organisations
Other government areas			
Labour sector, employment programmes, production, social development	X		Programmes
Other actors/public-private partnerships			
Companies Trade unions Social organisations	X	Centres of excellence. Alternative technical schools Tailor-made technical processes	Activities, experiences Training ecosystems
Virtual platforms (lack of regulation, not developed in the PICTO Networks)	Scattered offers with costs. Short-term illusions	Traditional and profitable occupations Programming on the crest of the wave	Self-employment Some courses, tied or linked to employment Openings for the professional market High segmentation and specialisation of the labour market

2.2 Sectoral Responses to the Distribution of Vocational Technical Education and Vocational Training Enrolment in the Territories

The offer of vocational technical education and vocational training in the territorial areas under study allows us to anticipate a certain continuity with respect to the statements in the previous section but also singularities: there are behaviours adjusted or adapted to the demand or to the local productive profiles, which should be rigorously evaluated in terms of contents and follow-up of students or graduates in employment situations or through consultation with employers.

The analysis of degrees organised according to the response to the so-called 'training sectors' would correspond to the demands of the productive apparatus and of the local municipal or provincial governments themselves, as well as those derived from the context of technological innovation in each region.

And this can be followed for each of the regions or zones defined for this research. We can summarise the composition of enrolment in vocational technical education and vocational training, and in this case the orientation chosen by secondary technical students, that of upper secondary or higher technical students; and also detail the composition by sector of the vocational training students, outside the regular education system, i.e., the non-formal offers, but in charge of the state or regulated under the vocational technical education and vocational training law, by registration in the Catalogue of the competent body, which is the National Institute of Technological Education (INET).

2.3 Quasi-Market, Public-Private Alliances and the Actors of Education and Training for Work

We have concluded by speaking of 'illusory distribution', since the goal of access and permanence of the entire population in the education system until completing at least the compulsory levels has not yet been achieved either in Argentina or in other countries in the Latin American region, despite its formal recognition in laws since the end of the 19th century.

The complexity of the scenarios of education and training for work is expressed in the thematic overlapping of the offers, the focus on the same or different populations, their dissimilar link with the requirements of the productive apparatus, the accreditation mechanisms and the restrictions on access, among the most significant ones (Riquelme & Herger, 2006). The complex scenarios involved various sectors and spheres at the national, provincial and municipal levels that formed a mosaic of fragmented and overlapping actions (Riquelme, 2010, 2015).

Currently, the market of short-term illusions, the functional market of demands and the paradise of diversity coexist, to which the virtual platforms of training for work have had to be added for more than a decade.

One georeferencing study explored all actions and experiences derived from local and regional public policies, eco-training systems, industrial parks and social actors - companies, trade unions and social organisations - and their links with vocational technical education and vocational training. The exhaustive survey aimed at describing the objectives and purposes, which explicitly or implicitly referred to human resource training issues, or technical and vocational education actions.

These mentions were organised into the following main orientations of the actions according to whether they sought: a) the promotion of improvements in competitiveness, productivity, territorial development and the promotion of technological innovation; b) the intervention, organisation of training proposals, education and training of adolescents, young people and employed and unemployed adults; c) the identification, diagnosis, or approximation to social and productive demands; and d) the promotion of productive, social and territorial development.

In the network project, the previous georeferencing study has been continued in order to locate new actions in the territorial spaces and the responses derived from the social actors in response to local policy orientations, as in the case of Entre Ríos, focused on the lines of entrepreneurship; as well as a tradition of active trade unions in Greater Buenos Aires - linked to construction, machine tools, metallurgy, automotive and industry - and business chambers such as software; the same sectors and the union of industrialists of different orientations. These same entities have delegations in Salta, Santa Fe and Entre Ríos. Bariloche, as a scientific and technological enclave, is a singular space where the scientific system, cutting-edge units in satellite and atomic energy research, and a high-level centre for the training of physicists all congregate. In turn, the offer around tourism and gastronomy is the result of the productive activity that employs the majority of Bariloche's population.

The text box that was designed expresses this territorial link between the economic and productive demands and the social actors, whose deepening and updating are central themes of the current project, in relation to digital needs.

The "conflictual" nature of these problems requires recognizing the cultural and social advantages for the subjects of education and training derived from: the existence or not of groups of workers, like unions and organizations by employment sectors; the individual advantages of certain groups in the middle and upper classes that achieve high flexible circulation on platforms in the face of the heterogeneous productive structure of informal companies and sectors.

The text box that was designed expresses this territorial link between the economic and productive demands and the social actors, whose deepening and updating are central themes of the current project, in relation to digital needs.

The analysis of provincial and local, social and economic conditions for the insertion into the world of work, allows considering differential situations among areas according to main productive sectors, labour markets' demands, populations' size and relative living conditions.

The "conflictual" nature of these problems requires recognizing the cultural and social advantages for the subjects of education and training derived from: the existence or not of groups of workers, like unions and organizations by employment sectors; the individual advantages of certain groups in the middle and upper classes that achieve high flexible circulation on platforms in the face of the heterogeneous productive structure of informal companies and sectors.

2.4 Contributions to the Assessment of the Digital Needs of Workers

The studies and results of the applications of the ArCaWall survey "Work and Lifelong Learning"[7] allowed the notion of workers' educational potential to be developed. As mentioned at the beginning of this article, this idea can be assimilated to a 'mix' that takes into account the educational and work history of the subjects in a broad sense.

The current research, from the conceptual contribution of the UBA node, has been able to advance in the drafting of a synthesis version of the original ArCaWall questionnaire that allows the application of the indicators constructed on educational potential or basic education (Riquelme & Herger, 2024 mimeo). The synthesis version investigates: the level of education attained, attendance at vocational training, the completion of non-formal education courses and the completion of informal learning related to paid work; changes in the job within the last five years and in the knowledge and skills requirements; the correspondence between the education and training requirements of the job and those obtained by the workers.

The current research, from the conceptual contribution of the UBA node, has been able to advance in the drafting of a synthesis version of the original ArCaWall questionnaire that allows the application of the indicators constructed on educational potential or basic education (Riquelme & Herger, 2024 mimeo). The synthesis version investigates: the level of education attained, attendance at vocational training, the completion of non-formal education courses and the completion of informal learning related to paid work; changes in the job within the last five years and in the knowledge and skills requirements; the correspondence between the education and training requirements of the job and those obtained by the workers.

Given the orientation of the research, it was necessary to update and improve content related to digital technologies in the sections on informal learning; learning skills and use of IT devices (computer, mobile phone and others at work) and changes in jobs in recent years.

The digital skills module is aimed at employed and unemployed workers, who worked in the last year (last twelve months). The structure of the module includes sections on:

---

[7]   PICT 2018 03746 and PIDAE 2018 3051 Working papers series-PEET-IICE-UBA. Riquelme&Herger (2024) "Educación, aprendizajes sociales y laborales de trabajadoras y trabajadores: los cambios en el proceso de trabajo y los requerimientos educativos. Aportes de la encuesta ArCaWall". PEET-IICE-UBA-FFyL/CONICET. Mimeo.

   I.   the performance of remote work;
  II.   the general skills of reading, writing, mathematics, problem solving required by the jobs;
 III.   the use of digital technologies at work and the levels of digital skills (basic, generic and higher) required in the occupation;
 IV.   machinery and software at work;
  V.   the completion of courses linked to the acquisition of digital skills;
 VI.   views on the dissemination of technologies at work.

The limitations of resources did not allow us to advance in the implementation of the survey and module. The team set out to perform a virtual consultation as an exploratory alternative, related to the topics of the digital module.

The virtual consultation is designed to ascertain the views of the business sector and sectoral specialists and trade union organisations on: a) the effects of the incorporation of digital work processes and technologies; b) the educational level of workers and the requirements of technological and digital skills; and c) the problems or gaps in the training of workers in key sectors and economic branches in the selected provinces and local areas (Bahía Blanca, Greater Buenos Aires, Greater Salta, Greater Santa Fe, Paraná, Viedma, urban areas of the Alto Valle de Río Negro and San Carlos de Bariloche).

Design of the questionnaires in the perspective of triangulation of contents

The virtual consultation contemplates the design of three questionnaires in relation to the planned coverage and the themes are reiterated in each of the questionnaires in order to mirror and complement the perspectives and opinions of the respondents.

The design of the questionnaires was mirrored in order to achieve triangulation in the perspectives of the respondents.

3   Dialogue with Some Evidence

Over the years it has been possible to identify theoretical frameworks, coincidences in the recognition of problems derived from economic and labour policies, and similar interpretation frameworks to discuss the scope of technical education and vocational training.

1. Diversification and differentiation vs. increased inequality in access and permanence
   Market of short-term illusions vs. inclusion policies without resources. Relativity,
   Conflicts and Regulation are the challenges to reach a consensus on the interests at stake in light of past experiences

   In this comparative paper on growing public-private partnerships for skills development in Morocco, the Netherlands and Serbia, we refer to the thematic conference issue: historical pathways of institutional development of skill formation in different orientations and systems to the social justice, market economy and socio-economic development (Van der Meer et al., 2023, p. 463).

   PPPs can be perceived as a threat to education, viewed as a public good and a fundamental human right. The PPP model is seen as a vehicle for privatising education supply, bringing concerns about possible failures in quality, equity, accountability and social cohesion (Van der Meer, et al., 2023, p. 465).
2. Georeferencing studies of technical education and vocational training. Extensive survey
   The PEET carried out an extensive survey in territorial and/or planning areas of the national government and provincial governments according to the project. The survey aimed at:
3. the construction of the Extensive Survey Synthesis Map (MSRE), georeferenced interactive map. T (Riquelme et al., 2021; Riquelme &Sassera, 2020).

> PPPs can be perceived as a threat to education, viewed as a public good and a fundamental human right. The PPP model is seen as a vehicle for privatising education supply, bringing concerns about possible failures in quality, equity, accountability and social cohesion (Van der Meer et al., 2023, p. 465).

One of the presentations at VENET 2023- Kaunas-Lithuania establishes a dialogue with these lines, by presenting:

The organisational basis for these innovations date back to 2004, when the three of Ministries Economic Affairs, Social Affairs and Education established the Science and Technology Platform (Platform Bèta-Techniek, PBT), with the overall aim to enhance the number of students in science, technology, engineering, and mathematics (STEM) (Van der Meer et al., 2023, p. 465).

1. The main facilitating task of the platform has been to enhance new cooperative forms of innovation, always in the open environment of schools (Van der Meer, et al., 2023, p. 472).
2. Argentina's situation could be understood through the existence of complex education and vocational training scenarios in which demands and interventions from different areas and groups coexist and require regulation.
3. These innovations are to be regarded as bottom-up process. They appear to follow a relative chaotic pattern in local areas but lead to convergence in a later stage. Within varying time horizons, actors engage in three key issues that prove to be relevant: the cooperation dilemmas: how to get started; the requirements and conditions of government legislation and coordination: how to get institutionalised; and the nature of experimental governance: how to become enduring and continuous(Van der Meer, et al., 2023, p. 474).
4. Efficiency modernization since the late 1980s coincides with the progressive withdrawal of the state and struggles between sectors and social groups regarding the orientation and application of resources for educational policy, social development and labour-oriented training for work.
5. The development of skills training systems is seen as a dynamic political process that depends on the outcome of various political struggles regarding issues such as institutional design and transformations during critical junctures of historical development. (Busemeijer & Trampusch, 2012)
6. The notion of the "iceberg", the potential knowledge of workers, as well as the unemployed workforce of working age could be associated with notions presented about the "hidden reserve" corresponding to retirees in Germany. In addition, it is interesting to compare the dynamics of the labour market, since in the European country they point out the shortage of qualified workers.
7. Germany is particularly affected by an increasing shortage of skilled workers. At the same time, there is a so-called "hidden reserve" of workers whose activation could be very helpful for the German labor market.The article estimates the size of the heterogeneous, untapped workforce potential and brings the different stakeholder groups in connection with concrete vocational training needs and reform proposals (Ixmeier et al., 2023, p. 223).
8. This article has raised the key role of social actors in the provision of concerted spaces to offer education and training for work, and this coincides with the notion of public-private alliances, among which the idea of training ecosystems are bridges that develop on both continents, with the participation and connection of multiple social actors generating very diverse coordination, links and associations.

9. A study that delves into the institutional profile in relation to the educational needs of workers and the response capacities of these areas would contribute to a rationality and development of the distribution of access and development opportunities for workers as an adequate focus of the contents of these instances.

References

Busemeijer, M. & Trampusch, C. (2012). *The political economy of collective skill formation*. Oxford: Oxford University Press.

Fernández Irusta, D. (2025, February 16). Juan Carlos Torre: "Hay una música de fondo en la sociedad argentina: la pasión igualitaria". La Nación. https://www.lanacion.com.ar/conversaciones-de-domingo/juan-carlos-torre-hay-una-musica-de-fondo-en-la-sociedad-argentina-la-pasion-igualitaria-nid16022025/

Herger, N. & Sassera, J. (2022). Desigualdades territoriales en el acceso y permanencia a la educación secundaria: aportes para la identificación de las condiciones sociales y educativas a nivel departamental en Argentina. *Revista Lavboratorio*, vol. 32 (1), 33-66. https://publicaciones.sociales.uba.ar/index.php/lavboratorio/article/view/8053/pdf

Livingstone, D. W. (2009). A general conceptual and theoretical approach to the study of learning and work and their correspondence. Facultad de Filosofía y Letras, Universidad de Buenos Aires.

Ixmeier, S., Muenk, D. &Muscati, N. (2023). "Making a virtue of necessity": Substitution potentials in the face of the shortage of skilled workers - ways to a sustainable future using the example of the German vocational training system. In V. Tūtlys, L. Vaitkutè& C. Nägele (Eds.), *Vocational Education and Training Transformations for Digital, Sustainable and Socially Fair Future. Proceedings of the 5th Crossing Boundaries Conference in Vocational Education and Training*, Kaunas, 25. – 26. May (pp. 222–228). European Research Network on Vocational Education and Training, VETNET, Vytautas Magnus University Education Academy, Institute of Educational Science. https://doi.org/10.5281/zenodo.7821811

PICTO REDES (2022). Nivel educativo de base y aprendizajes sociales de trabajadoras y trabajadores y las necesidades de habilidades digitales derivadas de la heterogeneidad económico-productiva frente a la diferenciación y diversificación de la educación y formación para el trabajo en provincias argentinas. [Research project]. Universidad de Buenos Aires, Universidad Nacional de Comahue, Universidad Nacional de Entre Rios, Universidad Nacional del Litoral, Universidad Nacional de Salta, Universidad Nacional del Sur.

Riquelme, G. C. (2015). Educación y trabajo de jóvenes y adultos a lo largo de la vida: Los alcances de una primera aplicación en el Área Metropolitana de Argentina. Facultad de Filosofía y Letras, Universidad de Buenos Aires.

Riquelme & Herger (2024). "Educación, aprendizajes sociales y laborales de trabajadoras y trabajadores: los cambios en el proceso de trabajo y los requerimientos educativos. Aportes de la encuesta ArCaWall". PEET-IICE-UBA- FFyL/CONICET. Mimeo

Riquelme, G. C. & Herger, N. (2024, May 14-16). Education, social and occupational learning of workers throughout their lives of urban workers in Argentina. In M. Teräs, L. Moreno Herrera & J. Kontio (Eds.). Book of Abstracts. IX Stockholm International Conference & Research Workshop on VET. Department of Education, Stockholm University. https://stockholminternationalvet.com/book-of-abstracts-2018-2/

Riquelme, G. C. & Herger, N. (2021). ArCaWall Survey, Argentina-Canadá Work and lifelong learning. CONICET-Programa Educación, Economía y Trabajo, Instituto de Investigaciones en Ciencias de la Educación, Universidad de Buenos Aires.

Riquelme, G. C. & Herger, N. (2006).Escenarios de educación y formación para el trabajo¿mercado de ilusiones de corto plazo o alternativas socio-educativas a la exclusión. (Documento de trabajo, 17). Programa Educación, Economía y Trabajo, Instituto de Investigaciones en Ciencias de la Educación, Facultad de Filosofía y Letras, Universidad de Buenos Aires.

Riquelme, G. C., Herger, N., & Sassera, J. S. (2021). Vocational education and training and intervention and regulation policies in Argentina. In C. Nägele, B.E. Stalder, & M. Weich (Eds.), *Pathways in Vocational Education and Training and Lifelong Learning. Proceedings of the 4th Crossing Boundaries Conference in Vocational Education and Training*, Muttenz and Bern online, 8. – 9. April (pp. 299–308). European Research Network on Vocational Education and Training, VETNET, University of Applied Sciences and Arts Northwestern Switzerland and Bern University of Teacher Education. https://doi.org/10.5281/zenodo.4604600

Riquelme, G.C., Herger, N. & Sassera, J. (2019a). Theory and practice in secondary schools in Argentina: knowledge, experience or work practices?. In F. Marhuenda& M.J. Chisvert-Tarazona (Eds.), *Pedagogical concerns and market demands in VET. Proceedings of the 3 rd Crossing Boundaries in VET conference*, Vocational Education and Training Network (VETNET) (pp.125-136) https://doi.org/10.5281/zenodo.2641884

Riquelme, G.C., Herger, N.& Sassera, J. (2018b). La atención educativa de la población enArgentina en las últimas

décadas: entre la distribución ilusoria, la modernización eficientista y los discursos delderechoylainclusión.EducationPolicyAnalysisArchives,Vol.26(158), 1-49. http://dx.doi.org/10.14507/epaa.26.3209

Riquelme, G. C., Herger, N & Sassera, J. (2021). Relevamiento y análisis de estudios disponibles sobre geo referenciación vinculando los sectores socio productivos y la oferta educativa Técnico Profesional existente. Instituto Nacional de Educación Tecnológica. https://www.inet.edu.ar/wp-content/uploads/2025/03/04-FONIETP_Georreferenciacion.pdf

Riquelme, G. C. & Sassera, J. (2021, December 6-10)). La perspectiva de las múltiples demandas sociales y productivas a la educación y formación para el trabajo, el territorio y la planificación de las políticas: acerca de un ejercicio de mapas socio-productivos y geo-referenciados en provincias de Argentina. III Conferencia sobre Planificación del Desarrollo "Julio H.G. Olivera". Universidad Nacional de San Martin.

Riquelme, G. C. N. Herger & J. Sassera (2018a). Deuda social educativa con jóvenes y adultos. Entre el derecho a la educación, los discursos de las políticas y las contradicciones de la inclusión y la exclusión. Buenos Aires, Argentina: Facultad de Filosofía y Letras, Universidad de Buenos Aires. http://publicaciones.filo.uba.ar/deuda-social-educativa-con-j%C3%B3venes-y-adultos

Riquelme, G.C., Herger, N. & Sassera, J. (2018b). La atención educativa de la población en Argentina en las últimas décadas: entre la distribución ilusoria, la modernización eficientista y los discursos del derecho y la inclusión. *Education Policy Analysis Archives*, Vol. 26 (158), Diciembre, Arizona State University. http://dx.doi.org/10.14507/epaa.26.3209

Riquelme, G. C. & Sassera, J. (2021). Estudio Relevamiento y análisis de estudios disponibles sobre geo referenciación vinculando los sectores socio productivos y la oferta educativa Técnico Profesional existente. Elaborado por el PEET-IICE/UBA-FFyL en el marco de la Convocatoria del FoNIETP línea Investigaciones INET – 2019. Mimeo.

Sassera, J. (2023). Aportes del estudio de la dimensión espacial para la comprensión de las desigualdades sociales y la segmentación socioeducativa. El caso de la provincia de Misiones- In G. C. Riquelme (Eds.) *La construcción del campo de la Economía de la Educación en Argentina* (pp. 534-567). Editorial de la Universidad Nacional del Sur y EUDEBA.

Sassera, J. (2018). Segmentación socioeducativa y políticas educativas en espacios locales de Buenos Aires. In Buenaventura et. al. (comps.) *Nuevos desafíos en educación. Una mirada interdisciplinaria* (pp. 46-58). Flacso. Consultado 10-02-2021 https://www.flacso.org.ar/publicaciones/nuevos-desafios-en-educacion-una-mirada-interdisciplinaria/

Tough, A. (1978). Major learning efforts: Recent research and future directions. *Adult Education Quarterly*, *28*(4), 250-263.

Van der Meer, M., Taurelli, S. & Avagyan, A. (2023). Outside-in: Public-private partnerships upgrading the institutional equilibrium in Morocco, the Netherlands and Serbia. In V. Tūtlys, L. Vaitkutė & C. Nägele (Eds.), *Vocational Education and Training Transformations for Digital, Sustainable and Socially Fair Future*. *Proceedings of the 5th Crossing Boundaries Conference in Vocational Education and Training*, Kaunas, 25. – 26. *May* (pp. 463–476). European Research Network on Vocational Education and Training, VETNET, Vytautas Magnus University Education Academy, Institute of Educational Science. https://doi.org/10.5281/zenodo.7822858

Biographical Notes

Dr Graciela Clotilde Riquelme has created a research program in education, economics and labor (PEET), in technical education and vocational training, and multiple social, economic and productive demands with quantitative and qualitative approaches. She developed her career as principal researcher of the scientific system (CONICET).

The Importance of Interpersonal and Emotional Variables for Best Practices in Basic/Initial Vocational Education and Training

Santibáñez, Rosa
rosa.santibanez@deusto.es, University of Deusto

Fonseca, Janire
janire.fonseca@deusto.es, University of Deusto

Moro, Álvaro
alvaro.moro@deusto.es, University of Deusto

Abstract

Context: Following the incorporation of Basic/Initial VET into the Spanish general education system, this research analyses the importance of socioemotional and interpersonal variables of students and teachers as one of the key elements for good practice in Basic/Initial VET. Methodology: This communication is part of a broader research project (EduRisk[1]). In this case we focus on a mixed design (quantitative and qualitative) to analyse data at regional level and triangulate them with an international systematic review.
Findings: Meaningful emotional support contributes to peer relationships, greater group acceptance and correlates with high student engagement.
Conclusions: These results highlight the need to incorporate specific methodological changes in educational practices not only related to curricula, but also to the hidden curriculum and soft skills.

Keywords

socioemotional variables, interpersonal variables, initial / basic VET, best practices

1 Introduction: Basic/Initial VET in Spain

One of the primary incentives for developing this research project is the legislative framework that was in force in Spain until 2022. Within this structure, students who failed to pass lower secondary education received no certification and were excluded from the general education system without any qualification. At that time, Basic Vocational Training was promoted by entities, and its completion enabled individuals to access the labour market or pursue higher

---

[1] EduRisk - Best Practices with At-Risk Youth in Basic Vocational Education & Training: Towards greater educational effectiveness and social inclusion is a competitive research project (Santibáñez et al., 2023), financed by the Spanish Ministry of Science and Innovation and carried out between 2021 and 2025 with a research team of seven people (Rosa Santibañez, Janire Fonseca, Josu Solabarrieta, Marta Ruiz-Narezo, Alvaro Moro, Javier Pérez-Hoyos and Garazi Yurrebaso).

levels of vocational training; however, it did not allow them to re-enter the general education system or obtain basic qualifications. Currently, Organic Law amending the LOE law LOM-LOE (2022) in Spain amends the previous Organic Law of Education, LOE (2006). The LOM-LOE includes the Basic Vocational Training Cycle - a two-year programme which, firstly, facilitates the obtainment of the Secondary School Diploma/Certificate of Graduation College Degree, thereby allowing an alternative pathway to complete basic training; and secondly, it makes it possible to access either the labour market or Intermediate Vocational Training Cycles and thus continue with the next level of professional training.

At first glance, this recent legislative reform appears to be aimed at including students with poorer academic results in the general education system. However, it has also sparked debate due to the regulations of this basic cycle regarding compulsory subjects, to the detriment of a more personalised and flexible approach that responds to the needs of students and their socio-personal situations.

2   The EduRisk Research Project

EduRisk - Best Practices with At-Risk Youth in Basic Vocational Education & Training: Towards greater educational effectiveness and social inclusion is a competitive research project (Santibáñez et al., 2023), financed by the Spanish Ministry of Science and Innovation and carried out between 2021 and 2025. It comes into play in this context, and its main objective is to identify, outline, and disseminate the pedagogical actions undertaken in Basic Vocational Training Cycles in the Autonomous Basque Community as well as to explore which interventions foster the educational, social, and labour inclusion of students. This objective is divided into seven sub-objectives or specific goals:

1. To describe the behavioural problems of Basic VET students compared to Intermediate VET, the sixth form, and 4th year secondary school students.
2. To examine the factors (enabling and hindering) that influence students' learning experience in Basic VET.
3. To identify the evaluations and perceptions regarding various aspects of the programmes and their development as conveyed by teaching staff, students, families, and other professionals from entities involved in Basic VET initiatives.
4. To determine the qualities that make VET an appealing option for students and an educational response for their integration when dealing with risk behaviour.
5. To analyse effective educational approaches that foster students' interest in continuing their education and consolidate them into concrete actions.
6. To present the situation of female students in Basic VET, along with their perceptions and opinions regarding the support they receive to overcome their disadvantaged situation.
7. To pinpoint the difficulties that have arisen as a result of the health crisis and the measures taken to deal with them, as well as the solutions provided to navigate these challenges.

3   Methodology

EduRisk has focused its research on exploring the perceptions and evaluations of Basic VET from the different actors involved (students, families, teaching staff, and management teams) by carrying out two consecutive studies.

The first EduRisk study is qualitative, investigating the perception of these interest groups concerning the specific characteristics of Basic VET that foster and make this pathway appealing. Seventeen focus groups were conducted in the three territories of the Basque Autonomous Community (Araba, Bizkaia, and Gipuzkoa) with a total of N=132 individuals participating

(Student Focus Groups: N=62; Families: N=28; Teachers: N=29; School Management Teams: N=13).

Based on the results of these focus groups, a questionnaire was distributed to 438 Basic VET students to assess how they perceived teaching staff, the motivational behaviours exhibited by teachers, the educational involvement of students, and their well-being and socio-emotional skills.

The systematic review is based on the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) methodology (Page et al., 2021; Urrutia & Bonfill, 2010) with the formulation of the PICO question - Population - Intervention - Comparator - Outcome (Landa-Ramírez & Arredondo-Pantaleón, 2014). The guiding PICO question for this review incorporates the three essential components of PICO (PIO) and is formulated as follows: What kinds of educational interventions (I) used with Basic VET students (P) lead to higher levels of personal, social, or academic success (O)? Following the PICO question, a search was performed in the principal scientific databases (WoS, Scopus, and ERIC), and criteria for inclusion and exclusion criteria were established. Out of a total of 429 research studies identified, 30 underwent an in-depth analysis.

This communication analyses the importance of socioemotional and interpersonal variables of students and teachers as one of the key elements for good practice in Basic/Initial VET. We focus on a mixed design (quantitative and qualitative) to analyse data at regional level and triangulate them with an international systematic review.

4 Connecting Macro and Micro Results

In order to identify preliminary conclusions, the last phase involved a comparison of all the results obtained from different sources; that is, examining the "more micro" results from the EduRisk research obtained in the Basque Autonomous Community alongside the international findings of the systematic review. This revealed clear alignments and similarities in the interpersonal or socioemotional variables of pupils and teachers alike.

The systemic review identified variables that correlate with increased student engagement (Sureda-García et al., 2021) and those related to success (Hirschy et al., 2011). Students' high levels of behavioural engagement are found to be directly linked to the ability to establish positive relationships with teachers. Additionally, the power of meaningful emotional support was observed, contributing to better peer relationships, greater group acceptance, and improved interactions with the immediate environment or context. Finally, training in basic or transversal competences is shown to be very relevant and, at the same time, motivating (Gyory & Czakó, 2020; Villardón-Gallego et al., 2020), i.e., self-knowledge, self-confidence, teamwork, tolerance, interpersonal skills, responsibility, and emotional and conflict management.

In this sense, the triangulation of the three research approaches (the systematic review and EduRisk qualitative and quantitative studies) has allowed us to draw some conclusions concerning the socioemotional, or interpersonal and emotional variables of students and teachers, which can encourage and promote best practices in Basic Vocational Training.

Establishing good relationships with teachers and receiving meaningful emotional support contributes to improved peer relationships and correlates with high student engagement (Sureda-García et al., 2021), and thus also become variables tied to success (Hirschy et al., 2011).

Furthermore, the questionnaires from EduRisk showed that the participating students scored highly in terms of behavioural and emotional engagement, i.e., in the level of commitment, motivation, and active participation in their learning process. This is associated with better academic results, greater resilience when faced with challenges, and more impactful learning (García-Ros et al., 2021).

Similarly, the focus groups found a greater willingness on the part of teachers to motivate students by implementing effective strategies such as actively listening to them, acknowledging their opinions and concerns, and showing availability and support beyond academic matters.

> It's important to establish a connection, and you need many personal characteristics, like empathy, listening skills, and patience, to be able to say, "Look, you've judged me, and I've judged you. But I'm here, and let's see what happens". We have to have people with a very specific profile, and not everyone has to be like that. A stricter manager is also needed, and the kids will eventually learn to modify their behaviour based on who they have in front of them. (Manager).

> That you don't give up so easily and that you can do it. I mean, you think you can't do it. And if you give up and say, "I can't do this anymore; I'm not capable of doing this", all the teachers say 'yes, you can. I know you are capable', and they give you a little pep talk. (Student).

Consequently, we observed that positive interpersonal relationships and meaningful emotional support from teachers are tied with student engagement, commitment, motivation, active participation, academic outcomes, resilience, and impactful learning.

In the case of teaching staff, the systematic review underscores the importance of addressing the emotional state and perceived self-efficacy of teachers (Fix et al., 2020; Gagnon & Dubeau, 2023; Miesera & Gebhardt, 2018; Özbek et al., 2017; Van Middelkoop et al., 2017). Meanwhile, regarding the micro research of EduRisk, the focus groups point to the need for emotional stability and resilience to teach, as well as a high and indispensable self-perception of one's competence to manage the classroom, motivate students, and apply effective pedagogical strategies.

> Starting with the most basic one, that of attendance. So, how can it not be a challenge? What can we do? What can we do with the magic wand that we pull out of the hat to somehow captivate them and be able to start working. (Teacher)

> A person who doesn't have much drive or isn't very strong mentally..., basically, it depends on the group they are in; I would say that psychologically, they may not be able to stand it much longer in basic vocational training. (Teacher)

Students also reported their perception of teacher's self-efficacy in the EduRisk questionnaire. Specifically, students indicate a greater frequency of positive teaching practices among VET educators compared to their secondary school teachers. These differences are statistically significant, showing a medium effect size. In this regard, international studies find a correlation between strong teacher self-efficacy and greater commitment, innovation in teaching, and better academic results in students, as teachers who are confident in their abilities are likely to persevere in the face of difficulties and seek solutions to improve their educational practice (Zee & Koomen, 2016).

Finally, the review stresses the importance of strengthening the initial preparation of teachers and also their in-service training in specific methodologies, as well as in socio-emotional and interpersonal dimensions (Casale-Giannola; 2012; Fix et al., 2020; Gagnon & Dubeau, 2023; Miesera & Gebhardt, 2018; Oude Groote Beverborg et al., 2015; Özbek et al., 2017; Prummer et al., 2023; Torres-García et al., 2022; Van Middelkoop et al., 2017). The evidence gathered suggests that to better assist students who have particular difficulties in staying on course and progressing in the system, it is essential to have highly motivated and emotionally regulated teachers who are equipped to perform their tasks in more work-related environments

through effective teaching practices that can address the cognitive, personal, and social needs of students.

A workshop within the EduRisk project was held on October 17, 2024, where the analysis and all the findings were shared with the educational centres participating in the research. The session also presented the milestones and preliminary results of the study on best practices in basic vocational training cycles in the Basque Autonomous Community, along with the findings obtained in the different phases of the research, providing structured feedback to the participants. Subsequently, a participatory workshop took place, focusing on the challenges and strategies for this particular VET cycle, and where the exchange of experiences and reflections was encouraged. Lastly, key conclusions were discussed, highlighting the importance of socio-emotional and interpersonal variables related to both students and teachers, as well as the need to incorporate specific methodological changes in educational practices.

References

Casale-Giannola, D. (2012). Comparing inclusion in the secondary vocational and academic classrooms: Strengths, needs, and recommendations. *American Secondary Education, 40*(2), 26-42.

Fix, M., Ritzen, H., Kuiper, W., & Pieters, J. (2020). Make my day! Teachers' experienced emotions in their pedagogical work with disengaged students. *Journal of Pedagogy*, 11(2), 5-27.

Gagnon, N., & Dubeau, A. (2023). Building and maintaining self-efficacy beliefs: A study of entry-level vocational education and training teachers. *Vocations & Learning, 16,* 511-532.

García-Ros, R., Pérez-González, F., & Tomás, J. M. (2021). Estrategias cognitivas y de autorregulación, engagement académico y rendimiento en estudiantes universitarios. *Propósitos y Representaciones, 11*(1), e1651. https://doi.org/10.20511/pyr2023.v11n1.1651

Gyori, A., & Czakó, A. (2020). The impact of different teaching methods on learning motivation-a sociological case study on Hungarian vocational education. *International Journal of Innovation & Learning*, *27*(1), 1-18.

Hirschy, A. S., Bremer, Ch.D., & Castellano, M. (2011). Career and technical education (CTE) student success in community colleges: A conceptual model. *Community College Review*, *39*(3), 296-318.

Landa-Ramirez, E., & Arredondo-Pantaleon, A.J. (2014). Herramienta PICO para la formulación y búsqueda de preguntas clínicamente relevantes en la psicooncología basada en la evidencia. *Psicooncología, 11*(2-3), 259-270.

LOMLOE - Ley Orgánica 3/2020, de 29 de diciembre, por la que se modifica la Ley Orgánica 2/2006, de 3 de mayo, de Educación. Boletín Oficial del Estado, núm. 340, de 30/12/2020. BOE-A-2020-17264

LOE - Ley Orgánica 2/2006, de 3 de mayo, de Educación. Boletín Oficial del Estado, núm. 106, de 04/05/2006. BOE-A-2006-7899

Miesera, S., & Gebhardt, M. (2018). Inclusive vocational schools in Canada and Germany. A comparison of vocational pre-service teachers′ attitudes, self-efficacy and experiences towards inclusive education. *European Journal of Special Needs Education*, 33(5), 707-722.

Oude Groote Beverbog, A. Sleegers, P.J.C., Endedijk, M.D., & van Veen, K. (2015). Towards sustaining levels of reflective learning: How do transformational Leadership, task interdependence and self-efficacy shape teacher learning in schools? *Societies, 5,* 187-219.

Özbek, A. B., Girli, A., & Öztürk, H. (2017). Investigating the opinions of teachers on the processes of vocational counselling, training and employment of special needs students. *Journal of Education & Training Studies*, *5*(12), 41-50.

Page, M.J., McKenzie, J.E., Bossuyt, P.M., Boutron, I., Hoffmann, T. C., Mulrow, C. D. Shamseer, L., Tetzlaff, J. M., Akl, E.A., Brennan, S.E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M.M., Li, T., Loder, E.V., Mayo-Wilson, E., McDonald, S., ..., & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ,* 372, 71. http://dx.doi.org/10.1136/bmj.n71

Prummer K., Human-Vogel S., & Pittich D. (2023). Vocational education and training in South Africa: leaders' perceptions of a mentoring framework in a professional development programme. *International Journal of Mentoring & Coaching in Education*, 13(2), 195-213.

Santibáñez, R., Moro, Á., Fonseca, J., Pérez-Hoyos, J., Solabarrieta, J., & Ruíz-Narezo. M. (2023). ¿Qué es la Formación Profesional Básica? Las claves educativas contra el abandono escolar. *The Conversation.*https://theconversation.com/que-es-la-formacion-profesional-basica-las-claves-educativas-contra-el-abandono-escolar-192117

Sureda-García, I., Jiménez-López, R., Alvarez-García, O., & Quintana-Murci, E. (2021). Emotional and behavioural engagement among Spanish students in vocational education and training. *Sustainability, 13,* 3882.

Torres-García, S., Valverde-Esteve, T., & Salvador-García, C. (2022). Los Patios divertidos in secondary and

vocational training: An experience through service-learning. *Aula Abierta*, *51*(1), 37-44.

Urrutia, G., & Bonfill, X. (2010). Declaración PRISMA: Una propuesta para mejorar la publicación de las revisiones sistemáticas y metaanálisis. *Medicina Clínica, 35*(11), 507-511.

van Middelkoop, D., Ballafkih, H., & Meerman, M. (2017). Understanding diversity: a Dutch case study on teachers' attitudes towards their diverse student population. *Empirical Research in Vocational Education & Training*, *9*(1), 1-19.

Villardón-Gallego, L., Flores-Moncada, L., Yáñez-Marquina, L., & García-Montero, R. (2020). Best practices in the development of transversal competences among youths in vulnerable situations. *Education Sciences*, 10, 230.

Zee, M., & Koomen, H. M. Y. (2016). Teacher self-efficacy and its effects on classroom processes, student academic adjustment, and teacher well-being: A synthesis of 40 years of research. *Review of Educational Research, 86*(4), 981-1015. https://doi.org/10.3102/0034654315626801

Biographical Notes

Dr. Rosa Santibáñez is professor of Social Pedagogy at the University of Deusto / Bilbao. She is the Principal Investigator of the team *INTERVENTION: Quality of life and social inclusion*. Her area of expertise is focused on vulnerable and at-risk groups, as well as the use of socio-educational strategies for the promotion of social inclusion.

Dr. Janire Fonseca holds a PhD in Educational Innovation and Lifelong Learning. Her lines of research focus on citizen participation, community development, risk and protection factors in adolescence and youth and socio-educational intervention strategies. She has also worked with vulnerable and high-risk groups, both nationally and internationally. She is member of the research team *INTERVENCION: Quality of life and social inclusion*.

Dr. Álvaro Moro holds a degree in Sociology and a PhD in Educational Innovation and Lifelong Learning. He is currently director of the Deusto Institute of Drug Addictions. His research activity is mainly focused on drug addictions and other related dependencies, problem behaviours and vulnerability. He is member of the research team *INTERVENCION: Quality of life and social inclusion*.

The Impact of Benchmarks on EU Policy Monitoring Process: A Comparison of Vocational Education and Training (VET) and Adult Learning (AL) Sectors

Sekmokas, Mantas

mantas.sekmokas@cedefop.europa.eu, European Centre for the Development of Vocational Training (Cedefop)

Abstract

Context: This work aims to assess to what extent, in the domain of EU education and training policy, setting an official quantitative policy indicator with a target value (a "benchmark") has an impact on the extent and frequency of subsequent monitoring efforts.

Approach: Analysis of official documents of EU institutions, notably the agreements of the Council, setting concrete EU-level targets as well as the annual European Commission "Education and Training" reports to monitor progress towards those targets, also building upon the experience of Cedefop in monitoring EU policy objectives and targets specifically for the VET sector.

Findings: The main findings are that the presence of a target seems to relate to higher regularity of reporting, while no clear relation to the scope of analysis was found. In addition, some other factors, including other target setting and monitoring processes, data availability and indicator framing were identified as also likely having effects on monitoring efforts.

Conclusions: it is considered that better alignment of different processes to set and monitor policy objectives would likely bring more coherence, and thus also stronger policy impact. Furthermore, in view of persistent labour/skills shortages, a re-assessment of the functioning of labour (re-)allocation processes as well as the adequacy of the existing policy mix may be in order. Other avenues for enhancing policy effectiveness include improvements to the data infrastructure (e.g. developing satellite accounts on skills supply and demand), which would enable more robust assessment of the required workforce skills composition and setting-out to what extent different education sectors could each contribute to provide (part-of) those skills.

Keywords

European education and training policy, monitoring, indicator, benchmark, target

1 Introduction

With the progressive spread of the availability and use of statistical indicators firstly in the economic policy domain during the great depression (MacFeely, van de Ven and Peltola, 2024; Lehtonen, 2015) and later in the social domain during the so-called social indicator movement in 1960s (Land and Michalos, 2018; Lehtonen, 2015), these efforts also took hold within education and training systems and policies.

From an international perspective, an important milestone has been the first international conference on cross-national education indicators, organised in 1987. This conference was the starting point for setting up a process to monitor education systems across developed economies under the auspices of the OECD (OECD, 1994).

In the European Union, a key impetus for this strand of activity was recognising education as an area of (a limited) EU competence in the Maastricht treaty of 1992. Fast-forward ten years and in 2003 the Council of the EU has adopted the first five pan-European benchmarks to measure and compare the performance of education and training systems and monitor progress towards the goals of Lisbon strategy, also setting up an annual monitoring mechanism. Complementing it, the regular monitoring of EU VET policy priorities and VET-related targets was also launched by Cedefop as of 2004. Another decade later, education-related indicators were set at the global level, applicable for all countries as part of the Sustainable Development Goals (SDG) process.

From the theoretical perspective, the use of quantitative indicators may be driven by a variety of purposes. Their intended functions may be instrumental (e.g. to be used as an input for specific decisions), conceptual (e.g. as broad information base for informing understanding and decision making), as well as political (e.g. for agenda-setting or problem definition) (Lehtonen, 2015). Institutionalising indicators (their adoption in a formal policy document) is frequently seen to increase their impact and ensure their use (Lehtonen, 2015). In the EU, especially policy areas with limited EU competence, indicators and benchmarks are a key design feature aimed to facilitate policy coordination and learning (Radaelli, 2008).

The adoption of official indicators and benchmarks within the EU policy process provides for an opportunity to assess the extent, to which such "institutionalisation" of indicators affects their further use, e.g. within the subsequent indicator monitoring process. This can be done by contrasting the amount of analysis dedicated to specific policy areas.

Notably, VET and AL are two identifiable sectors of education, covered within the EU education and training policy and its monitoring frameworks from the early days. They pose as two contrasting cases in terms of their coverage in the target-setting process – while a benchmark on adult learning was set-up already in 2003, monitorable VET-specific benchmarks were only set up in 2020.

At the same time, both sectors have evolved to have well defined policy frameworks and policy cooperation processes as well as progressively extended availability of statistical data. All this provides an opportunity to carry out a comparative analysis of the emphasis put on these sectors in the annual monitoring reports of the European Commission and inferring the potential impact of the presence of formal indicators/targets on the monitoring process.

2   Research questions

This paper aims to analyse the potential relation between a presence of formal, "Institutionalised" quantitative target for a specific area/sector of education and training system and the amount of analysis, dedicated to that specific sector, within the reports, which are intended to report on the evolution of performance of education and training systems, responding to the common policy objectives. More specifically, the research question is:

To what extent the presence of formally adopted targets relates to the policy attention, dedicated to monitoring specific policy priorities or policy areas?

3   Methodology

The methodology is based on a three-step approach, using document analysis as the principal method of analysis. Notably, the first step concerns mapping of the officially adopted targets in the field of education and training and assigning those to the individual policy areas.

In the case of this paper, all the targets relevant specifically for AL or VET were identified, and the timing of their adoption noted. Given that the mandate to officially adopt common policy priorities in the EU is granted to the Council of the EU (further – Council), relevant Council documents between 2003 and 2025 were analysed.

The second step concerns the analysis of monitoring reports, which, at the request of the Council, from 2004 have been submitted by the European Commission on an annual basis (except for years 2010-2011, were a single monitoring report covered a two-year period) and which have evolved to the well-recognised "Education and Training Monitor" publication. Each identified monitoring report was analysed to identify the space dedicated to the data analysis and reporting of the situation in the AL and VET education sectors. A dedicated space was considered where a specific section or sub-section (identifiable with an individual title) was dedicated to the analysis of the situation exclusively/specifically to AL and/or VET education sector. The dedicated space was measured in page length (including visuals).

Finally, the volume of reporting was qualitatively compared to the presence and timing of the adoption of targets, and conclusions were drawn on the potential impact of the presence of a target on the level of attention/scope of analysis dedicated to that policy area. Also, some other factors (e.g., policy agenda, data availability, indicator format, etc.) potentially influencing the level of attention/scope of analysis were also analysed.

4   Results

4.1 The Analysis of Target Setting Documents

The first step of the analysis – i.e. the identification and review of relevant policy documentation (the list of key policy documents is provided in Annex I) highlights the multi-layered architecture of policy objectives, from EU-wide objectives such as within the "political" EU2020 strategy (European Council, 2010), the priorities for education and training domain such as ET2020 strategy (Council, 2009) towards sector-specific priorities such as for the VET sector (Council, 2020). The mapping also reveals a progressive deepening of the scope and depth of qualitative as well as quantitative priorities in the field of education and training in general, as well as in AL and VET education sectors in particular.

However, the AL and VET sectors show somewhat different developments over time. The AL sector had a relevant (even if possibly miss-titled) target from the very outset (i.e. the target on adult participation in lifelong learning), as adopted in 2003 (Council, 2003). However, sector-specific qualitative policy priorities were developed only later, with the first action plan for adult learning adopted in 2008 (Council, 2008), followed by several further iterations (Council, 2011b; EU, 2015; Council, 2021c).

Conversely, for the VET sector, qualitative policy priorities, with the launch of the so-called "Copenhagen process" were newly adopted in 2002 (Council, 2002b; Bainbridge, 2024), though building on a longer-term tradition of European VET policy, originally initiated already more than half a century ago (Council, 1963). However, quantitative targets specifically oriented for the VET sector that would allow regular monitoring were largely established only as of 2020 (Council, 2020).

Nevertheless, there were efforts to set-up VET-related indicators and targets earlier. These include the VET-specific breakdown of the benchmark on graduates' employment (Council, 2012), the IVET learning mobility target (Council, 2011) and the VET-specific breakdown in the indicator on upper-secondary completion rates (Council, 2007). However, these did not lead to regular reporting specifically for the VET sector. For the learning mobility target, this was in particular due to gaps in data availability (European Commission, 2017). VET-specific breakdown of graduate employment benchmark was reported more regularly, but often as part of broader section on employment outcomes of education. Also notably, the 2007 and 2008

monitoring reports, with extensive analysis on both completion rates data as well as VET systems did not analyse from the perspective of VET the completion rate indicator, which was formally linked to VET.

4.2 The Analysis of Monitoring Reports

The second step of analysis focused on the monitoring reports produced regularly by the European Commission as of 2004 within the education and training policy domain (European Commission, 2004), with the latest one currently available released in 2024 (European Commission, 2024). They take the form of staff-working documents, highlighting their technical and non-political nature. A summary of this analysis can be found in Annexe II.

The analysis of coverage of AL and VET in these monitoring documents shows regularity (both sectors were covered in almost all the editions of the reports), however, very high variability in terms of the scope of coverage. Overall, AL sector has been covered by a dedicated section or sub-section in all the editions of the reports, though coverage was very limited between 2008 and 2011. The length of analysis varied from 1 page (in 2008, 2009 and 2011) to 10 pages (in 2020) or 8 pages (in 2014, focusing on reporting the results of PIAAC survey). The average length of analysis was 4.6 pages.

On the other hand, the regularity of VET sector coverage was somewhat lower. It was not covered at all during the first year of reporting and was covered only in sections focused on other topics as a breakdown variable in 2005, 2012, 2018 and 2020. However, there was very high volume of reporting in 2007 (10 pages) and 2008 (9 pages). The average length of analysis, excluding non-reporting years, is 5.1 pages; if including non-reporting years as "0", the average length of analysis is 3.8 pages.

4.3 The Relation Between Target-Setting and Monitoring

Now, what concerns the link between the presence of targets for a particular education sector and its coverage in monitoring reports, only some tentative conclusions can be made from the documents analysed. From the outset, it is clear that the presence or absence of dedicated targets on its own does not prescribe if a sector will be covered or not in a monitoring report. This is well illustrated by extensive analysis of VET sector in 2007 and 2008 monitoring reports even absent of VET-specific targets and only tentative links with the core indicators in the coherent framework of indicators and benchmarks (Council, 2007).

At the same time, one can conclude that the presence of an official target may have an impact on the regularity of monitoring, given that the VET sector, unlike AL, while lacking a specific indicator, was not analysed on a fully regular basis. Notably, while AL had a dedicated section in all the monitoring reports, there was no self-standing VET section in annual reports for 2004, 2005, 2012, 2018 and 2020. This would be one potentially positive effect of having a sector-specific indicator adopted as an official indicator or target. It would also, to a certain extent, confirm the "institutionalisation" effects of target-setting exercises.

At the same time, there is no clear link between the presence of a sector-specific target in the monitoring framework and the volume of subsequent analysis in monitoring reports. There is also no obvious link between the "rank" of the indicator and its prominence in the analysis. For example, the inclusion of AL target among the three headline targets of the social pillar does not seem to have led to a significantly larger scope of analysis between 2021 and 2024 as compared to VET sector, whose targets were of a relatively "lower" rank.

5 Discussion

From the results of the analysis as described above, it would indeed appear that formal adoption of policy targets may have some, even if somewhat limited, effects of continued attention being dedicated to the area where a particular target has been set. At the same time, at least in the case of EU policy, it is obvious that qualitative policy priorities also likely have a significant effect on the coverage of specific policy domain or sector in monitoring process, as signified by extensive reporting on VET in 2007 and 2008 even in the absence of a target.

Furthermore, the amount of analysis dedicated to a particular sector may depend on other factors, such as the framing of an indicator. This could be the reason explaining very low coverage of the AL sector during the years 2008-2011, irrespective of the fact that during that period it had a dedicated benchmark as well as the launch of a dedicated sectoral policy framework – Action Plan on Adult Learning (Council, 2008). Notably, one of the potential reasons for low coverage was that the policy area to which the indicator was assigned was "participation in lifelong learning" irrespective of population group, while the actual definition of the indicator – "participation of adults in lifelong learning", focused on only one specific target group. This also called for reporting participation in lifelong learning for other population groups (children, university students, etc.) and most of the analysis for that policy priority in those years focused on those other population groups and the respective indicators.

As an illustration, the 2008 monitoring report, under the headline "making lifelong learning a reality", apart from analysing adult participation in learning, also analysed the total number of years spent in education, enrolment in pre-primary or primary education, participation in school and higher education as well as analysis of a composite participation indicator. This highlights the importance of aligning, to the extent possible, the scope and the terminology of the policy priority and the selected indicator(s) used for monitoring.

Furthermore, there is also an issue of the integration of the domain-specific policy agenda and its monitoring processes with the quantitative targets. For example, since 2002, VET has had a dedicated policy agenda (Copenhagen process), with the Council regularly setting (qualitative) common policy priorities and Cedefop (an EU agency) monitoring progress towards those priorities (Bainbridge, 2024). Nevertheless, despite this policy agenda as well as despite calls from the Council, there have been no monitorable VET-specific targets until 2020. Conversely, the launch in 2002 of policy cooperation in VET coincided with the discontinuation of a dedicated data collection on initial VET by Eurostat, which was earlier used for monitoring and analysis of VET sector (e.g. EU, 1997; EU, 2001; Cedefop, 2003).

Furthermore, Cedefop monitoring reports, while initially drafted in a rather comprehensive manner and including analysis of a broader range of EU quantitative targets for education and labour market (Cedefop 2004; Cedefop 2007; Cedefop 2010), after 2010, with the launch of an elaborate policy priority monitoring process, have focused almost exclusively on qualitative analysis (Cedefop 2012; Cedefop 2015; Cedefop 2019; Cedefop 2020). Links to IVET mobility scoreboard (another monitoring tool) are likewise limited.

The AL priority setting and monitoring work seems similarly disconnected. Apart from adult learning participation as a headline target, there appears to be limited linkage between (qualitative) policy priorities and the (quantitative) monitoring process, despite extensive work both by the Commission (European Commission, 2015; European Commission, 2019) as well as the OECD (Sekmokas et al., 2024) in designing relevant monitoring frameworks.

All this suggests a likely complex interplay between the timing of target adoption, the political importance of the target (i.e. EU-wide headline targets being the most and sector-specific targets the least important), as well as the qualitative side of policy priorities in the effects that target adoption may have on the policy monitoring and reporting processes. Better data availability and stronger synergies between quantitative and qualitative policy monitoring processes could also bring stronger attention to and visibility of a specific policy domain.

6 Forward Looking Reflections

The year 2025 marks a mid-point in the current EU education policy priority and target-setting cycle, as well as the end of the European VET policy cycle 2020-2025. It is thus a good timing for reflection on the future of such target-setting exercises, the requirements for further preparatory work prior to the start of a new cycle in 2030 as well as taking stock of more than two decades of experience of enhanced cooperation at the European level in education and training policy domain in general and AL as well as VET sectors in particular.

One of the reflections was already hinted above – i.e. the need to think of better integration of the two sides – qualitative and quantitative – of the policy objective setting as well as monitoring processes, resource requirements for them, as well as the mandates of institutions involved. Even if recognising their somewhat different temporal horizons, their stronger integration could be helpful in enhancing policy impact. Linking qualitative and quantitative monitoring processes could also benefit from structured analytical frameworks, with relevant quantitative indicators used, when applicable, beyond the few primary targets.

Furthermore, linkages to higher-level policy monitoring processes, especially the socio-economic policy coordination within the European Semester via Joint Employment Report/Social scoreboard could be further strengthened, even if they have a shorter time-horizon. The thematic Semester benchmarking frameworks, including one for adult skills and learning, integrating several layers of indicators, go in this direction (European Commission, 2019).

From a sectoral perspective, for adult learning, the caveat with the headline target is that it is input/process-based, without a fully clear view of the outputs (qualifications? skills? innovation? productivity?) to be achieved or the learning demand satisfied. What concerns VET is that the setting of policy priorities and quantitative targets could also benefit from the potential extension of the evidence base towards higher and non-formal VET (EDSC, 2025).

More strategically, however, would be a reflection on the intended or expected educational/occupational composition of the EU workforce and how different educational pathways could each provide a contribution to it. The current target set-up in this regard is patchy – the only quantitative output targets are for tertiary educational attainment and early school leaving (covering different age-ranges), but none for VET or adult learning.

In parallel, from the labour-market side, such reflection may require more precise occupation-specific quantification of both current shortages as well as longer-term workforce and skills needs. For short-term needs (current shortages), while promising, data from online job vacancies may not be up to the task due to issues of reliability, representativeness and coverage. This may call for going back to other existing sources, such as occupation-specific vacancy data from the Eurostat job vacancy survey, which is currently undergoing revision (EU, 2024). For longer-term needs, occupational forecasts are likely needed at a much more disaggregated occupational and/or industry level than what is available now, e.g. from Cedefop skills forecasts. All such work would go towards better addressing the long-standing challenges in understanding skills demand and aligning the supply side accordingly (Eurostat, 2016), especially as the utility of measuring skills demand via job vacancy data is often constrained, e.g. by aggregation issues.

Overall, the persistence of labour shortages (Causa and Soldani, 2025) calls for analysis of their structural drivers (Marcolin and Filippucci, 2025; OECD, 2024; European Commission 2023). While wage-related shortages in the private sector economy may indicate competitiveness issues, for public services, e.g. healthcare, this may ultimately rest on governmental decisions and public budget availability (Lafortune and Dumont, 2025). There are interesting country-level examples of sector-specific policies trying to address such structural issues, e.g. in Singapore (Sekmokas, 2019).

Population aging already leads to re-allocation of labour towards health and social care sectors and occupations (Lafortune and Dumont, 2025). Changing geopolitical context may

result in additional demand in other sectors too. The persistence of labour shortages thus calls to assess the adequacy of labour re-allocation processes as well as of the existing supply-oriented policy mix, focused on migration and labour activation (Council, 2024b), especially given already high employment (Eurostat, 2024a) and migration (Eurostat, 2024b).

Furthermore, there are indications of aggregate misalignment between skills supply and demand dynamics. In the EU, high-skilled labour supply is growing much faster compared to the number of high skilled jobs (Sekmokas et. al, 2020), with potential aggregate EU-wide over-supply of high-skilled labour estimated to appear by mid-2030s (Sekmokas et al., 2023). In addition, there are also indications that the supply of high-skilled labour may be currently under-estimated (Sekmokas, M., 2021), thus making such concerns even more pertinent. Nevertheless, all this needs significant further work, including more granular analysis at sectoral and occupational levels. Several ongoing Horizon 2020 projects on skills needs and mismatches could possibly provide a valuable contribution to such reflections, though additional effort to synthesise their findings would likely be needed.

Finally, for such reflections, enhancing the statistical infrastructure is likely to be an important enabler, including better utilisation of data on income and other job quality factors and linking them to educational background and attractiveness of educational pathways leading to those occupations. A more integrated view of the availability and development of human capital (skills, qualifications, workforce) and its financing would be helpful, which likely can only be achieved within the framework of the system of national accounts, e.g. via dedicated satellite accounts on labour, education and human capital (ISWGNA, 2021). The need for such infrastructure was recognised already long-time ago in the 1990s and it even made into the Commission's Memorandum of Lifelong Learning (Commission, 2000) as well as several iterations of Eurostat work programme in early 2000s. Unfortunately, progress in this area seems to have been rather limited since then. The newly adopted SNA 2025 (ISWGNA, 2025), with stronger focus on measuring labour input in the production process, could provide renewed impetus for this work.

It is also important to note that there are several limitations to this analysis. For example, the focus was primarily on one specific monitoring instrument – annual Education and Training reports. However, there are other important mechanisms, including Cedefop's policy monitoring of VET as well as country-specific monitoring (including country-specific recommendations) within the European Semester. Furthermore, the analysis is only based on document review and could be enriched with other methods such as interviews of the staff of EU institutions. In addition, this analysis does not capture the actual impact of policies at the Member State level. All these and other aspects would be useful avenues for further research.

7   Conclusions

This paper has presented the analysis of almost 25 years of quantitative target-setting and monitoring work carried out by the EU institutions in the education and training policy domain, with a particular focus on AL and VET sectors. The findings indicate that having a dedicated target for a specific policy sector may help with ensuring more regular reporting of the situation in that sector, thus confirming, to some extent, the "institutionalisation" effects of target-setting. At the same time, the presence of targets did not affect the volume of analysis. Furthermore, it also appeared that multiple other factors, including other policy monitoring processes, data availability and indicator framing likely also have effects on sector visibility.

As a conclusion, better aligning different target-setting and monitoring exercises would likely result in more focused and consistent, therefore also more impactful policy realisation. Beyond that, the persistence of labour/skills shortages calls for a re-assessment of the functioning of labour (re-)allocation processes and the adequacy of existing, largely supply-oriented policy mix. Enhancing data availability e.g. via dedicated satellite accounts could help to better

quantify the current and projected skills demands. This could enable more robust policy action, including better steering educational provision across pathways and over time, ultimately paving the way for a tighter feedback loop between labour market and education systems, both of which are changing slowly and face substantial adjustment delays.

Disclaimer

The views and opinions expressed in the paper are those of the author only.

Acknowledgements

References

Bainbridge, S. (2024). A reflective overview: European vocational education and training reform: The Copenhagen process 2002 to 2024. *Journal of Vocational, Adult and Continuing Education and Training*, *7*(2), 14-34.

Causa, O. and Soldani, E. (2025). *Labour shortages and labour market inequalities: evidence and policy implications*. Presentation at the OECD Economics department workshop "Labour shortages and labour market inequalities: evidence and policy implications". 17 February 2025. https://www.oecd.org/en/events/2025/02/-labour-shortages--evidences-and-policy-implications.html

Cedefop. (2003). *Key figures on vocational education and training*. https://www.cedefop.europa.eu/en/publications/4024

Cedefop. (2004). *Vocational education and training – key to the future. Lisbon-Copenhagen-Maastricht: mobilising for 2020*. https://www.cedefop.europa.eu/en/publications/4041

Cedefop. (2007). *Zooming in on 2010. Reassessing vocational education and training*. https://www.cedefop.europa.eu/en/publications/4060

Cedefop. (2010). *A bridge to the future. European policy for vocational education and training 2002-2010*. https://www.cedefop.europa.eu/en/publications/3058

Cedefop. (2012). *Trends in VET policy in Europe 2010-12. Progress towards the Bruges Communique*. https://www.cedefop.europa.eu/en/publications/6116

Cedefop. (2015). *Stronger VET for better lives. Cedefop's monitoring report on vocational education and training policies 2010-2014*. https://www.cedefop.europa.eu/en/publications/3067

Cedefop. (2019). *European cooperation in VET: one process, many stops: developments in vocational education and training policy 2015-17*. Cedefop reference series, 110. Luxembourg: Publications Office. https://data.europa.eu/doi/10.2801/4550

Cedefop. (2020). *Enhancing European cooperation in VET: outcomes of the Riga cycle: progress in common priorities for 2015-20*. Luxembourg: Publications Office. Cedefop reference series, No 115. http://data.europa.eu/doi/10.2801/79719

Commission. (2000). *A memorandum on lifelong learning*. https://unesdoc.unesco.org/ark:/48223/pf0000199325

Council. (1963). *Council Decision of 2 April 1963 laying down general principles for implementing a common vocational training policy*. https://op.europa.eu/en/publication-detail/-/publication/7bc95c31-a382-403f-8c69-d9733cb35247/language-en

Council. (2002a). *Detailed work programme on the follow-up of the objectives of Education and training systems in Europe*. https://op.europa.eu/en/publication-detail/-/publication/2d17e529-6c81-4b85-8d19-e9dbe65a93c0

Council. (2002b) *Council Resolution of 19 December 2002 on the promotion of enhanced European cooperation in vocational education and training*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=oj:JOC_2003_013_R_0002_01

Council. (2003). *Council Conclusions on reference levels of European average performance in education and training (benchmarks)*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52003XG0607(01)

Council. (2005). *Council Conclusions of 24 May 2005 on new indicators in education and training*. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52005XG0610(01)

Council. (2006). Conclusions of the Council and the Representatives of the Governments of the Member States,

meeting within the Council, on the future priorities for enhanced European cooperation on vocational education and training (VET). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A42006X1208%2802%29&qid=1744285985669

Council. (2007). Council conclusions of 25 May 2007 on a coherent framework of indicators and benchmarks for monitoring progress towards the Lisbon objectives in education and training. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52007XG1221%2802%29&qid=1744286208883

Council. (2008). *Council conclusions of 22 May 2008 on adult learning.* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52008XG0606%2802%29&qid=1744286159857

Council. (2009). *Council conclusions of 12 May 2009 on a strategic framework for European cooperation in education and training ('ET 2020').* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52009XG0528%2801%29&qid=1744286248257

Council. (2011a). *Council conclusions on a benchmark for learning mobility.* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=oj:JOC_2011_372_R_0031_01

Council. (2011b). *Council Resolution on a renewed European agenda for adult learning.* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2011.372.01.0001.01.ENG

Council. (2012). *Council conclusions on the employability of graduates from education and training.* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52012XG0615%2804%29&qid=1744286865624

Council. (2020). Council Recommendation of 24 November 2020 on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=oj:JOC_2020_417_R_0001

Council. (2021a). Council Resolution on a strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021-2030). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=oj:JOC_2021_066_R_0001

Council. (2021b). *The Porto Declaration.* https://www.consilium.europa.eu/en/press/press-releases/2021/05/08/the-porto-declaration/

Council. (2021c). *Council Resolution on a new European agenda for adult learning 2021-2030.* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021G1214%2801%29

Council. (2024a). *Council Recommendation 'Europe on the Move'.* https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C_202403364

Council. (2024b). *Council conclusions on labour and skills shortages in the EU.* https://data.consilium.europa.eu/doc/document/ST-16556-2024-INIT/en/pdf

EDSC. (2025). *ISCED review panel recommendations.* Education Data and Statistics Commission. https://isced.uis.unesco.org/wp-content/uploads/sites/15/2025/04/ISCED_ReviewPanelRecommendationsReport.pdf

Education Council. (2001). *Report from the Education Council to the European Council: "The Concrete Future Objectives of Education and Training Systems".* https://data.consilium.europa.eu/doc/document/ST-5980-2001-INIT/en/pdf

EU. (1997). *Key data on vocational training in the European Union.* European Commission, Eurostat and Cedefop. https://op.europa.eu/en/publication-detail/-/publication/621722c5-575b-4fd2-8bc6-43c0b3f20163/language-en

EU. (2001). *The transition from education to working life: key data on vocational training in the European Union.* European Commission, Eurostat and Cedefop. https://eric.ed.gov/?id=ED456225

EU. (2015). 2015 Joint Report of the Council and the Commission on the implementation of the strategic framework for European cooperation in education and training (ET 2020). New priorities for European cooperation in education and training. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52015XG1215%2802%29

EU. (2024). Provisional inter-institutional agreement on the proposal for a regulation of the European Parliament and of the Council on European Union labour market statistics on businesses, repealing Council Regulation (EC) No 530/1999 and Regulations (EC) No 450/2003 and (EC) No 453/2008 of the European Parliament and of the Council. Interinstitutional File: 2023/0288(COD). https://data.consilium.europa.eu/doc/document/ST-16821-2024-INIT/en/pdf

European Commission. (2004). *Progress towards the common objectives in education and training. Indicators and benchmarks.* https://aei.pitt.edu/42891/1/SEC_(2004)_73.pdf

European Commission. (2015). *An in-depth analysis of adult learning policies and their effectiveness in Europe.* https://op.europa.eu/en/publication-detail/-/publication/c8c38dc9-89d0-11e5-b8b7-01aa75ed71a1/language-en

European Commission. (2017). *Report from the Commission to the Council. Progress report on a learning mobility benchmark.* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52017DC0148

European Commission. (2019). Proposal for a Joint Employment Report from the Commission and the Council accompanying the Communication from the Commission on the Annual Sustainable Growth Strategy 2020.

https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52019DC0653

European Commission. (2023). *Employment and social developments in Europe. Addressing labour shortages and skills gaps in the EU*. https://op.europa.eu/webpub/empl/esde-2023/esde-review.html

European Commission. (2024). *Education and Training Monitor 2024*. https://op.europa.eu/webpub/eac/education-and-training-monitor/en/

European Council. (2010). *European Council conclusions of 17 June 2010*. EUCO 13/10. https://ec.europa.eu/eu2020/pdf/council_conclusion_17_june_en.pdf

Eurostat. (2016). *Statistical approaches to the measurement of skills – the state of play in Europe within the European Statistical System*. https://ec.europa.eu/eurostat/web/products-statistical-working-papers/-/ks-tc-16-023

Eurostat. (2024a). *Employment – annual statistics*. Data from April 2024. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Employment_-_annual_statistics

Eurostat. (2024b). *Residence permits – statistics on permits issued during the year*. Data extracted on 12 September 2024. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Residence_permits_-_statistics_on_first_permits_issued_during_the_year

ISWGNA. (2021). *Labour, human capital and education*. Wellbeing and sustainability task team of 2008 SNA update. Inter-secretariat Working Group on National Accounts. https://unstats.un.org/UNSD/nationalaccount/RAdocs/ENDORSED_WS4_Labour_Human_Capital_Education.pdf

ISWGNA. (2025). *System of National Accounts 2025*. Inter-secretariat Working Group on National Accounts. https://unstats.un.org/unsd/nationalaccount/docs/2025_SNA_Pre-edit.pdf

Lafortune, G. and Dumont, J. C. (2025). *Health workforce shortages and international migration*. Presentation at the OECD Economics department workshop "Labour shortages and labour market inequalities: evidence and policy implications". 17 February 2025. https://www.oecd.org/en/events/2025/02/-labour-shortages--evidences-and-policy-implications.html

Land, K. C., & Michalos, A. C. (2018). Fifty years after the social indicators movement: Has the promise been fulfilled? An assessment an agenda for the future. *Social Indicators Research*, 135, 835-868.

Lehtonen, M. (2015). Indicators: tools for informing, monitoring or controlling?. In *The tools of policy formulation* (pp. 76-99). Edward Elgar Publishing.

MacFeely, S., van de Ven, P., & Peltola, A. (2024). To GDP and beyond: the past and future history of the world's most powerful statistical indicator. *Statistical Journal of the IAOS*, 40(3), 685-711.

Marcolin, L. and Filippucci, F. (2025). *Understanding labour shortages: the structural forces at play. New evidence from the Global Forum on Productivity*. Presentation at the OECD Economics department workshop "Labour shortages and labour market inequalities: evidence and policy implications". 17 February 2025. https://www.oecd.org/en/events/2025/02/-labour-shortages--evidences-and-policy-implications.html

OECD. (1994). Making education count: developing and using international indicators.

OECD. (2024). *OECD Economic Outlook*, Volume 2024 Issue 2, OECD Publishing, Paris, https://doi.org/10.1787/d8814e8b-en.

OECD. (2025). *OECD Economics department workshop "Labour shortages and labour market inequalities: evidence and policy implications"*. 17 February 2025. https://www.oecd.org/en/events/2025/02/-labour-shortages--evidences-and-policy-implications.html

Radaelli, C. M. (2008). Europeanization, policy learning, and new modes of governance. *Journal of comparative policy analysis: research and practice*, Vol. 10, No. 3, pp. 239-254. https://doi.org/10.1080/13876980802231008

Sekmokas, M. (2019). An analysis of the capacity of Singapore's industry transformation programme (ITP) to meet the transformation expectations: the case study of precision engineering industry. https://doi.org/10.5281/zenodo.14955909

Sekmokas, M. et al. (2020). *Workforce skills and innovation diffusion. Trends and policy implications*. https://data.europa.eu/doi/10.2777/293171

Sekmokas, M. (2021). Skills (mis)match analysis in the EU: disaggregating "objective" mismatch measures and the role of vocational qualifications. In *Pathways in vocational education and training and lifelong learning. Proceedings of the 4th Crossing Boundaries Conference in Vocational Education and Training*, Muttenz and Bern online, 8. - 9. April 2021 (pp. 326–331). European Research Network on Vocational Education and Training, VETNET, University of Applied Sciences and Arts Northwestern Switzerland and Bern University of Teacher Education. https://doi.org/10.5281/zenodo.4607856

Sekmokas, M., Sai, A. R., Friedel, M., & Tilon, N. (2023). *Modelling skills mismatch evolution in the European Union*. https://doi.org/10.5281/zenodo.7822461

Sekmokas, M. et. al (2024). *Updated framework for monitoring adult learning. Enhancing data identification and indicator selection*. OECD Education Working Papers, No. 317, OECD Publishing, Paris, https://doi.org/10.1787/02bbacdc-en.

Biographical Notes

Mantas Sekmokas is working as an expert of VET financing and statistics at Cedefop. Before joining Cedefop, for nearly a decade he was working at the European Commission, with a focus on monitoring EU Skills, VET and AL policy. His academic background includes a MSc degree in Information Studies from the University of Amsterdam (UvA); a MSc degree in Cognitive and Decision Sciences from the University College London (UCL), a MSc in International Management from ISM University of Management and Economics as well as a BA in Business Administration from Vilnius University.

Annexe I: An Overview of Key Policy Documents 2000-2024

A memorandum on lifelong learning (Commission, 2000), was aimed to initiate a debate on EU lifelong learning policy, set out some provisional policy priorities as well as explore the potential of benchmarking to support common policy objectives (esp. in Annex II of the Memorandum).

Education Council report on the Concrete Future Objectives of Education and Training Systems (Education Council, 2001) has set-out the common EU policy objectives in education and training as well as a roadmap for setting up a monitoring framework.

Detailed work programme on the follow-up of the objectives of Education and training systems in Europe (Council, 2002a). This work-programme has set a list of provisional indicators as well as themes for peer-learning for each of the common EU policy objects adopted the year before. The list of provisional indicators included an indicator on participation in education and training of adults, share of students benefitting from placement (alternance) arrangements as well as several indicators on educational attainment, including upper-secondary completion rate, early school leavers and upper-secondary attainment.

Council Resolution on the on the promotion of enhanced European cooperation in vocational education and training (Council, 2002b), setting-out for the first time policy priorities and framework for enhanced European cooperation on VET, with the priorities subsequently being updated on a regular basis via later Council decisions.

Council Conclusions on Reference Levels of European Average Performance in Education and Training (Council, 2003), setting up 5 quantitative targets (benchmarks), including a target on adult participation in learning (but no explicit target on VET).

Council Conclusions on new indicators on education and training (Council, 2005), requesting the European Commission to develop a coherent framework of indicators and benchmarks

Council Conclusions on the future priorities for enhanced European cooperation on Vocational Education and Training (VET) (Council, 2006), emphasising the importance of statistical data and devoting attention to the component on VET within the coherent framework of indicators and benchmarks

Council Conclusions on coherent framework of indicators and benchmarks (Council, 2007), endorsing a set of 16 readily available core indicators to be used for monitoring, including an indicator on adult participation in lifelong learning. Council Conclusions did not specify VET-related indicators, however Commission Communication proposing the coherent framework identified two indicators which are linked to VET using breakdowns, i.e. the indicator on completion rates and the indicator on stratification of education and training systems.

Council Conclusions on adult learning (Council, 2008), setting out for the first time specific areas of cooperation in adult learning and emphasising the need to ensure monitoring in line with the coherent framework of indicators and benchmarks. The priorities subsequently were updated on a regular basis via later Council decisions.

Council Conclusions on education and training 2020 strategy (Council, 2009), adopts new benchmarks for the period 2010-2020, including a more ambitious benchmark on adult participation in lifelong learning.

European Council Conclusions on Europe 2020 strategy (European Council 2010), setting out 5 EU headline targets, including a double target on education and training (i.e. targets on drop-out and on tertiary attainment)

Council Conclusions on the benchmark on learning mobility (Council, 2011), set-out two benchmarks on learning mobility – one for higher education and one for VET, though regular data on mobility in VET was not available until the benchmark was revised in the 2020 Council Recommendation on VET (Council, 2020).

Council Conclusions on the employability of graduates (Council, 2012), setting up a European target on the employment rate of recent graduates, with a possible breakdown also identifying graduates from VET

Council Recommendation on vocational education and training (Council, 2020), setting-out three EU-level objectives for VET until 2025 (on VET graduate employability, work-based learning and learning mobility)

Council Resolution on European Education Area (Council, 2021a), setting-out common EU targets for education and training, including a target on work-based learning in VET and a target on adult participation in learning

The Porto Declaration (2021b) welcoming the three EU headline targets as proposed by the European Commission in the social pillar action plan, with one of the targets being revised target on adult participation in learning

Council Recommendation 'Europe on the Move' (Council, 2024a), updating learning mobility targets, including the target on learning mobility in VET

Annexe II: Summary Analysis of Monitoring Reports

Year	AL and VET targets	Reporting on AL	Reporting on IVET
2003	First 5 EU education benchmarks for 2010 (incl. AL participation target), adopted in 2003 and updated in 2007. VET-related target only as an indicator breakdown	No report published	
2004		3 pages	N/A
2005		4 pages	Some breakdowns
2006		5 pages	2.5 pages
2007		5 pages	10 pages
2008		1 page	9 pages
2009		1 page	5 pages (incl. CVET)
2010	Second round of targets for the period 2010-2020, updated AL target, included VET graduate employment rate and VET learner mobility targets (the latter lacking data for monitoring)	No report published	
2011		1 page	3.5 pages (incl. CVET)
2012		4 pages	Some breakdowns
2013		8 pages (PIAAC*)	3 pages
2014		4.5 pages	4 pages
2015		4 pages	4 pages
2016		4 pages	5 pages
2017		3 pages	5 pages
2018		9 pages	Some breakdowns
2019		6 pages	2 pages
2020	Third round of targets. 3 targets for VET in VET REC; 1 VET and 1 AL target in EEA REC; AL headline target in the pillar of social rights.	10 pages	Some breakdowns
2021		4 pages	4.5 (WBL**)
2022		6 pages	7 pages
2023		4 pages	6.5 pages
2024		5 pages	5 pages
2025		No report at the time of analysis	

Note. Source: author. Notes: *PIAAC – Programme for International Assessment of Adult Competencies (implemented under the auspices of the OECD); **WBL – work-based learning.

Model Proposal for a Joint IVET Curriculum: Examples of Türkiye and Germany with Main Justifications for the TR-DE JOINT IVET Curriculum

Selvi, Kıymet

kselvi59@gmail.com, Education Support and Consultancy Ltd. Company, Ankara University TTO

Saniter, Andreas

asaniter@uni-bremen.de, Institute Technology and Education (ITB)

Kühn, Ida Kristina

kristina.kuehn@uni-bremen.de, Institute Technology and Education (ITB)

Keser, Ayşe Dilek

keseraysedilek@gmail.com, Ankara University

Abstract

Context: The aim of this study is to identify the strengths and weaknesses of the Turkish and German IVET systems and to develop the TR-DE JOINT IVET Curriculum proposal.

Approach: With a qualitative research design, this study collected data through interviews. A total of 77 interviews were conducted in Türkiye and Germany within the scope of the SKILLS4JUSTICE project funded by HORIZON EUROPE. A content and SWOT analysis was conducted in the context of IVET between the two countries in the interview data.

Findings: The framework of the TR-DE JOINT IVET Curriculum was determined under seven basic dimensions by considering the results of the SWOT analysis and the characteristics of the countries' IVET education. The general framework of the TR-DE JOINT IVET Curriculum design, which aims to strengthen the IVET systems of both countries, was tried to be explained.

Conclusions: The proposed TR-DE JOINT IVET Curriculum will enhance skills cooperation between Türkiye and Germany, which have a 65-years long labour partnership. It will also contribute to the creation of the necessary infrastructure for legal migration and reduce NEET and dropout in both countries.

Keywords

joint IVET, initial vocational education and training, curriculum, migration, skills mismatch, Germany, Türkiye

1   Introduction

Recently, Türkiye has taken serious steps to strengthen IVET. Although these attempts have led to improvements in vocational education, they have low impact on sustainable improvements in IVET curricula due to lack of support mechanisms, especially regarding the labour market and higher education (Kavak, 2023; TEPAV, 2017; Özer, 2021). Suna and Özer (2021) stated that students attending vocational high schools have been composed of young

people from socio-economically disadvantaged backgrounds for the last decade. This situation negatively affects students' success in vocational education and training, their employment, and skill adaptation in the sector (Gökbayrak & Çalışır, 2024). There are problems regarding IVET in Türkiye, such as low student success, weaknesses in job-oriented education and insufficient skills that are not compatible with the sector, and evolution towards more school-based, theoretical, and academic education. According to Ege and Erdil (2023), only 29.8% of vocational and technical high school graduates have a good skills match indicating that the skills of nearly 70% of IVET graduates fail to meet the skills demanded in the sector. Suna and Özer (2021) maintain that despite all these negativities, vocational high schools have become the choice of students who have achieved high success in the 2019 and 2020 academic years. In addition, there have been significant increases in enrolment rates in vocational high schools that have been opened recently or strengthened within the scope of cooperation with the private sector. The reason for this trend is that many university graduates are unable to find employment that matches their skills (OECD, 2023a, p. 101), while unemployment rates of VET graduates are slightly lower than those of tertiary graduates (OECD, 2023a, p. 108).

2   Problem Statement

The number of students receiving vocational education at secondary school level in Türkiye is approximately 1.5 million (OECD, 2023b), and this massive number necessitates the development of different perspectives for IVET in Türkiye. Research is needed at the national as well as international level through partnerships. Türkiye's potential workforce is considerably high and needs to be directed to employment both within the country and abroad through IVET. In order to take the changing labour market dynamics into account, efforts should be made to restructure vocational education by making changes to the curriculum, allowing for broader vocational education curricula, and reducing the number of training occupations (Özer & Perc, 2020). According to the *Turkish Vocational and Technical Education Policy Document* (MEB, 2018), it is aimed to create a structure that will meet the workforce needs of the sector in vocational and technical education, adapt to developing technology, and ensure effective participation of stakeholders in planning and decision-making processes. The envisaged JOINT IVET Curriculum proposed in this present study should be designed to include the features set forth as objectives in the policy document. On the other hand, in Germany, the shortage of specially trained skilled workers is a major obstacle to economic prosperity (Cedefop, 2023, p. 67), and the employment of well-educated IVET graduates is of great importance. For this reason, in 2017, the German Federal Ministry of Education and Research established the "Research for the Internationalization of Vocational Education and Training (IBBF)" fund. This fund aims to strengthen institutional research on VET for international cooperation (Steinert, 2020). Graduates from an IVET program carried out internationally or in bilateral cooperation will be prepared to work in intercultural societies and international labor markets (https://www.tovet.eu, 2022).

When the current situation is considered, education providers and business world representatives appraise the skill demand and supply trends in Türkiye differently and do not have a common understanding about IVET. Educational administrators state that skills developed through IVET are aligned with the labour market, but the quality of apprenticeship training provided by some businesses remains unsatisfactory. Conversely, company managers and policy makers state the opposite indicating that there is a mismatch between the skills acquired through vocational and technical education and the demands of the sector. To summarize, the skill mismatch rate is considered high, the sector has intermediate staff shortages, the highly skilled either work in low-skilled jobs or go abroad resulting in brain drain, educational apprenticeships in the sector are inadequate, and the wages paid to the employees are insufficient in Türkiye.

Considering the problems outlined above, the general aim of this study is to reveal the strengths and weaknesses of the Turkish and German IVET systems and to develop a proposal for the design of a Joint IVET curriculum based on the strengths of the two countries and aiming to eliminate their weaknesses. It is envisaged to develop the TR-DE JOINT IVET Curriculum for both German and Turkish students by integrating rich learning environments such as bilateral student and teacher exchanges, mutual multimedia distance education, practical trainings, and apprenticeships in both countries. Both countries will be jointly responsible for the planning, implementation, and evaluation of the TR-DE JOINT IVET Curriculum.

The objectives of this particular research are as follows:

RQ1. What are the strengths and weaknesses of IVET systems in Türkiye and Germany according to experts' opinions?

RQ2. How can a joint curriculum model be developed between these two countries to begin an IVET partnership?

3   Methods

In this qualitative research, the findings from document analysis of policy papers and relevant literature as well as interview data collected from Türkiye and Germany within the scope of the HORIZON EUROPE funded project SKILLS4JUSTICE.[1] were used. The interview data were collected through semi-structured interview questions developed for the project, and both countries used the same set of questions.

The interview questions targeted sector representatives, education providers, and policy makers, and they covered a variety of subject ranging from skill demands in the labour market to migrant workers. For this paper, the responses that included IVET were identified in the Turkish interviews, they were categorized thematically, and they were presented in two headings (strengths and opportunities; weaknesses and threats) through a SWOT analysis. The findings were discussed from the dimensions of a) IVET systems, b) IVET student profiles, and c) relationship with the European Union. The data for the German participants were obtained from the German colleagues, but since their data was limited, their findings were presented as the 'German perspective' in the last rows of each table when applicable. Therefore, the findings reflect predominantly the opinions of Turkish participants compared to a restricted number of views by the German participants.

A total of 77 interviews were conducted in Türkiye and Germany, and the numbers of the interviewees are presented in Table 1. The Turkish interviewees included employers, employment intermediaries, Organized Industrial Zone (OIZ) board members, Chamber of Tradesmen and Arts authorities, public and private IVET school directors, and directors of MESEMs (IVET centres equivalent to secondary schools). The German interviewee group consisted of experts from ministries, education providers, employers, and labour market intermediaries.

---

[1]   https://www.skills4justice.eu

Table 1

Numbers of Interviews Conducted

	Employ-ers	Employer organ-isations	Employment inter-mediaries	VET and HE providers	Political actors	TO-TAL
Türkiye	19	-	1	14	3	37
Ger-many	8	5	6	17	4	40

The interviews, which lasted 45–90 minutes, were conducted between June 2024 and February 2025. Both countries have re-analysed existing data in line with the research objectives and shared the results with each other for a SWOT analysis. Based on the results, a joint curriculum model was proposed.

4   Findings

The findings from the interviews are shortened to keywords and phrases to summarize the statements in the data. The initial rows of each table reflect the opinions of the Turkish interviewees, while last row is allocated for German participants' views where applicable. Further, the views of these stakeholders were placed in two groups as 'strengths and opportunities' and 'weaknesses and threats' based on the SWOT analysis.

4.1 Strengths and Opportunities in Turkish and German IVET

Tables 2–4 present the positive views by the IVET providers, employers, and policy makers about the IVET systems, student profiles, and cooperation with the European Union or other countries.

As presented in Table 2, the sector representatives and policy makers claim that they try to pay higher salaries for IVET graduates to encourage their employment. In the same table, all positive views about curriculum, training, and apprenticeship were expressed by Turkish IVET providers in contrast to negative views from the sectors and policy makers as presented in Table 5 in the next section. Therefore, the views by IVET providers and the sectors do not match. For instance, IVET providers believe that the curriculum meets the needs of the industry while this contradicts the views by businesses.

Apprenticeship is considered as a way of IVET-sector collaboration and as an opportunity for students to acquire skills. The participants see the industry as a 'driving force' to which they must adapt technologically and curriculum-wise in education. They state that meetings are held with stakeholders, and visits are made to businesses.

Table 2

Strengths and Opportunities in the IVET System

Themes	Strengths and Opportunities
Türkiye	
Labour force Qualifications	providing higher salaries, benefits, and work conditions to attract labour force
	national, sectoral, regional, and international qualification frameworks (e.g. EQF, AQF)
	mastery certificate according to Act 3308 of Vocational Education Law
Curriculum and training	no shortcomings in the curriculum
	the Ministry of National Education (MoNE) works well
	courses addressing the labour market
	plans to integrate up-to-date topics, e.g. artificial intelligence
a. Centralized curriculum	sufficient updates by the MoNE
	consulting authorities to make changes
	curriculum updated with stakeholders
	workshops by MoNE to gather stakeholders' opinions on curriculum
	'modules' written by MoNE
b. Training	adequate teachers and qualifications
	MESEM: accepting all students, even in small classes
	private IVET: well-equipped workshop ateliers
Apprenticeship	providing collaboration with the sector
	MESEM: 4 or 5 days a week at workplaces that use new technologies
	schools cancelling contract on misconduct in companies
	familiarizing students with the sector and helping them making decisions about careers
	sharing professional experiences with students
	employing graduates under contract after apprenticeship
Access	MESEM: student registration for 365 days
	MESEM: opening classes for even less than 10 students
IVET-sector collaboration	students' spending four days in the industry
	sending students to businesses for training due to Act 3308
	industry as a driving force for innovation in IVET
	constant cooperation with tradesmen, enterprises, and NGOs
	considering the needs of the market while establishing new schools
	bringing sectors and students together by organizing career days
	helping students in registration in industrial sites for apprenticeship
	policy makers' meetings with "Provincial Employment Board" for education and employment policies development
	development of solutions and projects with political and economic stakeholders at local and national levels by sectors
Germany	
	trying to close the gap between people and companies through cooperation and networks
	providing skilled workers whose need has increased significantly to the labour market
	e.g. for nursing, contacting clinics and care facilities for the elderly
	training trainees from third countries
	topics on cooperation, vocational schools, and companies
	exchange rounds with companies and vocational school teachers
	expert interviews with vocational school teachers
	offering programmes and workshops most in demand from companies, e.g. exam preparation
	offering these formats directly to the refugee groups
	providing networks
	colleagues with a migration background having a different focus, a different perspective, a source of diversity

When compared to the strengths of the Turkish IVET education in general, the similarity of the German IVET is that the IVET schools are also in close contact with the sector trying to close the gaps. In terms of partnerships with other countries, while some German IVET institutions aid teachers and refugees from third countries, sector representatives may view immigrant workers both as an opportunity for diverse perspectives and as a source of diversity.

Table 3
Strengths and Opportunities in IVET Student Profiles

Themes	Strengths and Opportunities
Türkiye	
Employment	young population vs. elderly population in the EU
	finding employment fast
	more than 51% of graduates employed instantly each year
	aiming to gain respect during internship for employment
	being employed in the apprentice workplace by 90%
	supplying 100% of the labour force in some firms
Graduate tracking	tracking graduates by the guidance service
	receiving occasional feedback from graduates
	MoNE: graduate tracking system
	OIZs have stronger tracking policies
Gender	trying to increase the number of female students
Vulnerable students	extra support to students with poor economic conditions
	food scholarships and lunch allowance, government scholarships, half boarding, free hostels
	guidance and counselling teachers
	activities aimed at the vulnerable socio-economic, psychological groups
	tracking problems (e.g. at work, in the family, financial difficulties, psychological pressure, bullying)
	10% of school's budget allocated to financially weak students
Immigrant students	no or very few immigrant students in the west (2-3%)
	many students, 75% in a province bordering Syria
	placement in programs according to secondary education success scores, secondary school diplomas required for registration
	students mainly from Iraq and Syria
	PICTES project for immigrant students
Drop-out	no drop-out in the private IVET school in OIZs
	low dropout in public schools
	contacting families
	projects by the MoNE for students dropping out, esp. immigrants
Germany	
	No data

Some of the most important strengths in terms of students is that the Turkish population is considerably young, and IVET is becoming increasingly attractive to them. The Turkish interviewees reported that the IVET graduates had instant job placements by more than 50%, and while many of these occurred in the companies where they had their apprenticeships, some were placed in prestigious businesses. Two IVET directors said that they tracked their students after graduation, especially trough feedback by students themselves.

The Turkish IVET students are generally considered as a precarious group compared to other types of schools. IVET students usually come from disadvantaged socio-economic backgrounds and are considered to have lower academic skills. The participants mentioned that counselling and financial support (e.g. food, accommodation) is provided when applicable. IVET schools in the western parts of Türkiye have fewer immigrant students, around %2-3, whereas a school near the Syrian border is reported to have 75% foreign students in the interviews. In terms of gender, there is still imbalance in contrast to male students despite the efforts to increase the number of female students. However, the directors believe that this inequality is decreasing. When looking at drop-out rates, IVET dropout rates are low in public schools which have better funds and in private IVET schools.

No data was found in the German interviews concerning IVET students.

Table 4

Strengths and Opportunities in Relationships with Other Countries

Themes	Strengths and Opportunities
Türkiye's relationships with the EU countries	
Graduates going abroad	employer satisfaction abroad, no adaptation or skill problems
	students' strong desire to live and work abroad
	3-5% of graduates settling in foreign countries
	added value for Türkiye if students return
Exchange programs	establishing connections with foreign vocational training institutions and companies
	sister schools in the EU, Turkic countries, and the Far East
	some institutions providing *Europass* certificates
	apprenticeship and job offers from foreign countries
	opportunity to see different workplaces and machinery
	job-shadowing visits for teachers
	projects for international cooperation by teachers
	preparations through language courses
Funds and aids	need for benefitting more from EU funds
	need for machinery, hardware, and grants to Türkiye
Partnerships	cooperation with EU businesses and schools
Foreign language	interest in German courses and language proficiency
Germany's relationship with other countries and Türkiye	
	options for post-qualification, including examinations and practical assessments, available in some areas of Türkiye
	establishing a system to provide a qualification portfolio with entrance exams, qualification steps, and follow-up assessments to ensure competency
	companies requesting certification for an individual covering the associated costs
	extra language support courses at school and afternoon language support programmes

Regarding cooperation with the EU, many Turkish students aspire to work and live abroad, and the students who have had experience through Erasmus exchanges are more motivated to emigrate. Exchange opportunities and collaboration with other countries is sought after by many IVET schools in Türkiye. One striking comment is the request of more EU funds and hardware to Türkiye because of sending qualified personnel to the EU and contributing to the EU funds. In Germany, many schools try to provide extra language support, and companies assist in arranging accommodation, which are two main requirements to stay in Germany. As far as partnerships are concerned, engagement often depends on public funding opportunities or needs through self-organised initiatives from the German side.

4.2 Weaknesses and Threats in Turkish and German IVET

Tables 5–7 present the negative views by the IVET providers, employers, and policy makers about the IVET systems, student profiles, and cooperation with the EU and other countries.

Table 5

Weaknesses and Threats in the IVET System

Themes	Weaknesses and Threats
Türkiye	
Labour force	shortage of qualified graduates
	low job application rates with the influence of families who want better conditions or white-collar work for their children
	oversupply of university graduates
	excessive NEET and unemployed women
	low wage scales and unfavourable work conditions
	OIZs have to build their own IVETs, companies have to train their own staff
Curriculum	errors in the education system (lack of planning, confusing, diverting from science)
	demand for fewer cultural lessons (e.g. mathematics, physics, biology, chemistry, religion, geography) but more vocational courses
	difficulty in meeting fast changing vocational and skills needs
	heavily theoretical education, rote learning, lack of practical skills
	outdated technology in schools
a. Centralized approach	teachers not being involved in curriculum changes
	lack of interest by social partners, especially chambers
	lack of involvement of external experts due to reluctance of payment from MoNE
	teachers' inability to cope with centralized curriculum updates
	insufficient in-service training for curriculum updates
	lack of facilities in workshop ateliers for updated curricula
b. Training	insufficient quantity and quality of the teachers, workshop ateliers, and equipment, esp. in 10th and 11th grades
	constant need for supplies in workshops of the school
	learning by watching videos after the Occupational Safety Law Act 6331 without practice
Apprenticeship	businesses unable to provide the skills and subjects in the curriculum
	businesses providing only 20-30% of the skills needed
	not allowing the IVET apprentices to work in manufacture, but in administrative tasks
	not taken seriously both by students and the education providers
	no consultancy from universities
Job descriptions	need for standardised job definitions, responsibilities, authorities
IVET-sector collaboration	difficult to organize field trips
	social support needed from stakeholders
	slow response from sectors to e-mails or phones
	relationships with universities or IVET schools only due to formality
	sectors not attempting to help education providers, no feedback
Germany	
	dependent on getting funding for buildings, renovations, supplies
	financial support needed for vocational training centres
	heavily dependent on the public sector
	colleagues with a migration background having a different focus raising other questions and being a source of problems

In Türkiye, there is an aggravated shortage of qualified workers, especially in blue collars. The reasons for this shortage are mentioned as poor salaries and work conditions, an oversupply of university graduates instead of IVET, the increased NEET and lack of enough female workers, and families' desire to see their children work in better conditions and white-collar jobs. The curriculum was criticized by sector representatives and policy makers for failing to meet the sectoral demands and lagging behind technological and scientific developments.

School directors stated that IVET curricula should reduce the number of non-IVET, general courses, referred to as 'cultural courses' in the Turkish education system and emphasized that their students are vocationally focused. However, sectors and policy makers complain about

low STEM skills, especially in jobs requiring mathematical knowledge, as will be seen in the next table. IVET providers maintained that chambers should be more responsible, teachers and facilities should also be supported when renovations are made in the curriculum, and they complained about the inadequate quantity and quality of teachers, workshop environments and equipment.

Concerning internships, some enterprises are reported to fail to accomplish their duties in training the students. Furthermore, an IVET provider stated that the confusion about job descriptions should be resolved, and the slow bureaucratic procedures and delayed response from the companies impede the collaboration with the sector. On the other hand, some sector representatives maintained that the students and education providers should take apprenticeship more seriously. Regarding IVET-sector collaboration, both the education providers and sectors mentioned lack of interest from either side.

From the German respondents' perspective, the supply of infrastructure and technical requirements largely depend on the financing of the public sector. In contrast to findings in Table 2, some German participants stated that colleagues with a migration background can have a different focus, raising other questions and being a source of problems.

IVET providers, sectors, and policy makers criticise IVET students in terms of capacities. Besides the changes in the education system with 12 years of compulsory education, the passing requirements made failing classes almost impossible. Therefore, the students might feel more comfortable and lose their motivation to study hard to pass their classes. With the added fact that many of the IVET students are already disinterested in academic subjects, their competencies in general culture decreases. However, this creates problems in programs that require numeric skills according to the interviews. In addition, IVET students are mentioned as one of the most vulnerable groups with complicated social backgrounds, which may contribute to their low academic success.

Most public IVET schools are not interested in tracking their graduates unlike private IVET schools. Another problem is that many families still have prejudices against women's work and do not send their daughters to schools, while some girls especially in the Southeast and Eastern Türkiye, particularly Syrian students, may drop out of school due to early marriage. Findings about increasing drop-out contradict the low drop-out result in Table 3.

No data was obtained about problems related to IVET students in the German interviews.

With regard to Erasmus exchange programs, the participation of IVET schools in Türkiye is rather low, and the interviewees find the duration short. In addition, many IVET graduates want to go abroad for better living conditions and higher salaries. However, they often need to receive complementary trainings for professional skills and foreign language to be employed abroad. On the other hand, some IVET providers complain about trying to compensate for the brain-drain caused by students' leaving the country.

For partnerships between countries, the differences in the IVET systems create mismatches, and clear solutions are needed because written certificates may not be evidence for equivalence of professional skills. Besides the complex legal frameworks in the German VET system, there is conflict between companies and IVET providers in the belief of lowering the standards to meet the demands by the sectors. A sector representative from Germany also mentioned that there should be more exchange opportunities for teachers and students, especially in practical fields.

Table 6

Weaknesses and Threats in IVET Student Profiles

Themes	Weaknesses and Threats
Türkiye	
Student profiles	low academic skills, esp. in mathematics deteriorated, over-flexible passing-failing system decreased quality of education difficulty in technical programs such as information technologies, electrical-electronics, machinery, industrial automation, aircraft due to low STEM skills low motivation, use of cognitive skills, and practicality need for new digital skills need for ability to develop new strategies to increase efficiency and production increased drop out
Graduate tracking	requirement of student login to be tracked no research or statistics, only feedback from the industry
Gender	conservative families needing persuasion to enrol female students to IVET no work done on gender balance more unemployed women, esp. among blue-collar workers (due to family and cultural codes) men preferred for physical strength while women for fine motor skills or cleaning
Vulnerable students	most IVET students are disadvantaged families with financial difficulties, illiteracy, separated families students from countryside, e.g. staying with friends communication problems with weak Turkish needing psychological support problems with roots beyond school
Immigrant students	working informally
Drop-out	30% of student drop out in immigrant-dense regions increase in the last 5-10 years economic problems and language barriers in Syrian students not sending immigrant female students to school early marriage in immigrant female students ministry projects partly keep Syrian students in school MESEMs: student profile with mostly expelled students who had problems with previous education and re-enrolled to IVET MESEMs: 90% of students with separated parents no strategy to monitor the student's special circumstances, monitoring based on individual efforts of school administrators or teachers no data collection system challenging newly introduced grade passing system more students transitioning to open education high rate of students who never start school
Germany	
	No data

Table 7

Weaknesses and Threats in Relationships with Other Countries

Themes	Weaknesses and threats
Türkiye's relationships with the EU countries	
Recognition of qualifications	not aiming to harmonize vocational training with the EU training personnel for Türkiye only
Exchange programs	at an insufficient level, most IVETs never participated in an international program
Graduates going abroad	most graduates not working/unable to work abroad many students attracted to foreign countries due to standard of living rather than professionally aiming to have better income and see different countries some students returning from abroad with disappointment lack of foreign language proficiency, esp. B1-2 levels often complementary training needed to work in the EU
Brain-drain	affects Türkiye negatively, exploits resources IVET schools trying to compensate for brain-drain
Germany's relationship with other countries and Türkiye	
	heavily dependent on public funding accommodation required in Germany mismatch in German dual system and Türkiye practical work via the training booklet and practical examinations missing from Türkiye testing being more reliable than written job certificates complicated legal framework and difficulties at vocational schools a greater demand for simple language, especially in final exams by companies, but fear of 'watering down' the high-quality of VET from the education providers' perspective fear of micro credentials in IVET leading to a decrease in dual VET, reduce the chance for holistic apprenticeship, increase dependency to single employers need for openness in European exchanges, both for teachers and pupils, e.g. practical placement in a dementia centre

5   Structure of the Proposed TR-DE JOINT IVET Curriculum

The main justifications of the TR-DE JOINT IVET Curriculum study are presented in the SWOT findings section. Some of the SWOT findings supporting the joint curriculum from the Turkish perspective can be summarized as the strong desire of the students to live and work abroad especially due to low wages in Türkiye, 3–5% of IVET graduates already settling in foreign countries, no adaptation or skill problems faced abroad, and apprenticeship and job offers from foreign countries due to high demand from the EU. The German perspective can be outlined as the aging population, the significant increase in the demand for skilled workers and courses (e.g. in nursing for clinics and elderly care), offering courses directly to refugee groups and providing them with networks, the potential of colleagues with a migration background bringing a different perspective to work, and apprenticeship and job offers for the labour force which are available in some areas of Türkiye. Both countries complain about the insufficient level of international student and teacher exchanges. Therefore, the mutual exchanges during the IVET implementation in the joint curriculum would add innovative experiences and perspectives to both countries.

To overcome the weaknesses and threats and take advantage of the strengths in both countries, a joint curriculum proposal is made for sharing experience and building a labour force partnership. The IVET curriculum to be designed should meet the needs of education providers and the sector by evolving from a "predetermined and static" structure to an "adaptable and dynamic" system, as emphasized by the OECD (2018). The curriculum should be updated with the cooperation of schools, teachers, and the sector and must be aligned with the expectations of the partner countries. Bağ (2022) argues that to bring vocational education in Türkiye to

world standards, vocational education and training should not be constantly changed, and new studies should be conducted by examining the IVET systems in other countries. This model, which is proposed to be designed with the aim of providing an international perspective in the Turkish and German IVET systems and eliminating the employment problem of graduates in the international platform, will also enable the discussion of a new perspective on IVET and VET education. According to Wittig (2022), the main characteristics of the IVET system in Germany in terms of formal structures and regulations have remained remarkably stable between 1995 and 2020. While the content of IVET courses has changed in the sense that the specific learning objectives for the various occupations were updated regularly to keep up with technological innovations, the mission of vocational education and the key principles for designing occupational curricula remained the same. The TR-DE JOINT IVET Curriculum suggested in this paper is a proposal for the solution of such problems.

The fact that the German IVET education system is extremely stable whereas the Turkish IVET education system is changing rapidly and unpredictably is contradictory in terms of IVET education. Combining the advantages of these two countries, which have different understandings of curriculum, will bring a new paradigmatic approach to curriculum design. Therefore, it is highly important to discuss the TR-DE JOINT IVET Curriculum, which currently provides a general framework for the two countries with seven dimensions, each of which will be elaborated upon with further studies.

The general framework of the TR-DE JOINT IVET Curriculum Model structure is presented in Figure 1.

Figure 1
Structure of the TR-DE JOINT IVET Curriculum

TR-DE JOINT IVET CURRICULUM						
IVET Curriculum Component	Sharing of Tasks Between Countries	Collaboration with the Sector	Teacher-Student Exchange Programme	Graduation	Employment of Graduates	CVET Training for Graduates

The seven dimensions of the TR-DE JOINT Curriculum, which are presented in Figure 1, should be discussed within the framework of partnership. The strengths of the German and Turkish IVET Curriculum should be transferred to the IVET JOINT Curriculum and the weaknesses should be eliminated with cooperation.

Figure 2
Scope of Components of the TR-DE JOINT IVET Curriculum

TR-DE JOINT IVET Curriculum Components

Context of the Curriculum
- Curriculum approach
- Legal and regulatory frameworks
- Entry and prerequisites
  - Secondary school graduate student
  - Secondary school success score
  - Special entrance exam
- Lateral transfer from vocational high schools
- German-English-Turkish Language Proficiency
- Accessing criteria for the curriculum

Aims of the Curriculum
- Competence-acquisition-learning outcomes
- Basic/theoretical indicator tables
- Competencies indicator tables
- Skill indicator tables

Content: Problem-Based, Project-Based Learning and Content Organization
- Theorical knowledge
- Practical skills
- Technical skills
- 21st century skills

Learning-Teaching Methods and (Bilaterally Shared) Environments
- Face-to-face classroom environment
- Remote synchronous & asynchronous classes
- Training with videos
- Artificial intelligence applications
- Workshop and laboratory training
- Training in a modelled environment
- Internship in a business environment
- Applications in a real business environment
- Teacher and student exchanges, study visits

Measurement and Evaluation
- Measurement indicator tables
- Evaluation criteria and tools (including feedback mechanisms from both countries, mentoring)
- Evaluation of student performance

As seen in Figure 2, the 'Context' dimension of the curriculum includes the features of the curriculum along with the scientific bases of the training programme. Among these features, the most important is the curriculum approach. For the proposed IVET curriculum, Dewey's (1907; 1958) active curriculum design approach fits well and implements the processes of work- and skill-based education, ensures the transfer of pragmatist philosophy to the education system, and adopts the core, subject network, project-centred, and inquiry-based curriculum design approach. Apart from Dewey's philosophy, the curriculum model proposed in this paper further suggests the integration of Problem-based Learning, Work-based Learning, and Project-based Learning approaches into the IVET system.

Implementing the TR-DE JOINT IVET Curriculum has the potential to transform the approach and understanding of vocational and technical education in both countries. Considering the changes in many areas such as sectoral orientations, expectations, technological and scientific developments, production and marketing strategies, the curriculum should be revised and updated annually, and the dynamism required for vocational education should be added to the

IVET curriculum. In addition, a "Career Planning Office" and an "Innovation Monitoring Unit" should be established for students with the cooperation of schools and the relevant sectors. These units should conduct studies on the skill acquisition processes of students until graduation as well as CVET and advanced education after graduation. The Innovation Monitoring Unit should work with R&D and HR departments in enterprises to develop predictions about innovations that will emerge in the future. In addition, attention should be paid to the issue of social inclusion and inclusiveness at regional and family levels.

Due to the limitations of scope in this paper, each curriculum component in Figure 2 requires future in-depth studies in both countries with the involvement of all stakeholders.

6   Discussion

Türkiye is one of the countries sending the highest number of immigrants to Germany. When Turks who migrate to Germany live together with their own nationals and form very isolated communities, their cultural integration becomes difficult. With the TR-DE JOINT IVET Curriculum, students who interact with different cultures will be provided with opportunities to participate in the German economy and social life, and safe areas with familiar backgrounds will promote cultural access. Another important issue for Germany as a destination country for immigrants is that it makes financial expenses to organize courses for language and skill matching of immigrants from Türkiye. The TR-DE JOINT IVET Curriculum may prevent unnecessary financial expenses and loss of labour force during the recognition of qualifications and integration process. It will create the necessary infrastructure for the legal migration of the workforce from both Türkiye and Germany reciprocally for employment. In addition, this curriculum has a potential to reduce NEET and dropout in both countries.

In the continuation of this study, the first research studies should be conducted on the analysis of the conditions for the IVET curriculum partnership, and it would be appropriate to start new studies on the dimensions of the IVET curriculum. Secondly, the structure of the TR-DE JOINT IVET Curriculum should be designed, then a series of workshops and desk-based curriculum evaluation and development studies should be initiated to obtain expert opinions on the design. To conduct a pilot test of the proposed partnership, legal, physical, and scientific technical infrastructure issues should be investigated, and implementation conditions should be designed in a selected field (e.g. in the health sector). The curriculum structure proposed for the TR-DE JIONT IVET Curriculum can be applied to many fields, if not all, within the scope of IVET. In addition, if the proposed IVET curriculum model is successfully implemented between the two countries, it can encourage other IVET collaborations with other countries.

Acknowledgement

Ethics Statement

This study adhered to the research ethics regulations of the participating institutions with ethical committee permissions. The requirement for informed consent was also considered and fulfilled.

References

Bağ, Y. (2022). Türkiye'de mesleki eğitimde yaşanan değişim süreci [The process of change in vocational educa-

tion in Turkey]. *Social Sciences Studies Journal*, 8(101), 2739–2756. https://sssjournal.com/?mod=tam-metin&makaleadi=&key=63945

Cedefop. (2023). The future of vocational education and training in Europe. Volume 4, Delivering lifelong learn-ing: the changing relationship between IVET and CVET. Publications Office of the European Union. http://data.europa.eu/doi/10.2801/726631

Dewey, J. (1907). *School and society.* The University of Chicago Press.

Dewey, J. (1958). *Philosophy of education (Problems of men)*. New Students Outline Series.

Ege, A. A., & Erdil, E. (2023). Determinants of overlapping mismatch in the Turkish labour market. *Journal for Labour Market Research, 57*(29), 1–9. http://doi.org/10.1186/s12651-023-00355-6

Gökbayrak, Ş., & Çalışır, Y. C. (2024). Geleceğin istihdam gereksinimlerine uyumlu nitelikli işgücü ihtiyacı ve beceri geliştirme modelleri [Future employment requirements and models for developing vocational skills/qualifications]. A*nkara Üniversitesi Sosyal Bilimler Dergisi*, *15*(2), 245–257. https://dergi-park.org.tr/tr/pub/sobild/issue/86492/ 1485349

Kavak, İ. (2023). *Aşırı eğitimlilik olgusu ve işgücü piyasasına etkileri* [Türkiye İş Kurumu Genel Müdürlüğü Uz-manlık Tezi]. https://media.iskur.gov.tr/91599/ibrahim-kavak.pdf

MEB. (2018). *Outlook of vocational and technical education in Türkiye.* Series of Education Analysis and Assess-ment Reports No:1, November 2018. https://unevoc.unesco.org/network/up/TURKEY_MoNE-_Out-look_of_Vocational_and_Technical_Education_in_Turkey-_Series_of_Education_Analysis_and_Assess-ment_Reports_No_1_November_2018.pdf

OECD. (2018). *The future of education and skills: Education 2030*. OECD. https://www.oecd.org/con-tent/dam/oecd/en/publications/reports/2018/06/the-future-of-education-and-skills_5424dd26/54ac7020-en.pdf

OECD. (2023a). *OECD Economic Surveys: Türkiye 2023*. OECD Publishing. https://doi.org/10.1787/864ab2ba-en

OECD. (2023b). Taking stock of education reforms for access and quality in Türkiye. *OECD Education Policy Perspectives, No.68.* https://doi.org/10.1787/5ea7657e-en

Özer, M., & Perc, M. (2020). Dreams and realities of school tracking and vocational education. *Palgrave Com-mun*, 6, 34, 1–7. https://doi.org/10.1057/s41599-020-0409-4

Özer, M. (2021). A promising opportunity for the integration of Syrian refugees in Turkey: New targets in access-ing the labour market through vocational Education and Training. *Bartın University Journal of Faculty of Economics and Administrative Sciences*, *12*(23), 2148-2497.

Suna, H. E., & Özer, M. (2021). The impact of school tracking on secondary vocational education and training in Turkey. *Hacettepe University Journal of Education, 36*(4), 855–870, Advance online publication. http://doi.org/10.16986/HUJE.2021068158

Steinert, M. (2020). Research for the internationalisation of vocational education and training – a mapping review of a federal funding German research program. In C. Nägele, B. E. Stalder, & N. Kersh (Eds.), *Trends in vocational education and training research*, *Vol. III.* Proceedings of the European Conference on Educational Research (ECER), *V*ocational Education and Training Network (VETNET) (pp. 275–284). https://doi.org/10.5281/zenodo.4007685

TEPAV. (2017). *Mesleki eğitimde probleme dayalı eğitim modeli: ihtiyaç analizi ve pilot uygulama sonuçları.* https://www.tepav.org.tr/yayin/s/1196.

Virkkunen, R., Kontturi, M., Heino, M., Hannus, A., Behm, A. Sandbacka, K., Komulainen, S., Fidalgo, S., Cal-ligaro, L., Puggioni, S., Drago, F., & Ruffa, L. (2022). *D3 – WP3: Guidebook of Internationalization Strategy in Vocational Education and Training, Together for Future VET skills.* ToVET Erasmus+ Project No. 609068-EPP-1-2019-1-FI-EPPKA3-VET-NETPAR. https://www.tovet.eu/wp-content/up-loads/2022/04/READY-Final-version-of-the-strategy-guidebook.pdf.

Wittig, W. (2022). *Case study Germany*. The future of vocational education and training in Europe. Volume 2. Delivering IVET: institutional diversification and/or expansion. Cedefop. https://www.cedefop.eu-ropa.eu/files/germany_future_of_vet_vol.2_0.pdf

Biographical Notes

Dr Kıymet Selvi's works are mainly related to "Curriculum and Instruction." Regarding the field of education, she has worked on topics such as ICT, e-learning, distance education, self-directed learning, social impact assessment, philosophy of education, phenomenological phi-losophy, phenomenological pedagogy, curriculum development and evaluation, and material design in VET.

Dr Andreas Saniter is a senior researcher and the international research coordinator at the Institute Technology and Education (ITB) University of Bremen. His research interest are potentials and barriers for cross-country mutual learning and linking science and VET.

Dr Ida Kristina Kühn is a postdoctoral researcher at the Institute Technology and Education (ITB) and lecturer for educational sciences at the University of Bremen. Her research focus is on internationalisation of VET service providers, teaching and learning in vocational education, and integration of disadvantaged groups.

Dr Ayşe Dilek Keser is an independent multi-disciplinary researcher currently working for a Horizon Europe project at Ankara University. Her fields of interests are English language teaching, English for Specific Purposes, ICT and educational technology, university-sector collaboration, and migration.

Multimedia Learning Environment: Development and Design Features of Learning and Work Tasks for the Sector of Applied Informatics

Siemer, Christine
chsiemer@uni-bremen.de, University of Bremen, Germany

Harberts, Vivian
harberts@uni-bremen.de, University of Bremen, Germany

Abstract

Context: At EU and international level, the framework for digital skills calls for increased co-operation in the field of digital education across national borders and at the same time increases the relevance of transversal skills that go beyond subject-specific knowledge and enable successful management of professional and private challenges. Digital media offer a range of potentials (e.g. reflecting, systematizing and structuring) to enable flexibility and contribute to the promotion of individualized and workplace-related skills. This article uses the example of the Erasmus+ funded project "Multimedia Learning Environment for Work-Based Learning Tasks for VET Students in the sector of applied informatics" (acronym: MULE) to show how a multimedia learning environment can contribute to the promotion of skills through the design of learning and work tasks based on vocational spheres of activity.

Approach: A design-based research approach (DBR) was chosen for the research design. The professional Spheres of Activities (SoA) were identified by means of curriculum analyses, expert workshops and expert interviews. The research design includes a curriculum and document analysis, a semi-structured qualitative interview guide and a standardised questionnaire.

Findings: A comparison of the identified occupational fields of action from Italy, Serbia, Spain and Germany resulted in a cross-national synopsis of three occupational spheres of activity (SoA): SoA-1: Developing, programming and testing software applications and solutions. SoA-2: Developing, installing, testing and administering cybersecurity and data protection. SoA-3: Creating, testing, deploying and administering networks and network architectures. Learning and work tasks for the applied informatics sector are developed in accordance with these three spheres of activity using the task-manager for transnational use.

Conclusion: Based on three SoA the learning and work task offers the opportunity to create a closer link between industry and vocational schools in the sector of applied informatic and to promote more flexible vocational training. In addition, the task-manager makes it possible to enrich all subtasks with any multimedia design, e.g. with documents, illustrations, photos or videos as well as links. This approach makes it possible to cater for different learning types and preferences. The learning and work tasks developed can be used together or in teams to integrate work processes from industry into the school curriculum.

Keywords

learning environment, digital learning and work tasks, vocational education and training, vet

1 Context

IT professions in particular are becoming increasingly important in shaping the digital transformation (Jansen et al., 2020). At the same time, the relevance of transversal skills that go beyond specialist knowledge and enable people to successfully master professional and private challenges is increasing (Scharnhorst, 2021). For example, the OECD emphasises that transversal skills are essential key competencies that are required in various areas of life (OECD, 2005). At the same time, the importance of more flexible structures in the field of vocational education and training is emphasised, for example by networking vocational schools and companies with digital learning tools (Seufert, 2018). At EU and international level, the Digital Skills Framework calls for increased cooperation in the field of digital education to identify opportunities for the education and training community (teachers, students) across national borders (Vuorikari et al., 2022).

In vocational education and training in particular, digital media offer a range of potentials (e.g. reflecting, systematising and structuring) to enable flexibility and contribute to the promotion of individualised and workplace-related skills (Howe, 2013). From a German perspective, for example, the Standing Conference of the Ministers of Education and Cultural Affairs (KMK) expects new digital learning environments to offer more cooperative, collaborative and individualised learning opportunities (KMK, 2021). At the same time, digital media open up new opportunities for inclusive education. By promoting individual learning and development processes, strengths, preferences and competences can be individually promoted. By combining various media-based functions (e.g. display setting and read-aloud function), barriers can be broken down and equal opportunities created through new access to vocational education and training (Sonnenschein, 2023).

How exactly (new) digital technologies are used in the context of vocational education and training can be described in a threefold function (Euler & Wilbers, 2020). Digital technologies in their function as (1) *work tools* become the object of learning itself. The use of (new) digital technologies not only changes the work processes of a vocational sphere of activity but also leads to competence requirements at the employee level (Euler & Wilbers, 2020). Vocational spheres of activity (SoA) comprise characteristic task areas. In their entirety, these task areas represent an occupation and can be described on the basis of competences. It has been shown that an occupation consists of eight to 15 SoA's (Howe & Knutzen, 2022). As (2) *universal instruments*, digital technologies (e.g. mobile devices, tools, cloud computing) can now be seen as analogues to basic needs - especially with regard to young adults - resulting in divergent requirements for dealing with digital media in vocational education and training (Euler & Wilbers, 2020). In their functionality as (3) *learning tools*, digital technologies make it possible to extend sequences of educational programmes (e.g. blended learning) and to redesign pedagogical-didactic learning processes through media-supported learning formats (e.g. microlearning) (ibid.). The use of digital media in vocational education and training offers the opportunity "[...] to present work processes as learning anchors in a relatively authentic, diversely embedded and holistic way" (Howe & Knutzen, 2018, p. 518)[1]. From a vocational and media education perspective, the didactic design of digital learning environments is particularly important alongside the technological aspects. One possibility is the didactic concept of digital learning and work tasks (Howe & Knutzen, 2022). Learning and work tasks enable project-orientated, work process-orientated learning on challenging tasks in professional practice. The term emphasises the close interlinking of learning and work, whereby operational work processes are specifically harnessed for educational and qualification potential (Howe & Knutzen, 2022).

---

[1] Translated by the authors.

This article uses the example of the Erasmus+-funded project 'Multimedia Learning Environment for Work-Based Learning Tasks for VET Students in the sector of applied informatics' (acronym: MULE) to show how a multimedia learning environment can contribute to skills development through the design of learning and work tasks based on SoA. The integration of work-related learning tasks is intended not only to strengthen learning in practice, but also to link industry and vocational schools more closely. The multimedia learning environment developed in MULE addresses the target group of teachers (e.g. teachers, training staff) and learners (e.g. students, trainees). The multimedia learning environment developed in MULE will be made available throughout Europe in Germany, Italy, Serbia and Spain. A particular focus is on the promotion of interdisciplinary competences (Scharnhorst, 2021).

2 Research Interest and Research Questions

One way of linking industry and vocational schools more closely, creating a flexible access to education and achieving comparability at a European level is through SoA. SoA are typical task areas of an occupation or sector. They generalise professional work processes which can therefore also be compared at European level and describe relevant characteristics of a profession. In this way, as a part of the project MULE a common Europe wide understanding of the typical areas of responsibility in the respective sector can be created (Howe & Knutzen, 2022). Based on three identified occupational SoA, it will be shown how learning and work tasks can be used to integrate work processes from industry into the school curriculum and to define competences to be promoted that can be acquired by the students performing the tasks. The design and development of digital learning and work tasks using the example of the MULE project is based on the explanations of the german "Kompetenzwerkstatt" and is the central topic of this article. The research questions of the paper are:

- To what extent can matching occupational SoA be identified for the applied informatics sector of european countries?
- How does the use of a task-manager support the development of competencies and the integration of work processes into the curriculum?

3 Development and Design of Learning and Work Tasks

Following Seufert and Euler, the term learning environment can be differentiated into three types (2005). (1) In the conventional learning environment, the teaching/learning setting takes place in person. (2) In virtual learning environments, the teaching/learning setting is purely digital (Seufert & Elter, 2005). Virtual learning environments use the spectrum of e-learning to provide both organisational and didactic functionalities (Euler and Wilbers 2020). Virtual learning environments should depict authentic problems as realistically as possible and enable interaction with the learning environment (Niegemann et al. 2008). (3) A hybrid learning environment combines the first two points mentioned (e.g. blended learning) (Seufert and Euler, 2005).

In comparison to the use of monomedial formats (exclusive use of text formats), from a scientific perspective the term multimedia encompasses the use of various presentation formats to convey information (Scheiter et al., 2020). In this sense, the term learning environment refers to an organised learning situation to achieve the defined learning objectives (Mulder & Messmann, 2007).

The superiority of multimedia instructional materials compared to a purely text-based presentation is well known. As is the decision-oriented approach to selecting instructional formats. Niegemann and Niegemann (2018), for example, recommend ten learning psychology decision fields to consider when designing your multimedia learning programme: (1) format decision, (2) content structuring, (3), learning tasks and narration, (4) technical conditions and

developments, (5) multimedia design, (6) motivational design, (7) interaction design, (8) time structuring, (9) graphic design & layout and (10) implementation.

However, the occurrence of a successful multimedia effect depends on various framework conditions, such as the selection of suitable representations, the characteristics of the learners and/or specific features of the text-image combinations. Successful learning with multimedia requires, for example, that the images used express visual-spatial facts and that learners can process the available information in a targeted and appropriate manner (Scheiter et al., 2020).

A promising approach to promoting individual and workplace-related skills and at the same time enabling a more flexible design of digital teaching and learning opportunities is the approach of professional spheres of activity (SoA's). SoA's offer one way of connecting industry and vocational schools in the field of applied informatic in a more flexible way and achieving comparability at European level. SoA's summarise similar or similar work processes in order to go beyond the individual case information of the work processes (Howe & Knutzen, 2022). SoA can thus be used to derive typical task areas for the applied informatic sector and generalise them at a European level in order to create a common understanding of the typical areas of responsibility within the sector (Howe & Knutzen, 2022). The didactic concept of learning and work tasks comprises project-based learning, which is work process-oriented and considers challenging tasks of professional practice. Learning and work tasks relate to a work process as a complete work activity to fulfil a work assignment. The focus here is on the systematic linking of the learning process and the work process. A work process comprises the following:

> A professional work process represents a complete work action to fulfil a work order. Work processes are initiated by customer orders or internal orders. The order is accepted, planned, carried out and completed, with the work result being a concrete product or service (Howe & Knutzen, 2022, p. 17).[2]

The combination of theoretical and practical content in learning and work tasks aims to promote comprehensive professional skills as well as methodological, social and personal competences (Howe & Knutzen, 2022). Based on this didactic approach, a competence model was developed as part of MULE, which also addresses transversal competences for the applied informatic sector. The design and development of learning and work tasks is based on the four work process phases (1) order acceptance, (2) order planning, (3) order execution and (4) order completion (Howe & Knutzen, 2022).

The task-manager offers a way to support this previously more didactic and conceptual perspective with digital tools. The Task Manager is a browser-based online tool that can be used on various end devices. With the help of the task-manager, process- and competence-orientated digital learning and work tasks can be developed in a low-threshold and uncomplicated way. The learning and work tasks developed can be made available for learners (e.g. students and trainees) to work on via a multimedia learning environment. How exactly the learning and work tasks are developed within the framework of MULE based on the occupational SoA's is described below.

4   Methodological Approach

To answer the research questions, a design-based research approach (DBR) was chosen for the research design (Reinmann, 2017). The SoA were identified by means of curriculum analyses, expert workshops and expert interviews. The research design also includes a semi-structured qualitative interview guide, standardised questionnaires and a questionnaire on the system

---

[2]   Translated by the authors.

usage scale (Döring & Bortz, 2016). The sample includes, for example, IT managers, computer scientist and software developers. The design of the digital learning and work tasks was based on Niegemann and Niegamm (2018). The qualitative data analysis was carried out according to Kuckartz (2018).

To identify the SoA in the applied informatics sector, the first step was a curriculum and document analysis based on Howe & Knutzen (2022). For example, the following sources of information and regulatory documents were analysed for Germany:

- Framework curriculum for the training occupations of IT specialist, IT system electronics technician and IT system electronics technician (in German: Rahmenlehrplan)
- Competence structure model for the occupation of IT specialist
- Training framework curriculum (in German: Ausbildungsrahmenlehrplan)
- Module handbooks and study plans
–

In a second step the online tool, the Task Manager of the 'Kompetenzwerkstatt'.[3], was used. The Task Manager is a platform-based learning environment for designing and managing learning and work tasks (Howe & Knutzen, 2022). The tool offers a digital development environment that supports the efficient creation and management of work process and competence-oriented tasks. Based on the information sources and organising tools, a job profile matrix was created in the second step in order to match the documents viewed with the work objects and suitable work activities. After analysing the image matrix, the first SoAs were created. In order to verify the identified SoAs, they were then reviewed by experts from the applied informatics sector.

Each SoA relating to the professional profile of applied informatics can be assigned a list of competences that are characteristic of coping with tasks, assignments, problems and challenges. Therefore, a semi-structured interview guide was developed based on the identified and verified SoAs in order to derive both typical tasks and competences to be promoted.

5   Interim Results

One of the main objectives of the MULE project is the development and design of a multimedia learning environment enriched with learning and work tasks for the applied informatics sector, which is to be used as open educational resources (OER) throughout Europe in Germany, Italy, Serbia and Spain.

Our interim results for the applied informatics sector show that a total of 10 professional fields of action were identified in Germany (see Figure 1).

A comparison of the identified SoA from Italy, Serbia and Spain resulted in a cross-national synopsis of three occupational SoA (see Figure 1, outlined in bold). For the development and design of the digital learning and work tasks, the following transnational SoA are taken into account within the framework of MULE:

---

3   For more information see below: https://kompetenzwerkstatt.net/.

Figure 1
Synopsis of the Spheres of Activity (SoA)

- SoA-1: Developing, programming and testing software applications and solutions
- SoA-2: Developing, installing, testing and administering cybersecurity and data protection
- SoA-3: Creating, testing, deploying and administering networks and network architectures

SoA-1 includes, for example, tasks such as the development of web applications with database access and the integration of content and services between applications throughout the entire development cycle. SoA-2 includes, for example, the task of developing security architectures for multi-cloud environments. SoA-3 includes the development and management of networked communication systems using defined security guidelines to ensure the required functionality.

The interim results show that a change is to be expected within the SoAs in the coming years. For example, the interim results show that agile software development (Scrum) will help to control the structure of SoA-1 in the coming years through artificial intelligence (AI). For SoA-2, a high relevance for the skills of employees in applied informatics is currently emphasised and will continue to be so in the future. It can be assumed that this SoA will become even more important in the future, especially against the background of the use of AI, and that the competences to be promoted will lie more strongly in this area. There are overlaps in the transversal competences with regard to the three identified SoAs. At this point, the surveyed argue that interpersonal communication skills will become even more important in the future, as technologies are becoming increasingly complex and it is to be expected that tasks such as programming will be increasingly supported by AI in the future. In addition, transparency of the processed data should also be guaranteed for customers. The initial results show that subtasks can be created for all phases of a task and described in terms of their objectives and content. In addition, the task-manager makes it possible to enrich all subtasks with any multimedia design, e.g. with documents, illustrations, photos or videos as well as links. Based on the identified SoA, the task-manager enables the developed tasks to be made available to the learners and to accompany the learning process. It transfers the tasks into a multimedia-supported, digital

learning environment. This approach makes it possible to cater for different learning types and preferences. The learning and work tasks developed can be used together or in teams to integrate work processes from industry into the school curriculum.

6 Conclusion and Further Research

The task-manager offers the opportunity to create a closer link between industry and vocational schools in the sector of applied informatic and supports the promotion of work process-oriented skills. The extent to which the multimedia learning environment developed in the MULE project also promises learning success remains open at this point. Further studies could follow on from this with the following question: To what extent is there a connection between the design features of the multimedia learning environment for the sector of applied informatic and the subjective learning success of the learners?

It also remains unclear at this point to what extent the design features of the multimedia learning environment promote the anticipated learning transfer of the learners. These aspects could be addressed in further studies.

References

Döring, N., & Bortz, J. (2016). Forschungsmethoden und Evaluation in den Sozial- und Humanwissenschaften (5. Aufl.). Springer. https://doi.org/10.1007/978-3-642-41089-5

Euler, D., & Wilbers, K. (2020). Berufsbildung in digitalen Lernumgebungen. In R. Arnold, A. Lipsmeier, & M. Rohs (Hrsg.), *Handbuch Berufsbildung* (3. Aufl., S. 427–438). Springer. https://doi.org/10.1007/978-3-658-19312-6

Howe, F., & Knutzen, S. (2013). Digitale Medien in der gewerblich-technischen Berufsausbildung – Einsatzmöglichkeiten digitaler Medien in Lern- und Arbeitsaufgaben. Bundesinstitut für Berufsbildung (BIBB).

Howe, F., & Knutzen, S. (2021). *Berufliche Handlungsfelder beschreiben*. tredition. https://doi.org/10.26092/elib/830

Howe, F., & Knutzen, S. (2021). *Lern- und Arbeitsaufgaben entwickeln*. tredition. https://doi.org/10.26092/elib/899

Howe, F., & Knutzen, S. (2022). *Kompetenzwerkstatt: Arbeitsprozesse analysieren und beschreiben*. Handbücher für die Berufsbildungspraxis. https://doi.org/10.26092/elib/625

Howe, F., & Knutzen, S. (2022). *Berufliche Handlungsfelder beschreiben* (Handbücher für die Berufsbildungspraxis). https://doi.org/10.26092/elib/830

Kuckartz, U. (2018). Qualitative Inhaltsanalyse: Methoden, Praxis, Computerunterstützung (4. Aufl.). Beltz Juventa.

Kultusministerkonferenz (KMK). (2021). *Lehren und Lernen in der digitalen Welt: Ergänzung zur Strategie der Kultusministerkonferenz „Bildung in der digitalen Welt"* (Beschluss der Kultusministerkonferenz vom 09.12.2021). Kultusministerkonferenz. https://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2021/2021_12_09-Lehren-und-Lernen-Digi.pdf

Niegemann, H. M., & Niegemann, L. (2018). IzELA: Ein Instructional Design basiertes Evaluationstool für Lern-Apps. In S. Ladel, J. Knopf, & A. Weinberger (Hrsg.), *Digitalisierung und Bildung* (S. 159–175). Springer.

Reinmann, G. (2017). Design-based Research. In D. Schemme & H. Novak (Hrsg.), Gestaltungsorientierte Forschung – Basis für soziale Innovationen. Erprobte Ansätze im Zusammenwirken von Wissenschaft und Praxis (S. 49–61). Bertelsmann.

Scharnhorst, U. (2021). Transversale Kompetenzen – notwendig, erwünscht und schwierig zu erreichen. *BWP, 50*(1), 18–23. https://www.bwp-zeitschrift.de/dienst/publikationen/de/17030

Seufert, S. (2018). *Flexibilisierung der Berufsbildung im Kontext fortschreitender Digitalisierung*. Bericht im Auftrag des Staatssekretariats für Bildung, Forschung und Innovation SBFI im Rahmen des Projekts „Berufsbildung 2030 – Vision und Strategische Leitlinien".

Seufert, S., & Euler, D. (2005). *Learning Design: Gestaltung eLearning-gestützter Lernumgebungen in Hochschulen und Unternehmen*. SCIL-Arbeitsbericht 5. https://www.fachportal-paedagogik.de/literatur/vollanzeige.html?FId=793046

Sonnenschein, N. (2023). Inklusive Medienbildung in beruflichen (Bildungs-)Kontexten. Konzeptionelle Ansätze und Perspektiven für ihre Weiterentwicklung. *MedienPädagogik, 20*, 151–168. https://doi.org/10.21240/mpaed/jb20/2023.09.06.X

Vuorikari, R., Kluzer, S., & Punie, Y. (2022). *DigComp 2.2: The Digital Competence Framework for Citizens* (EUR 31006 EN). Publications Office of the European Union. https://doi.org/10.2760/115376

Biographical Notes

Dr Christine Siemer is a postdoctoral researcher at the Institute Technology and Education (ITB) at the University of Bremen in Germany. Her research focuses are on internationalisation and digitalisation in vocational education and training. In particular, she investigates the use of artificial intelligence, multimedia learning environments and the analysis of social networks in the context of international vocational education and training.

Vivian Harberts is a researcher at the Institute for Technology and Education (ITB), University of Bremen. Research interests are digital teaching and learning, recognition of prior learning (RPL) as well as work-based learning.

Estonian Vocational Teachers' Differentiated Instruction Practices in the Context of Inclusive Education

Sirk, Meidi
meidi.sirk@tlu.ee, Tallinn University, School of Educational Sciences

Liivik, Reeli
reeli.liivik@tlu.ee, Tallinn University, School of Educational Sciences

Rekkor, Sirje
sirje.rekkor@tlu.ee, Tallinn University, School of Educational Sciences

Abstract

Context: In the context of inclusive education, the student population in vocational education and training has diversified, which requires the implementation of differentiated instruction (DI). There is a lack of knowledge about which DI practices vocational teachers (VTs) implement taking into account student needs. This study aims is to identify the different DI practices used by Estonian VTs and to describe which theoretical DI principles these practices reflect.

Approach: The research employed a qualitative approach, collecting data through semi-structured interviews with seven Estonian VTs across various specialties. Theory-based thematic analysis was applied to identify DI practices.

Findings: The study identified four thematic DI practices: creative collaborative strategies, group work strategies, case-study strategies, and project-based learning strategies. These practices facilitated differentiation in three components of the curriculum (content, process, and product) and were predominantly implemented in small-group settings. The VTs demonstrated creativity in adapting DI practices to align with specific topics and learning contexts.

Conclusions: The findings highlight the variety of ways in which VTs implement DI practices to address student diversity and ensure that students are given an active and responsible role in their learning, which is a fundamental principle of DI.

Keywords

differentiated instruction, vocational teachers, inclusive education, student diversity

1 Introduction

In the context of educational reforms, there is an emphasis on ensuring that all learners benefit from a high-quality education that considers their individual needs (Gibbs & McKay, 2021; Thakur, 2014). This approach aims to facilitate a brighter future and enhance opportunities for learners' careers and overall life prospects (Bushie, 2015). All of this has led to the importance of inclusive education in different education systems and at different levels, with the aim of enabling full access to education for all (including vulnerable groups) and promoting

opportunities for participation, enabling all individuals to actualise their potential. Consequently, the focus of inclusive education is on students who differ from one another in terms of social background, ethnicity, culture, race, gender, family history and economic status (Bushie, 2015; Eikeland & Ohna, 2022; Gibbs & McKay, 2021; Taylor, 2017; Thakur, 2014; Tomlinson et al., 2003). In addition to socio-demographic differences, students also differ from each other in terms of academic, emotional and behavioural abilities (Gibbs & McKay, 2021; Thakur, 2014) as well as learning profiles, learning styles, abilities, interests (Bushie, 2015) and learning needs (Eikeland & Ohna, 2022; Gibbs & McKay, 2021).

In vocational education and training (VET), it has been further highlighted that students differ from each other in terms of age, level of education (including basic knowledge and basic work and study skills and experience), previous life experiences and motivation (Sirk et al., 2016; 2019; Sirk, 2024; van Middelkoop et al., 2017).

However, in the context of VET in Estonia, students that differ substantially study in the same study group. Therefore, the differences between these students in the context of inclusive education are encountered by teachers on a daily basis and this means that they need to be ready to teach these students at the same time. It is therefore beneficial to draw on Molbaek's (2017) insight into the nature of inclusive education in the direct learning process, that inclusion is fundamentally built on the choices of teachers before, during and after teaching and this systematic work on and awareness of these choices can ensure increased student participation, both academically and socially, which in turn leads to increased inclusion. Inclusive education thus necessitates that teachers embrace student diversity and commit to adapting their pedagogical approach to align with the learning needs of all students in the classroom (Letzel et al., 2022).

Consequently, there is an emphasis on implementing differentiated instruction (DI), which enables teachers to design the learning process from an inclusive education perspective, where all students are welcomed in the classroom and any barriers to learning are identified and actively addressed (Eikeland & Ohna, 2022; Gibbs & McKay, 2021; Porta & Todd, 2022; Thakur, 2014). This is based on the principle that student diversity is normal and beneficial (Tomlinson, 2014). This, in turn, presents a challenge for teachers to comprehend the optimal learning opportunities for each student and to implement these effectively (Bushie, 2015). Theoretically, differentiated instruction (DI) is a pedagogical approach based on constructivism through flexible adaptation of teaching-learning methods, which can be applied across whole-class, small-group and/or individual activities, taking into account student needs in heterogeneous classrooms (Gibbs & McKay, 2021; Thakur, 2014).

As a result, DI is a growing issue in education systems worldwide and should be adopted as a common approach on a daily basis to meet the needs of all students in the teaching-learning process (Gibbs & McKay, 2021). In VET, it has also been highlighted that DI plays an important role in developing student vocational competences (Skubic Ermenc et al., 2020). All require the effective utilisation and variety of innovative instructional practices that address student diversity and facilitate their engagement in the learning process, the development of competencies, and the attainment of academic excellence (Gibbs & McKay, 2021; Pozas et al., 2020). However, Taylor (2017) explains that there are no definitive guidelines for achieving DI, and that it is up to teachers to determine the most appropriate practice for delivering DI in different learning environments. Nevertheless, it has been highlighted that teachers rarely use DI practices and show rather low variance in their use of DI practices in their everyday teaching (Letzel et al., 2022; Pozas et al., 2020). In addition, prior research has indicated that DI has been extensively studied in the context of primary education, but less so in the context of secondary education, including VET (Smale-Jacobse et al., 2019). Therefore, there is a lack of knowledge about the teaching-learning practices of VTs taking into account student differences and needs, ensuring student engagement in learning and DI to support their learning.

The aim of this study is to identify the different DI practices used by Estonian vocational teachers and to describe which theoretical DI principles these practices reflect.

2 Differentiated Instruction

The term 'differentiated instruction' (DI) has been defined in various ways, but is most commonly described as a pedagogical approach that aims to meet the individual needs of all students in a constructive way (Gibbs & McKay, 2021; Porta & Todd, 2022; Pozas et al., 2020; Riordan & Convery, 2022) by adjusting the teaching-learning methods in a flexible manner (Thakur, 2014) to enable them to reach their full potential and individual success (Taylor, 2017; Thakur, 2014). In addition, DI is based on various pedagogical theories, such as constructivism, collaborative learning, exploratory learning, active learning, as well as the socio-cultural theories of Vygotsky (e.g., Bushie, 2015; Pozas et al., 2020; Riordan & Convery, 2022 Taylor, 2017; Thakur, 2014). At the core of these theories, as well as DI, is the student-centred approach (Gibbs & McKay, 2021; Smale-Jacobse et al., 2019), which entails treating all students with respect and consideration, regardless of their individual differences. The teaching-learning process is guided by the principle that students are given greater responsibility for their own learning (Gibbs & McKay, 2021; Tomlinson, 2001) and that the acquisition of new knowledge must build on prior understandings, allowing new knowledge to be constructed (Thakur, 2014; Tomlinson, 2001). Moreover, the skills, content and learning activities to be acquired must be meaningful to the students. This entails an understanding of why the topic or skill being learned and the approach to learning are relevant (Bushie, 2015).

DI can be implemented by teachers who modify the following aspects of the curriculum in the supported learning environment: content (i.e., the relevant knowledge and skills that must be taught to achieve the desired learning outcomes), process (i.e., the strategies and methods used to facilitate student learning and engagement), and product (i.e., the ways in which students demonstrate their achievement of learning outcomes) (Thakur, 2014; Tomlinson, 2001, 2014). Such modifications may involve one or more of the curriculum elements and should be made in accordance with the students' respective levels of readiness, interests and learning profiles (Thakur, 2014; Tomlinson, 2001, 2014) and organised using whole-class, small-group, and/or individual activities (Gibbs & McKay, 2021; Thakur, 2014).

In order to ensure the implementation of DI in the teaching-learning process, it is essential that teachers implement different teaching-learning practices (e.g., project- and problem-based learning, personal reflection, jigsaw puzzles, station work, dialogue sessions, flipped classroom etc.) to provide students with a variety of learning activities (Bushie, 2015; Eikeland & Ohna, 2022; Letzel et al., 2022). It is also important to use a variety of learning resources according to the level of the students' cognitive structure to enable them to construct knowledge (Thakur, 2014). This ensures that each student is involved in the learning process according to their actual abilities, thereby preventing the exclusion of any student from the teaching-learning process (Gibbs & McKay, 2021). It has been highlighted that those teachers who implement DI create an inclusive (Smale-Jacobse et al., 2019), positive and safe (fear-free) learning environment by fostering student personal development, academic achievement (Taylor, 2017) and self-confidence (Letzel et al., 2022), as well as supporting relationships between students and between teachers and students (Gibbs & McKay, 2021; Tomlinson, 2014). As a result, students' interest in and motivation for learning and responsibility for their own learning increases (Gibbs & McKay, 2021; Letzel et al., 2022; Taylor, 2017) and student well-being is supported (Letzel et al., 2022). Therefore, based on previous research, it is evident that the implementation of DI in the learning process is essential.

3   Methodology

The DI practices of VTs were collected during the Erasmus+ project Inclusive and Innovative Pedagogies for Educators, which ran from 2020 to 2022. Qualitative data were collected through semi-structured interviews. The interview guide was developed based on the theoretical foundations of DI and in collaboration with project team members, consisting of partners from Belgium, Denmark, Estonia, Greece, Ireland and Sweden.

The selection of VTs to be interviewed was based on the principles of purposive sampling. Consequently, the study involved those who were actively working as VTs and who had received the necessary pedagogical training to implement DI principles in their work. As most of the DI practices were obtained from Estonian VTs, only their best practices are presented in this study. Estonian VET is part of the national education system, mainly school-based, bridging basic and higher education. According to the Estonian Qualifications Framework, aligned with the European Qualifications Framework, VET is offered at qualification levels 2 to 5, including both initial and continuing vocational training and combining theoretical and practical studies. VET is flexible and accommodates diverse learners, including those without basic education or those pursuing vocational training without secondary education. Study formats include full-time (either school- or workplace-based) and part-time training. Estonian VET is accessible to all and aims to equip individuals both socially and professionally for employment and lifelong learning (Vocational Educational Institutions Act, 2013). Consequently, the student population is highly diverse in terms of age, experience and learning abilities (Sirk et al., 2019).

A total of seven teachers were interviewed for this study. The participants included two male and five female VTs, with teaching experience ranging from three to 22 years in the following specialities: trade, national defence, culinary arts, economics and business, logistics, construction, and welding. All the participants had a bachelor's degree in vocational pedagogy.

A theory-based thematic analysis was used to analyse the teachers' DI practices, which involved coding the interview transcripts and the subsequent organisation of the codes into themes (Clarke & Braun, 2017). First, the researchers ensured the anonymity of the respondents in the transcripts by coding them. Second, the three researchers undertook an independent review of the interview transcripts, identifying and coding text passages that described aspects of DI implementation. The researchers then organised the codes into theory-based thematic categories. In this process, based on the theory (Gibbs & McKay, 2021; Thakur, 2014), first, the DI practices that can be applied to whole-class, small-group and/or individual activities were distinguished. Second, the authors considered the theoretical basis that posits that the *content*, *process* and *product* aspects of the curriculum are modified when applying DI (Thakur, 2014; Tomlinson, 2014).

4   Results

The analysis identified four thematic DI practices used by VTs to educate a diverse student population. These were: 1) creative collaborative strategies, 2) staged group work strategies, 3) case-study strategies, and 4) project-based learning strategies. VTs implemented DI in study groups where students differed from each other in terms of age, previous education, proficiency in Estonian, and life and work experience. This led to DI in the learning content created and interpreted by the students themselves, different levels of need for teacher guidance in the process, and different outcomes as products created by the students according to their abilities.

The creative collaborative strategies included such teaching-learning methods as mind mapping and drama. Both methods facilitated activities for individual students, small groups and the whole class, allowing differentiation in the three aspects of the curriculum – content, process and product.

The mind-mapping method was used to teach students about the characteristics of products in work-based learning groups in the field of trade. The learning content was differentiated based on the students' shared experiences in the group work. The VT then gave instructions on how to create a mind map, both orally and in writing, as students may understand the task differently. The VT observed the students and gave feedback on the group work in the learning process. In terms of product, there were many different ways for students to present the learning outcomes, producing a mind map on paper or in a Word document or using an online tool. The VT used this method frequently and found it to be flexible and applicable to different areas of study.

Drama was used to teach professional ethics to officers. In terms of content, the VT assigned the core values of defence forces to small groups who discussed and chose which values they wanted to present. During the process, the VT observed and intervened when necessary to ensure that the groups did not choose the same values. The students discussed the topics, developed their own different scenarios and assigned individual roles. In terms of product, the groups then came on stage to perform their own dramatisation, some taking ten seconds, others a minute. At the end of the lesson there was a summarising discussion about professional values, which showed the VT how well the students understood these values and how effectively the learning outcomes had been achieved. The VT found this method useful and wanted to use it more often.

The staged group work strategies encompassed two teaching-learning methods: the mosaic and the gallery walk method. The mosaic method was used to learn theoretical knowledge about different types of tea and the use of weapons. The gallery walk method was implemented for learning future skills. Both methods supported student activities individually, in small groups and the whole class, allowing differentiation in three aspects of the curriculum.

The mosaic method was used with workplace-based students in the field of trade. First, the differentiation of the learning content emerged, as the VT divided the topic into subtopics that different students studied independently before the class. In the process of carrying out the classroom activities, the VT then divided the students into groups according to the same subtopics that the students had prepared at home. During this group discussion the students brought up the most important knowledge that needed to be taught to the other students who were studying other subtopics. Then, the VT divided the students into new groups, where students who had studied different subtopics taught them to each other so that all group members learned the entire topic. The product phase involved guided whole-class discussions to clarify misunderstandings and consolidate the learning. The VT explained that this method allowed them to draw on both theory and the students' experience and to cover extensive learning content quickly.

In applying the mosaic method to national defence training for learning to handle weapons, the VT divided the learning content into subtopics. In the learning process, the students were divided into groups and each group was given a subtopic with study materials, on the basis of which the students learned together in the group. Afterward, each group taught their subtopic to the other groups and learned the other subtopics from the other groups. In terms of the product, the students demonstrated their knowledge and skills through an exercise in which they disassembled a weapon. The VT and fellow students provided feedback and asked questions.

The gallery walk method was implemented with students who will become officers. The aim was to help them learn skills for the future. In terms of content, the VT formulated questions about the topic related to the substantive aspects of the topic, wrote the questions on large sheets of paper and hung them on the walls of the classroom. During the process, the students were divided into small groups according to the number of questions. The differentiated approach was that each group started with a discussion on a single question and after a certain period

they moved on to the next question. They read and added their own thoughts and/or complemented what the previous group had written based on their existing knowledge and searching for information on the internet using smartphones. This continued until each group returned to their first question. In terms of the product, the students checked the answers added by the other groups, summarised and presented the result.

The *case-study strategies* included two teaching-learning methods: inquiry learning to study the history of the Second World War occupation through family stories, and a case study in logistics training. Both methods were conducted on an individual basis. The implementation of inquiry learning allowed for differentiation of content, resulting in individual interviews of students; in the process students collected data through semi-structured interviews with their close relatives who had experience/knowledge of the occupation. In the product, the students presented a summary of the interview in a freely chosen format, such as a written summary or an essay, a PowerPoint or an oral presentation, according to their needs or wishes. The logistics VT used a case study that allowed students to systematically analyse the quality of services provided by logistics companies. In terms of content and process, students with work experience were allowed to choose cases from their internship company or where they worked and analyse these cases individually and collect data according to the study guide. Students without work experience analysed the cases prepared by the VT. In terms of product, the students participated in an individual assessment interview, conducted a self-assessment and the teacher gave summary feedback to the whole class.

The *project-based learning strategies* demonstrated differentiation in content, process and product, and the implementation facilitated learning individually and in small groups over a longer period including different activities. This theme encompasses four practices. 1) A project for learning about construction tools. In terms of content, students were taught in the classroom. In terms of process, students mapped their initial knowledge, named the tools from photographs, and completed a worksheet under the guidance of the VT. Then, in the workshop, the students observed the VT demonstrating the use of the tools. In a hardware store the students looked for the tools from their worksheets, took photos of them, noted their prices, and as a result (product) submitted the completed worksheets to their VT. 2) A project for learning to produce a product in a real-world context that involved all students at the same time, working in teams to build gazebos for kindergartens and nursing homes. In terms of content and process, the students had to perform different tasks at different stages of the construction according to their previous knowledge and skills. 3) A project for learning to work in a restaurant. During the project, each student was tasked with planning, managing and delivering as a product a themed day in their workplace training restaurant for customers. This allowed each student to take on the role of chef in the restaurant, while the rest of the group participated as team members, undertaking cooking or service tasks as part of individually designed and managed projects. The students had different tasks in terms of content and process. 4) Business model development project was used with students in study groups from different specialities. The VT introduced the concept of a business model and ensured that the business idea chosen by the students was related to their study field. In terms of process, students collaborated in small groups, pairs or worked individually and developed a field-specific business model step by step, using various learning methods, such as brainstorming, discussions, research, presentations among others; the VT provided guidance based on the students' needs and individual interests. In terms of product, the students presented their business model as a poster or PowerPoint.

5 Conclusions

The aim of this study was to identify the different DI practices used by Estonian vocational teachers and to describe which theoretical DI principles these practices reflect.

The student population of the studied VTs varied mainly in terms of age, background, prior education, proficiency in Estonian, as well as life and work experience.

The findings indicate that VTs employ a variety of DI practices that enable differentiation in three components of the curriculum. The majority of these practices were organised in small-group settings, which also included some individual and whole-class activities (e.g., mind mapping, drama, mosaic method). However, some of the DI practices were organised in only one way, like the case-study strategies where the activities were planned individually. Furthermore, in all the DI practices studied, the students were given an active and responsible role in the learning, which is a fundamental principle of DI (Gibbs & McKay, 2021; Smale-Jacobse et al., 2019).

It has been emphasised that DI is mainly implemented in terms of content and process, with less differentiation in terms of the product (Porta & Todd, 2022). In this study, several DI practices appeared where students were given a choice to demonstrate the achievement of learning outcomes (e.g., mind mapping, drama, inquiry learning).

Pozas et al. (2020) have highlighted that the implementation of some teaching-learning methods may depend on the topic and/or field. The results showed that in VET there are topics that are common to all fields of study, such as professional ethics (applied via drama) and future skills (applied via the gallery walk), and these practices can be directly transferred. The DI practices studied show teaching-learning methods that can be applied to learning theoretical topics in various fields, such as mind-mapping, mosaic method and case-study strategies. It has been highlighted that teachers rarely use project-based learning (Pozas et al., 2020). This study shows how project-based learning can be implemented in a variety of ways, confirming that project-based learning is suitable for learning different theoretical topics and skills. Therefore, the results indicate that the implementation of DI largely depends on the creativity, flexibility and the positive attitude of the VTs in adapting the teaching-learning practices to a specific topic.

Previous studies have highlighted the concern that teachers show rather low variance in their use of DI practices (Letzel et al., 2022; Porta & Todd, 2022; Pozas et al., 2020). Variation in DI practices did emerge in this study and this can provide inspiration for other VTs. As Porta and Todd (2022) have posited, teachers who implement teaching-learning practices based on DI principles should share these, in order to support the professional development of their colleagues. Consequently, the dissemination of research findings on the implementation of DI can assist other VTs in the adoption of the DI approach in their pedagogical work. This, in turn, will benefit learners and help to achieve high-quality VET.

More detailed guidance on these DI practices can be found in the compendium of creative practices (Sirk et al., 2022).

References

Bushie, C. (2015). Literature review: Differentiation in education. *BU Journal of Graduate Studies in Education, 7*(2), 35–42.

Clarke, V., & Braun, V. (2017). Thematic analysis. *The Journal of Positive Psychology, 12*(3), 297-298. http://dx.doi.org/10.1080/17439760.2016.1262613

Eikeland, I., & Ohna, S.E. (2022). Differentiation in education: A configurative review. *Nordic Journal of Studies in Educational Policy, 8*(3), 157-170, https://doi.org/10.1080/20020317.2022.2039351

Gibbs, K., & McKay, L. (2021). Differentiated teaching practices of Australian mainstream classroom teachers: A systematic review and thematic analysis. *International Journal of Educational Research, 109*. https://doi.org/10.1016/j.ijer.2021.101799

https://doi.org/10.1177/016235320302700203

Letzel, V., Pozas, M., & Schneid, C. (2022). Challenging but positive! – An exploration into teacher attitude profiles towards differentiated instruction (DI) in Germany. *British Journal of Educational Psychology, 93*(1), 1-16. https://doi.org/10.1111/bjep.12535

Molbaek, M. (2017). Inclusive teaching strategies – dimensions and agendas. International Journal of Inclusive

Education, *22*(10), 1048–1061. https://doi.org/10.1080/13603116.2017.1414578

Porta, T., & Todd, N. (2022). Differentiated instruction within senior secondary curriculum frameworks: A small-scale study of teacher views from an independent South Australian school. *The Curriculum Journal, 33*, 570–586. https://doi.org/10.1002/curj.157

Pozas, M., Letzel, V., & Schneider, C. (2020). Teachers and differentiated instruction: exploring differentiation practices to address student diversity. *Journal of Research in Special Educational Needs, 20*(3), 217–230. https://doi.org/10.1111/1471-3802.12481

Riordan, T., & Convery, A. (2022). Reimagining the concept of differentiation in languages classrooms. *The Language Learning Journal, 52*(3), 271–284. https://doi.org/10.1080/09571736.2022.2130962

Sirk, M. (2024). Professionality model for vocational teachers: Based on the example of Estonian vocational teachers in the changing VET context. *Interchange* 55, 211–240. https://doi.org/10.1007/s10780-024-09519-w

Sirk, M., Liivik, R., & Loogma, K. (2016). Changes in the professionality of vocational teachers as viewed through the experiences of long-serving vocational teachers in Estonia. *Empirical Research in Vocational Education and Training, 8*(13), 1–26. https://doi.org/10.1186/s40461-016-0039-7.

Sirk, M., Liivik, R., Rekkor, S., Ümarik, M., Tubb, S., Hamill, A., Marievi Gretsi, M., & Roche, G. (2022). *Good Practice Compendium for Creative Classrooms*. Erasmus+ project Inclusive and Innovative Pedagogies for Educators (INACT). https://www.inclusiveeducators.eu/download/5187/?tmstv=1737461457

Sirk, M., Liivik, R., Ümarik, M., & Loogma, K. (2019). How professional memory influences vocational teachers' perception of changes related to students. *Estonian Journal of Education, 7*(1), 101–127. https://doi.org/10.12697/eha.2019.7.1.05.

Skubic Ermenc, K., Štefanc, D., & Mažgon, J. (2020). Challenges of differentiated and individualized teaching in vocational education: The case of Slovenia. *Problems of Education in the 21st Century, 78*(5), 815-831. https://doi.org/10.33225/pec/20.78.815

Smale-Jacobse, A.E., Meijer, A., Helms-Lorenz, M., & Maulana, R. (2019). Differentiated instruction in secondary education: A systematic review of research evidence. *Frontiers in Psychology, 10*. https://doi.org/10.3389/fpsyg.2019.02366

Taylor, S. (2017). Contested knowledge: A critical review of the concept of differentiation in teaching and learning. *Warwick Journal of Education - Transforming Teaching, 1*, 55−68.

Thakur, K. (2014). Differentiated instruction in the inclusive classroom. *Research Journal of Educational Sciences, 2*(7), 10−14.

Tomlinson, C. A. (2014). *The differentiated classroom: Responding to the needs of all learners* (2nd ed.). Association for Supervision and Curriculum Development.

Tomlinson, C. A., Brighton, C., Hertberg, H., Callahan, C. M., Moon, T. R., Brimijoin, K., Conover, L. A., & Reynolds, T. (2003). Differentiating Instruction in Response to Student Readiness, Interest, and Learning Profile in Academically Diverse Classrooms: A Review of Literature. *Journal for the Education of the Gifted, 27*(2-3), 119-145.

Tomlinson, C.A. (2001). *How to differentiate instruction in mixed-ability classrooms* (2nd ed.). Association for Supervision and Curriculum Development.

Van Middelkoop, D., Ballafkih, H., & Meerman, M. (2017). Understanding diversity: A Dutch case study on teachers' attitudes towards their diverse student population. *Empirical Research in Vocational Education and Training, 9*(1), 1−19. https://doi.org/10.1186/s40461-016-0045-9

Vocational Educational Institutions Act. (2013). *Riigi Teataja, RT I, 02.07.2013*. https://www.riigiteataja.ee/en/eli/ee/525092023001/consolide/current

Biographical Notes

Dr Meidi Sirk is an Associate Professor of Vocational Education and the Head of Curriculum for Vocational Pedagogy at Tallinn University. Her research interests focus on vocational education, professionalism and vocational teacher professionality and vocational didactics.

Dr Reeli Liivik is a Junior Lecturer in Vocational Didactics and the Head of Curriculum for Vocational Teachers Tallinn University. Her research interests are centred on the areas of vocational pedagogy, vocational didactics and the learning experiences of vocational students.

Sirje Rekkor is a Senior Lecturer of Vocational Pedagogy at Tallinn University. Her research interests focus on vocational education, curriculum development, and didactics in vocational education and training.

From Aspiration to Apprenticeship: Insights from a Refugee Pre-vocational Programme

Stalder, Barbara E.
barbara.stalder@phbern.ch, Bern University of Teacher Education

Lüthi, Fabienne
fabienne.luethi@phbern.ch, Bern University of Teacher Education

Schönbächler, Marie-Theres
marie-theres.schoenbaechler@phbern.ch, Bern University of Teacher Education

Abstract

Context: Refugees in Switzerland face significant challenges when entering the vocational education and training system. The pre-apprenticeship for integration (PAI), a one-year pre-vocational programme which targets unqualified refugees aged 16 to 35, aims to support this transition by helping participants clarify their aspirations and prepare for an apprenticeship.
Methods: The study draws on survey and administrative data of 2479 refugees who completed the PAI programme between 2019 and 2023. We examined refugees' long-term career aspirations, group-specific characteristics, and post-PAI transitions into VET.
Findings: PAI participants expressed a wide range of long-term career aspirations, with the majority aiming to stay in their current occupational field; others aspired to change fields, pursue further or higher education, become self-employed, or were uncertain. Aspirations were shaped by age, family status, and satisfaction with the PAI and were linked to participants' likelihood of continuing into IVET.
Conclusions: The findings highlight the PAI's potential to foster motivating career aspirations and successful transitions to IVET, though support is still needed for refugees facing uncertainty or requiring additional time to prepare for an apprenticeship. Continued research on PAI-participants' pathways will be essential to explore whether refugees can translate their aspirations into sustainable vocational pathways.

Keywords

refugees, integration, career aspirations, apprenticeship, dropout

1 Introduction

Refugees face considerable employment challenges, often lacking the educational qualifications and occupational skills required for skilled work (Aerne & Bonoli, 2021; Bundesamt für Statistik, 2024). To improve their educational and job prospects, the Swiss government introduced the "pre-apprenticeship to support integration" (PAI) in 2018, aiming to prepare them for initial vocational education and training (IVET) and empower them to shape their careers proactively (Schweizerische Eidgenossenschaft et al., 2018; Stalder et al., 2024). Setting clear

career goals and developing aspirations beyond IVET might be particularly relevant for refugees lacking initial vocational credentials, as they must reorient themselves, start their careers from scratch, and align their aspirations with the labour market in their host country (Wehrle et al., 2019).

This paper investigates PAI participants' long-term career aspirations and how they link to post-PAI VET pathways. In particular, we examine whether participants who stay in VET after the PAI have different aspirations than those who drop out. Using the PAI programme as an example, we discuss the opportunities and challenges of vocational integration programmes in fostering successful transitions to initial vocational education and training (IVET) while supporting sustainable careers.

1.1 The PAI Programme

The PAI is a one-year programme covering occupational fields such as catering and hospitality, construction, sales, and healthcare. Its primary goals are to prepare recognised refugees, temporarily admitted persons, and late-arriving migrants for regular VET programmes and to supply employers with skilled workers. Between 2018 and 2023, over 4000 people aged 16 to 35 started a PAI programme in Switzerland's German, French or Italian regions (Stalder et al., 2024). In most cantons, the PAI is structured similarly to the two-year apprenticeship that targets academically weaker learners. Key elements include combining in-company training with school-based education in a particular occupational field, a focus on strengthening language, academic, practical, and transferable skills, and the provision of individualised support of PAI participants by specialists. Access to the PAI is granted to individuals with work experience who lack upper-secondary level vocational qualifications. An assessment prior to the PAI is carried out to determine, among other things, whether the candidates have sufficient language skills (level A2 or better) and are motivated and capable of fully engaging in the programme.

The PAI's structure, modelled on regular apprenticeships, offers clear advantages but also presents challenges in meeting the specific needs of its target group. Three examples illustrate this: First, the full-time nature of the programme may not be suitable for older participants with family responsibilities or for refugees with health-related impairments. Second, the absence of remuneration may prompt participants who rely on income to opt for unskilled employment rather than embark on a VET programme. Third, while focusing on specific occupational fields can support targeted preparation for a corresponding apprenticeship, it limits participants' flexibility to switch to another field, potentially reducing their motivation to stay in VET. These challenges arise in accessing and completing the PAI and may hinder the transition into an apprenticeship thereafter.

1.2 Career Aspirations

Aspirations reflect an individual's subjective orientation toward a desired near or distant future, shaped by imagination and emotion and influencing learning choices and practices. Career aspirations refer more specifically to one's goals and ambitions related to work and career development—such as roles, skills, advancement, lifelong learning, or work-life balance (Barhate & Dirani, 2021; Howard et al., 2011). They guide motivation and decision-making and contribute to career success (Lent & Brown, 2019; Niessen et al., 2023). Individual factors—such as personal skills, learning experiences, health, family obligations, and housing—and contextual factors—such as educational opportunities and support from institutional actors—play a key role in developing aspirations. Research suggests that refugees with higher individual and contextual resources are more likely to set clear goals and show curiosity in actively pursuing their careers (Wehrle et al., 2019).

1.3 Dropping out from VET

Dropping out of VET is a concern in many countries, including those with dual VET systems. Reasons for early leaving from VET include mismatches between desired and actual occupation, low wages, poor VET quality, insufficient skills, low motivation, health issues, older age, and migration background (Böhn, 2022; Stalder & Schmid, 2016). Several of these risk factors—such as limited language skills, older age compared to peers, or health problems—are common among PAI participants. In addition, key occupational fields targeted by the PAI programme, such as catering and hospitality or construction, are often perceived as less attractive and associated with high dropout rates. Finally, dropout is frequently linked to financial or family issues—challenges that may disproportionately affect refugees (Aerne & Bonoli, 2021; Coleman Gallagher et al., 2021).

1.4 Research Questions

The PAI programme aims to help participants develop long-term career aspirations beyond IVET. This goal aligns with a core principle of the Swiss VET system, which strives to enable all VET learners to obtain additional qualifications, such as an IVET diploma (three- or four-year apprenticeship) after an IVET certificate (two-year apprenticeship) or a higher VET degree (tertiary level) after an IVET diploma. Such qualifications can open access to more demanding, responsible, and personally fulfilling jobs and are key to long-term career development. How effectively the PAI supports the development of such aspirations remains unclear and is explored further in this paper.

Three research questions guide our investigations:

1. What are PAI participants' most salient career aspirations?
2. Are particular aspirations more common among specific groups of participants?
3. What distinguishes participants who continue in VET from those who drop out after the PAI?

2 Data and Methods

We use survey data from a sub-sample of 2479 PAI participants — mostly refugees with a residence permit B (acknowledged refugees) or F (temporarily admitted persons) — who completed the PAI programme between 2019 and 2023. The refugees frequently came from Eritrea, Afghanistan, and Syria. They had an average age of 25.6, with three-quarters being male. Two thirds were trained in a programme in the service sector (e.g., retail trades, hospitality, health, domestic services), roughly one third in the manufactury and industry secor (e.g., construction, mechanics), and only a few in the agriculture.

Participants completed an online questionnaire during a vocational school lesson shortly before the PAI's end. The questions focused on the workplace and school learning environment, participants' educational plans for the time directly after the PAI, and their long-term career aspirations.

We assessed career aspirations with an open-ended question ("What kind of work would you like to be doing in 10 years?"). The responses were coded using qualitative content analysis. The cantonal authorities provided information about the occupational field of the PAI and participants' post-PAI pathways. We included information about participants' PAI field (administrative data) and educational plans (participants' survey) to capture occupational stability vs. change and the aspiration to obtain additional qualifications. Additional data included participants' individual situation (e.g., family, housing, health, planned pathway after the PAI) and their evaluation of the learning environment in the PAI (e.g., interesting work, satisfaction,

support). We used descriptive and multivariate analyses to explore participants' career aspirations and their connection with VET pathways after the PAI.

3   Results

### 3.1 Refugees' Aspirations

Content analyses revealed seven dimensions of long-term career aspirations and an eighth category indicating insecurity:

- *Occupational stability*: work in the occupational field of the PAI. Examples: «In ten years, I would like to work as a care specialist in a retirement home» (PAI in the health sector); «I want to work as a car body painter» (PAI in the car industry).
- *Occupational reorientation*: work in an occupation other than the current PAI field. Examples: «I want to work as a dental assistant» (PAI in housekeeping); «As a gardener» (PAI in the construction sector)
- *Further IVET qualification*: work that requires an alternative or additional IVET qualification—in an occupational field that differs from the one associated with the PAI or that builds on an existing IVET certificate (two-year apprenticeship) with an IVET diploma (three- or four-year apprenticeship). Examples: "I would like to expand my work – either as a crane operator or a lorry driver» (PAI in the construction sector); «As a cook or pastry chef» (PAI in hospitality, post-PAI IVET as kitchen assistant)
- *Higher education degree*: work that requires a higher vocational or academic qualification (tertiary A or B). Examples: «In ten years, I see myself as an architect or civil engineer»; «Work as a physics and mathematics teacher».
- *Self-employment/entrepreneurship*: working in one's own business. Examples: «I will establish my own business, either a carpentry shop or a hair salon»; «I would like to have my own business and be my own boss».
- *Leadership*: work in a leadership position, be "a chef". Examples: «I want to be a store manager»; «Work as head chef».
- *Well-being and fulfilment*: have decent work, a good life. Examples: «A good job»; «A healthy life».
- *Uncertainty*. Participants that expressed not being confident about what to work. Examples: «I don't know»; «I can't say anything about my future at this moment»; «I'm not sure yet».

The results show that many participants wish to remain in their occupational field (62%). One-sixth (17%) envisioned themselves working in an occupational field that differed from their PAI field and/or in roles that require further IVET (19%) or tertiary qualifications (13%) (Figure 1). One in ten participants aimed to start their own business or wished to pursue a leadership role as an employee in a company. An equal share of participants connected their career aspirations to broader goals such as workplace well-being and self-care. A significant proportion (9%) remained uncertain about their future.

The responses of most participants could be assigned to one (55%) or two (38%) categories. The others listed aspirations that covered three (6%) or more (1%) dimensions. Participants whose aspirations covered more than one dimension referred most often to staying in or changing the occupational field, combined with the aspiration to acquire another qualification, run their own business or take up a leadership position.

Figure 1
Refugees' Career Aspirations in 10 Years
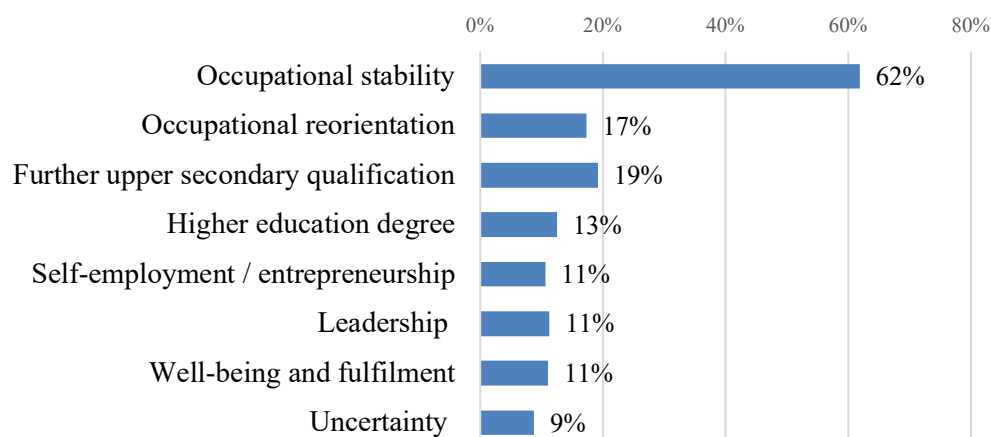
Note. Source: Participants' surveys, cohorts 1 to 5, years 2019 to 2023; multiple responses are possible

3.2 Aspirations, Individual Characteristics and PAI Experiences

The second research question examined whether particular aspirations were more common among specific groups of refugees. Focusing on occupational stability versus change, educational qualifications, and uncertainty, we explored how these are linked to participants' age, family situation, work-related interest, supervisor support, and satisfaction with the PAI. Significant results are briefly described below.

Occupational stability. Participants who wished to remain in their current occupational field tended to be older and more often married with children. They reported greater interest in their work, more frequently felt they could learn a lot, and received better support from their supervisor. Generally, they were more satisfied with the PAI field than participants who did not mention wanting to stay in the PAI field.

Occupational reorientation. Participants who emphasised a desire to change to another occupational field were often younger, single, and without children. They perceived their work as less interesting and less often reported that they could learn a lot. Overall, they were less satisfied with the PAI than participants who did not explicitly plan to move to another occupational field.

Further upper secondary qualification. Participants who aspired to obtain a (further) IVET qualification did not differ in any of the examined characteristics from those who did not mention this aspiration.

Higher education degree. Participants who aspired to obtain a higher education degree—whether vocational or academic—were more often younger, female, and (still) living with their families. Regarding their learning experiences in the PAI, they did not differ from other participants.

Uncertainty. Participants who expressed uncertainty about their future were younger, often single, and without children. They found their work less enjoyable, indicated less often that it was conducive to learning, and reported feeling less healthy. In general, they were less satisfied with the PAI than participants who did not mention being insecure about their future.

3.3 Aspirations and post-PAI pathways

The third research question focuses on participants' post-PAI pathways. We examined the aspirations of stayers (i.e., those continuing VET and starting a two-year or three-/four-year

apprenticeship) compared to leavers (e.g., those dropping out from VET, starting employment, or becoming NEET).

Results based on cantonal administrative data revealed that 71% of the surveyed refugees engaged in VET after the PAI (stayers). Over half (53%) started with a two-year apprenticeship, and 18% with a three- or four-year apprenticeship. 27% of the participants did not enrol in an apprenticeship or another certifying upper secondary programme (dropouts). Some attended another bridging offer (9%), others started to work (5%), but many did not have a follow-up solution (16%, including those of whom the cantonal authorities did not have any information about their post-PAI pathway).

Regarding occupational stability versus change, educational aspirations, and uncertainty, results show that aspirations are noticeably linked to participants' educational pathways after the PAI (Figure 2).

While occupational stability was valued across all refugee groups, those continuing their VET pathway through an apprenticeship were significantly more likely to intend to remain in the occupational field of their PAI in ten years (65% resp. 67%). Among them, those who entered a two-year apprenticeship more frequently than others expressed the intention to work in an occupation requiring an additional VET qualification—often referring to the goal of obtaining a VET diploma (three- or four-year apprenticeship) after completing their initial two-year VET certificate. In contrast, participants in a three- or four-year apprenticeship more often aspired to work in a qualified position that requires a higher vocational education degree.

The aspirations of refugees who did not continue in apprenticeships ("dropouts") differed only partially from the stayers' aspirations. Those who entered another bridging programme or had no follow-up solution were more likely to indicate a desire to switch to a different occupational field and less likely to express the intention to stay in their PAI field. Those who started directly with a job unrelated to education or training did not differ significantly in their aspirations from participants in other pathways. Interestingly, the uncertainty about future plans was not significantly related to pathways: the share of participants who reported not knowing what they wanted to work in ten years ranged between 6% and 10% in all pathways.

Figure 2
Refugees' Aspirations and Post-PAI Pathways
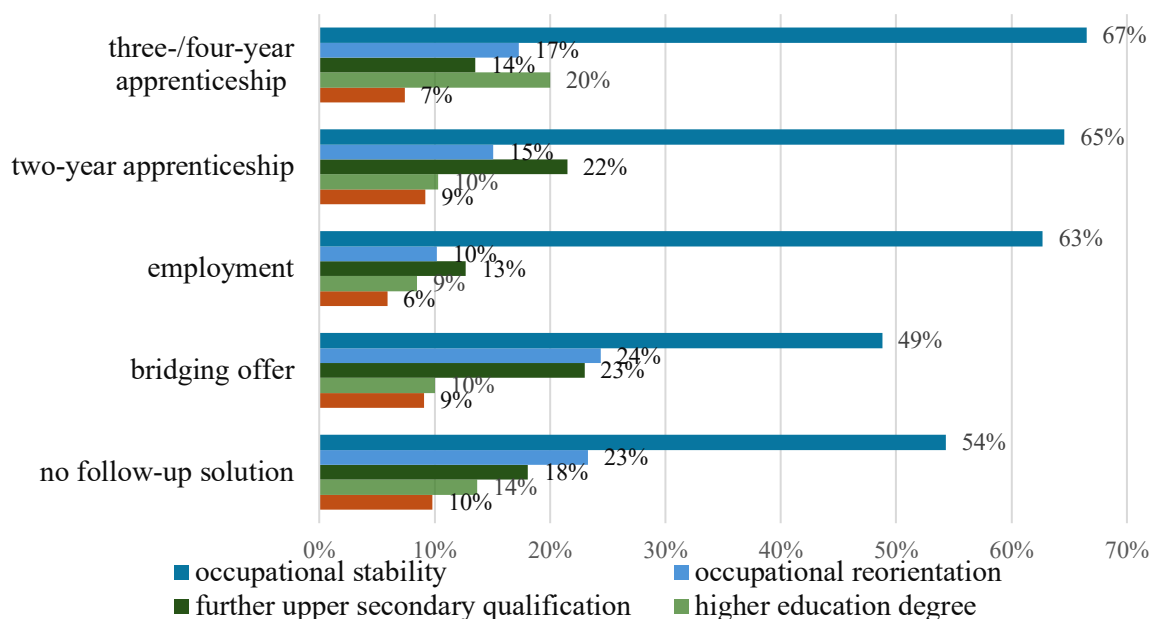
Note. Source: Participants' surveys and cantonal administrative data, cohorts 1 to 5, years 2019 to 2023

4 Conclusion

Refugees expressed diverse long-term career aspirations, including staying in their current occupational field, reorienting to a new one, pursuing further IVET or higher education, entrepreneurship, leadership, well-being, or expressing uncertainty. Aspirations were linked to age, family status, work interest, and satisfaction with the PAI and post-PAI pathways. Stayers—those continuing in VET—were more likely to want to remain in the PAI field. Two-year apprenticeships were often associated with plans for further IVET, three- or four-year apprenticeships with higher education. Dropouts more often sought change. Uncertainty about future careers was not related to post-PAI pathways.

The high proportion of participants who wish to remain in their occupational field highlights that many companies and schools have succeeded in motivating them for their chosen occupational area and preparing them well for an apprenticeship. The fact that some participants envision themselves in positions requiring an additional qualification indicates a willingness to pursue further training and an awareness that the Swiss VET system offers such opportunities. That aspirations are linked to family background and age confirms previous findings. Like other learners, refugees with family responsibilities are more likely to be under pressure to qualify quickly (i.e. without interruption) and to enter employment. The result that only a few refugees transition directly into unskilled jobs is encouraging—additional analyses show that most respondents consider it important to obtain a VET qualification. For those who, for the time being, must do another year in a bridging offer, it will be necessary to examine whether they can transition to IVET at a later stage.

One limitation is that this study only includes participants who completed the PAI. It is possible that among those who did not finish the programme, there might be more individuals with poorer resources (e.g., language skills, social support), individuals who were unable to pursue their occupational interests or had to drop out from the PAI early due to personal or family reasons—and who, as a result, did not enter vocational education and training.

For those who complete the PAI, the overall outcome is predominantly positive. The federal government's goal of preparing refugees for vocational education and training through a one-year pre-vocational programme and offering them a long-term career perspective can be achieved for most participants. Whether the aspirations of the refugees can ultimately be realised remains to be seen. For now, the focus is on successfully starting, continuing and completing the apprenticeship.

References

Aerne, A., & Bonoli, G. (2021). Integration through vocational training. Promoting refugees' access to apprenticeships in a collective skill formation system. *Journal of Vocational Education & Training*, *75*(3), 419–438. https://doi.org/10.1080/13636820.2021.1894219

Barhate, B., & Dirani, K. M. (2021). Career aspirations of Generation Z: A systematic literature review. *European Journal of Training and Development*, *46*(1/2), 139–157. https://doi.org/10.1108/ejtd-07-2020-0124

Böhn, S. (2022). Dropout from initial vocational education – A meta-synthesis of reasons from the apprentice's point of view. *Educational Research Review*, *35*.

Bundesamt für Statistik (BFS). (2024). Bildungsverläufe der 16- bis 25- jährigen Personen aus dem Asylbereich. Längsschnittanalysen im Bildungsbereich. https://www.bfs.admin.ch/news/de/2024-0552

Coleman Gallagher, V., Baranik, L. E., Hamdani, M., Valcea, S., Kiratikosolrak, P., & Wheeler, A. R. (2021). Multidimensional (mis)fit: A systemic view of the refugee employment journey from an HRM perspective. In M. R. Buckley, A. R. Wheeler, J. E. Baur, & J. R. B. Halbesleben (Eds.), *Research in Personnel and Human Resources Management* (Vol. 39, pp. 241–290). https://doi.org/10.1108/s0742-730120210000039008

Howard, K. A. S., Carlstrom, A. H., Katz, A. D., Chew, A. Y., Ray, G. C., Laine, L., & Caulum, D. (2011). Career aspirations of youth: Untangling race/ethnicity, SES, and gender. *Journal of Vocational Behavior*, *79*(1), 98-109. https://doi.org/10.1016/j.jvb.2010.12.002

Lent, R. W., & Brown, S. D. (2019). Social cognitive career theory at 25: Empirical status of the interest, choice,

and performance models. *Journal of Vocational Behavior*, *115*. https://doi.org/10.1016/j.jvb.2019.06.004

Niessen, D., Wicht, A., & Lechner, C. M. (2023). Aspiration-attainment gaps predict adolescents' subjective well-being after transition to vocational education and training in Germany. *PLoS One*, *18*(6), e0287064. https://doi.org/10.1371/journal.pone.0287064

Schweizerische Eidgenossenschaft et al. (2018). *Die Integrationsagenda kurz erklärt*. https://www.sem.ad-min.ch/dam/data/sem/integration/agenda/faktenblatt-integrationsagenda-d.pdf

Stalder, B. E., Kammermann, M., Michel, I., & Schönbächler, M.-T. (2024). Successful integration of refugees in vocational education and training: Experiences from a new pre-vocational programme. In M. Teräs, E. Eliasson, & A. Osman (Eds.), *Migration, education and employment: Pathways to successful integration* (pp. 133–154). Springer Nature. https://doi.org/10.1007/978-3-031-41919-5

Stalder, B. E., & Schmid, E. (2016). Lehrvertragsauflösung und Ausbildungserfolg - kein Widerspruch. Wege und Umwege zum Berufsabschluss. hep.

Wehrle, K., Kira, M., & Klehe, U.-C. (2019). Putting career construction into context: Career adaptability among refugees. *Journal of Vocational Behavior*, *111*, 107–124. https://doi.org/10.1016/j.jvb.2018.08.007

Biographical Notes

Dr Barbara E. Stalder is a professor at the Institute of Upper Secondary Education, Bern University of Teacher Education, Switzerland. Her research interests are student engagement and learning, career development in VET, and career success over the life course.

Dr Fabienne Lüthi is a lecturer at the Institute of Lower Secondary Education, Bern University of Teacher Education, Switzerland. She collaborates in the national evaluation and research project INVOL/PAI/PTI, focussing on aspirations and VET quality.

Dr Marie-Theres Schönbächler is the former director of the Centre for Educational Evaluation of the Bern University of Teacher Education, Switzerland. She is co-head of the national evaluation and research project INVOL/PAI/PTI.

CVET as strategy of inclusion for Generation X and Baby Boomers in a multigenerational future of work in Western Balkans countries

Sula, Oliana

olianasula@uamd.edu.al, Aleksandër Mosiu University Durrës

Abstract

Context: The composition of the workforce is changing due to demographic factors. Four generations are sharing common workspaces, Baby Boomers, Generation X, Generation Y and Generation Z. Generation X and Baby Boomers are supposed to stay longer to job market requiring further capacity building and awareness for the future of work even in developing countries in Europe such as WB (Western Balkan) countries. Lifelong long is crucial for the future of work. CVET (continuing vocational training) is intertwined with lifelong learning. Purpose: The aim of this study is to investigate the role of the CVET as strategy for inclusion and readiness for Generation X and Baby Boomers in the workplace focusing on WB countries such as Albania.

Approach: The approach of this study is exploratory, qualitative methods were used. There were realized four semi-structured interviews with C-level managers and with eight employees from the services and the manufacturing sector.

Findings: Findings suggest that there is a need to address needs assessment in terms of digital skills and sustainable skills, to provide equal access to CVET and public and private sector organizations should assess their employee needs in terms of CVET.

Conclusions: The study concludes with recommendations for policy makers and public and private sector organizations in Albania.

Keywords

CVET, lifelong learning, generation x, baby boomers, future of work

1 Introduction

Digital transformation and sustainable transformation resulted in a paradigm shift for the future work especially for Generation X and Baby Boomers, which are expected to stay longer in the labour market. Workplace diversity means also multigenerational workforce, generational diversity are broader than ever in today's workforce. The multigenerational workforce includes employees from different generations such as Baby Boomers (born 1946-1964), Generation X (born 1965-1980), Generation Y (born 1981-1996) and Generation Z (born 1997-2012). The main benefits of multigenerational workforce for business organizations are better access to multi-skilled teams, increased resilience, increased productivity, stronger talent pipeline, greater diversity of skills and outlook and better retention of experience and expertise

(OECD, 2020). The three domains from which business organizations can leverage their multigenerational workforce are recruitment and retention strategies (mobilizing), job quality (maintaining) and training and development (maximizing).

Digital transformation and sustainable transformation resulting in the integration of technology-enhanced business practices and sustainable business practices has exposed business organizations to new challenges of managing a multigenerational workplace to in-crease productivity and bridge generational gaps and skills gaps especially in terms of digital skills, AI skills and sustainable skills (Choudhary et al., 2024). Most of the current literature in multigenerational workforce is focused only in exploring Generation Y and Generation Z challenges for the future of work readiness, recent studies do not focus on Generation X and Baby Boomers, which continue to be still a significant part of the workforce facing reskilling and upskilling needs. CVET provides opportunities for employees and employers in terms of lifelong learning especially for Baby boomers and Generation X. In WB countries, there is a little awareness in CVET. The development of CVET remains fragmented even if even in this region the population is ageing, and Generation X and Baby Boomers are expected to stay longer in the labour market and will face challenges in future of work caused by digital and AI transformation which would result in lack of inclusion and inequalities.

This study explores the role of CVET as strategy of inclusion of Generation X and Boomers in the workplace. In the first section, theoretical background will be presented, in the third section research methods will be explained followed by findings in the fourth section and conclusions in the fifth section.

2   Theoretical Background

CVET enables capacity building with the combination of formal and non-formal learning (Thang et al., 2018). Law et al, (2023) argues that these should be promoted equally to offer diverse learning experiences especially to older adults. Due to the acceleration of transformation in the job market, workplace and working conditions, lifelong learning is a catalyst that can assure a smoother generational transition and cooperation (Gupta & Misra, 2025). Apart from providing knowledge skills and understanding, lifelong learning is source of personal reconstruction providing opportunities of active participation and engagement in society and improving quality of life (Formosa, 2019). To encourage multigenerational lifelong learning at the workplace, the lifelong learning needs of different generations should be addressed. A study by Olejnik (2022) shows that management teams have different expectations from employees in terms of lifelong learning. There are generational differences in learning experience and learning expectations. Baby Boomers prefer learning independence while Generation X prefers learning balance (Thaariq, 2023). A study on managerial learning at the workplace by D'Amato & Baruch (2020) concludes that managers from Generation X have stronger learning goals orientation compared to managers from the Baby Boomer generation.

Bangara (2024) suggests that Generation X is oriented towards traditional education because of expectations of job security and professional growth - a priority for this generation. Generation X tend to be more self-reliant in the learning process showing a preference for in the job learning, Baby boomers remain open to different learning experience even if they prefer to work and acquire new skills in a face-to-face working environment (Berge, 2022). Generations show different learning attitudes in the digital learning environment, Yawson & Yamoah (2020) suggest that that digital learning environment should contextualize learning processes in order to provide better access and inclusion to CVET for different generations. Digital transformation and Covid-19 pandemic have influenced teaching and learning experiences of Baby Boomers especially in terms of reconsidering digital learning experience and independent learning process as well as in order to optimise their learning experience online (Petalla, 2022). Baby Boomers prefer to seek help from experts. They show a willingness to invest in appropriate

technological gadgets. Whereas Generation X are early adopters of using technology in the workplace reaching an impressive level of expertise on integration of technology in the workplace while remaining very cautious and sceptical concerning ethical issues.

Moreover, AI revolution is imposing new challenges for the future of work especially of Baby boomers and Generation X. Generation X and Baby Boomers show higher resistance in AI adaptation at the workplace, especially in terms of use of the AI at the workplace (Randstad, 2024). As Generation X and Baby Boomers are supposed to stay longer in the workplace it is necessary to equip them with hard and soft skills to help them to face the challenges of AI revolution.

Sweden has the highest participation in lifelong of adults aged 25-69 years in Europe in 2022 (70%), while Greece has the lowest (15%) (European Commission, 2022). 35% of the population aged 55-69 years participated in the lifelong learning in 2022 in the EU, women have higher participation rates compared to men. Adults aged 55-69 years have the lowest participation in lifelong learning compared to other age groups although one of the main objectives in EU (European Union) is to provide inclusive working conditions and a prolongation of the working lives (European Commission, 2021b).

CVET is an essential aspect of lifelong learning which is crucial for navigating in the future of work within the digital transformation and sustainable transformation. CVET typically refers to the education and training which is provided typically after the initial education, and it aims to upskill and reskill employees to adapt to the challenges of the labour market. There are different aspects of CVET such as skill development, adaptability, career progression and accreditation. CVET is work based when it takes place in the workplace conditions which can be real or stimulated, and they aim to improve worker's ability to perform a task (CEDEFOP, 2015). According to Heuer et al. (2022) CVET distinguishes between formal, non-formal work related, non-formal non-work related and informal learning and CVET adults concluding that positive perception about CVET results on increased participation to CVET. Non-formal CVET does not provide recognized certification, and it usually takes place or in the workplace or in training and education providers, whereas informal CVET is related to experiential learning or just experience. On the other hand, Mara et al. (2022) suggest that participation in a CVET programme influences positively the perception of the motivation to participate on a CVET program and it affects positively participants' empowerment in the CVET program. According to Ruter (2022), participation intention is a predictor of CVET participation in non-formal CVET is influenced by institutional settings whereas participation in informal CVET is determined by individual factors (Lischewski et al, 2020).

CVET is crucial for upskilling for sustainability skills and sustainability practices in the workplace (Georgescu & Gliga, 2020). Lapshova and Levchenko (2020) suggest that the low participation of adults in VET can be overcome through empowering vocational training as a tool for career development and participation. Furthermore, the Covid-19 pandemic has also influenced learning processes in CVET to incentivize the integration of digitalisation in CVET learning (Siegfried,2023). In contrast, in Germany, the demand on CVET has declined especially during the first wave of the pandemic (Dauth & Lang, 2024). Digitalisation and respective regulation are crucial for the adaptation of CVET to the future of work (Dörpinghaus et al., 2024). Furthermore, AI has also been integrated in CVET but there is need to address data reliability concerns (Ciavaldini-Cartaud et al.,2024). A recent study by Yusuf et al. (2024) concludes that a hybrid approach of learning that integrated AI with traditional learning methods can result in flexible vocational training processes. There are some best practices in integrating AI in vocational education and training such in Austria where a strategy for artificial intelligence and training is being implemented (CEDEFOP & Refernet, 2023). CVET represent also upskilling and reskilling pathways for adults Generation X and Baby Boomers.

In Western Balkan (WB) countries efforts have been made by different countries of the region in modernizing VET (Vocational Education Training) focusing mainly on IVET (initial vocational education training) especially within the framework of EU integration. CVET remains unstructured especially in Albania where traditional forms of CVET dominate and there are not specific inclusion strategies for Generation X and Baby Boomers even though population is ageing, and workforce is multigenerational in many organizational contexts. There are no specific studies on CVET in the WB and especially in Albania. Taking into consideration the previous identified research gaps, the main purpose of this study is to explore how CVET can be strategy for lifelong learning and the multigenerational future of work especially in WB countries, especially in Albania.

3 Research methods

This study adopts an exploratory approach as it aims investigate how CVET can be transformed on a lifelong learning strategy for a multigenerational future of work especially focusing on Generation X and Baby Boomers. This study employs qualitative methods.

Data collection technique: data were collected through twelve semi-structured interviews. Semi-structured interviews allow the research to have more in-depth feedback from the interviewees. As the aim of this paper is to have in-depth understanding on the topic of CVET and lifelong learning for the future of work of Generation X and Baby Boomers, the semi-structured interview is the most suitable data collection technique. Semi-structured interviews were conducted during the months of October and November 2024 in the city of Tirana in Albania.

Sample characteristics: The sampling technique is purposive; participants were selected since they were employees and employers. The sample is composed by eight employees and four employers. Employers were C-level managers, it was relevant to interview C-level managers because they are responsible for elaborating organisational strategies. Five employees belonged to the Generation X and three employees belonged to the Baby Boomer generation who were currently in CVET formation. It was important to understand their needs in terms of CVET for their future in the job market. The interviewees belonged to the service sector of the economy, precisely to the IT sector and education sector and to the manufacturing sector, more specifically to the textile sector. The semi-structured interview grid contained 10 questions focusing the perceptions of interviewees on CVET, on the challenges and opportunities of CVET and digitalisation education in their organisational context and in the connoted of WB countries, specifically in Albania and organisational policies regarding CVET inclusion and digital transformation.

Data analysis- data sets were analysed using thematic analysis. Semi-structured interviews were recorded, transcribed and coded. Codes were grouped in themes that are more generic.

4 Findings

Three themes emerged from the thematic analysis. These themes are the following.

The need on transversal skill assessment in terms of digital skills and sustainability skills and confusing perception about CVET in WB context- for the interviewed C-level managers skills assessments of employees is a constant necessity for the future of work especially in terms of digital skills and sustainability skills. Especially in the education sector, the main challenge is skill assessment for employees in terms of digital skill and AI skills which of most employees tend to basic ICT (Information Communication and Technology) skills. In some cases, Baby Boomers employees do not perceive a real digital inclusion. Most of the employees have a confusing perception on CVET. In the case of Albania, the concept of CVET remains still ill-defined and confusing. There is a need to pay attention the assessment of sustainability skills in the textile sector, and CVET should be focused in part from hard skills also in soft skills

content to sustainability. There is also a need of raising awareness of CVET in Albania among employees, the lack of motivation in participating in CVET programs for employees is connected to the lack of awareness on CVET and of their importance of inclusion at the workplace and the future of work.

Equal access to CVET education- for the majority of the employees, in terms of inclusion to the workplace, there should be equal access to CVET education opportunities because sometimes they feel that there is not enough information shared about CVET, and even between employees there are not shared experiences on CVET participation or CVET engagement. CVET education should be accessible to all especially are the later stage of the work life. Baby Boomers perceive that they have fewer opportunities in terms of CVET education compared to other generations. Employees from the Generation X suggest that it should equal access for all the generation in terms of CVET at the workplace and there should be intergenerational collaboration in CVET education opportunities especially in terms of digital education. Employees are open to lifelong learning, but they perceive that their inclusion in lifelong learning is absent.

The need for assessment of private and public sector organizations in terms of employee CVET needs - for C-level managers in Albanian public and private sector education there is not a real inclusion of CVET opportunities in term of training and development of the employees. The needs of employees in terms of CVET should be assessed bottom-up especially for Baby boomers and Generation X to understand better the current challenges that CVET could address in terms of the future of work and lifelong learning. In education sector and textile sector employees from the Generation X and Baby Boomers are expected to stray longer in the workplace. Lifelong learning is lacking in organizational strategies especially in tackling employee retention and readiness for the future of work.

5   Conclusions

This study focused on exploring the role of CVET as a strategy for workplace inclusion for Baby boomers and Generation X in the WB countries focusing specifically on the case of Albania. The twelve semi-structured interviews conducted with four C-level managers and eight employees from the service sector more specifically IT and education sector and manufacturing sector more specifically textile sector. Data   highlighted the importance of assessing employees' needs in terms of digital skills and sustainability skills and brought to the fore how public and private sector organisations in Albania should assess their needs in terms of CVET as part of organizational strategies in lifelong learning. Even if there is willingness to raise awareness of CVET, equal opportunities in terms of access to CVET education of Generation X and Baby Boomers this remains a challenge resulting in weak inclusion of these two strata of generations in CVET education. This study contributes to the research field of CVET in the context of digital transformation and sustain-able transformation giving an employee and employers perspective. There are very few studies that focus on the importance of CVET, and the future of work form a multigenerational perspective focusing Generation X and Baby Boomers. Recommendations could be made for public and private sector organisations to include CVET in their strategies. For policy makers in WB region, it is essential to address more specifically access to CVET as a lifelong learning strategy for adults and older adults. In future, further studies could be conducted employing quantitative methods, in which a map of skills assessment could also be provided.

References

Bandara, N. B. (2024). Generational differences in learning and development preferences at ABC apparel company, Sri Lanka. International Journal of Science and Research Archive, 13(1), 871–880. https://doi.org/10.30574/ijsra.2024.13.1.1767

Berge, Z. L. (2022). Designing Workplace Training for Generational Differences: Does It Matter? *Merits*, *2*(4),

400-407. https://doi.org/10.3390/merits2040028

Cedefop & Refernet. (2023). *Strategy for artificial intelligence in education and training: Austria. Timeline of VET policies in Europe*. [online tool] https://www.cedefop.europa.eu/en/tools/timeline-vet-policies-europe/search/29855

Cedefop. (2015)*. CVET in Europe: the way ahead.* Publications Office of the European Union. Cedefop reference series.

Ciavaldini-Cartaut, S., Métral, JF., Olry, P., Guidoni-Stoltz, D., & Gagneur, C.A. (2024). Artificial Intelligence in Professional and Vocational Training. In A. Urmeneta, & M. Romero (Eds.), *Creative Applications of Artificial Intelligence in Education* (pp.145-155). Palgrave Studies in Creativity and Culture. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-031-55272-4_11

Choudhary, R., Shaik, Y. A., Yadav, P., & Rashid, A. (2024). Generational differences in technology behavior: A systematic literature review. *Journal of Infrastructure Policy and Development*, *8*(9), 6755. https://doi.org/10.24294/jipd.v8i9.6755

D'Amato, A., & Baruch, Y. (2020). Cultural and generational predictors of learning goal orientation: A multilevel analysis of managers across 20 countries. *International* Journal *of Cross-Cultural Management*, *20*(2), 159-179. https://doi.org/10.1177/1470595820926218

Dauth, C., & Lang, J. (2024). Continuing vocational training in times of economic uncertainty: an event-study analysis in real time. J*ournal for Labour Market Research*, *58*(1). https://doi.org/10.1186/s12651-024-00373-y

Dörpinghaus, J., Binnewitt, J., Samray, D., & Hein, K. (2024). Understanding informatics in continuing Vocational education and training data in Germany. *ACM Transactions on Computing Education*, *24*(3), 1–22. https://doi.org/10.1145/3665932

European Commission. (2022). *Adult learning*. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Adult_learning_statistics

European Commission. (2021b). *Green paper on ageing: Fostering solidarity and responsibility between generations*. https://op.europa.eu/en/publication-detail/-/publication/d918b520-63a9-11eb-aeb5-01aa75ed71a1/language-en

European Centre for the Development of Vocational Training. (2019). *CEDEFOP European opinion survey on adult learning and continuing vocational education and training (CVET).* Greece: European Centre for the Development of Vocational Training (CEDEFOP) in Thessaloniki. https://www.cedefop.europa.eu/en/publications/3088

Formosa, M. (2019). Active Ageing through Lifelong Learning: The University of the Third Age. In M. Formosa (Ed.), *The University of the Third Age and Active Ageing. International Perspectives on Aging, vol 23* (pp. 3–18). Springer, Cham. https://doi.org/10.1007/978-3-030-21515-6_1

Georgescu, M., & Gliga, C. (2020). Continuous Vocational Training for Sustainable Work Practices in Forestry. *Procedia Manufacturing, 46*, 299–307. https://doi.org/10.1016/j.promfg.2020.03.044

Gupta, J., & Misra, P. (2025). Unravelling Lifelong Learning in Multi-Generational Workforce Using Text Mining. *Business Perspectives and Research*, *13*(1), 51-69. https://doi.org/10.1177/22785337221148575

Heuer, A., Serratos-Sotelo, L., & Motel-Klingebiel, A. (2024). How perception affects participation: the case of adult learning and continued vocational education and training in Europe. *International Journal of Lifelong Education, 44*(1), 17-37. https://doi.org/10.1080/02601370.2024.2398516

Lapshova, E., & Levchenko, V. (2020). Impact of vocational training on older workers' employment. *SHS Web of Conferences*, *87*, 00020. https://doi.org/10.1051/shsconf/20208700020

Law, V. T., Yee, H. H., Ng, T. K., & Fong, B. Y. (2023). Evaluating the impact of lifelong education on older adults: A case study from Hong Kong. *Journal of Adult and Continuing Education, 29*(2), 643–658. https://doi.org/10.1177/14779714231156747

Lischewski, J., Seeber, S., Wuttke, E., & Rosemann, T. (2020). What influences participation in non-formal and informal modes of continuous vocational education and training? An analysis of individual and institutional influencing factors. *Frontiers in Psychology*, 11. https://doi.org/10.3389/fpsyg.2020.534485

Mara, L., Cascón-Pereira, R., & Icart, I. B. (2022). Perceptions of empowerment and motivation as outcomes of a continuing vocational education and training (CVET) programme for adults. *Education + Training*, *64*(3), 433–444. https://doi.org/10.1108/et-12-2020-0389

OECD. (2020). *Promoting an Age-Inclusive Workforce: Living, Learning and Earning Longe*r, OECD Publishing. https://doi.org/10.1787/59752153-en.

Olejnik, I. (2022). The concept of lifelong learning – managers' expectations and youth attitudes. *Scientific Papers of Silesian University of Technology Organization and Management Series*, 2022(159). https://doi.org/10.29119/1641-3466.2022.159.27

Petalla, M. B. (2022). Exploring the Digital Transformation of Teaching-Learning Experiences of the Baby Boomer Generation. *Philippine Social Science Journal*, *5*(1), 90-96. https://doi.org/10.52006/main.v5i1.471

Siegfried, C. (2023). E-LEARNING IN CONTINUING VOCATIONAL EDUCATION AND TRAINING OF-TEN USED AND (HARDLY) ACCEPTED? *EDULEARN Proceedings*, 1, 5195. https://doi.org/10.21125/edulearn.2023.1362

Randstad USA (2024). *The generational divide in AI adoption*. https://www.randstadusa.com/business/business-insights/future-work/generational-divide-ai-adoption/

Ruter, F. (2022). On the Effect of Employer Offered Leave of Work on Participation in Continuing Vocational Education and Training – Investigating the Intention-Behavior Relation. *Frontiers in Psychology*, 12. https://doi.org/10.3389/fpsyg.2021.807809

Thaariq, Z. (2023). Learner Characteristics based on Generational Differences. *Jurnal Pendidikan Humaniora, 11*(1), 10-20. https://doi.org/10.17977/um011v11i12023p10-20.

Thang, L. L., Lim, E., & Tan, S. L. (2018). Lifelong learning and productive aging among the baby-boomers in Singapore. *Social Science & Medicine*, *229*, 41–49. https://doi.org/10.1016/j.socscimed.2018.08.021

Yawson, D. E., & Yamoah, F. A. (2020). Understanding satisfaction essentials of E-learning in higher education: A multi-generational cohort perspective. *Heliyon, 6*(11), e05519. https://doi.org/10.1016/j.heliyon.2020.e05519

Yusuf, N. S. O., Abubakar, N. J. E., Durodola, N. R. L., Ocran, N. G., Paul-Adeleye, N. a. H., & Yusuf, N. P. O. (2024). Impact of AI on continuous learning and skill development in the workplace: A comparative study with traditional methods. *World Journal of Advanced Research and Reviews*, *23*(2), 1129–1140. https://doi.org/10.30574/wjarr.2024.23.2.2439

Acknowledgments

Biographical Notes

Oliana Sula is lecturer and researcher at the Department of Management at the Aleksandër Moisiu University of Durrës, Albania. She holds a PhD from Estonian Business School. Her research focuses upon digital transformation, digital skills, AI skills, digital education and ageing.

Vocational Inclusion of Migrants: Perspectives from the Workplace Stakeholders in Sweden

Teräs, Marianne
marianne.teras@edu.su.se, Stockholm University

Eliasson, Eva
eva.eliasson@edu.su.se, Stockholm University

Osman, Ali
ali.osman@edu.su.se, Stockholm University

Abstract

Context: This study examines how employers and workplace stakeholders perceive the re-entry of skilled migrants into their vocational fields after relocating to Sweden. It assesses their definitions of an employable migrant and the inclusion strategies they recognise.

Approach: The concepts of employability and inclusion are utilised to analyse the empirical material. Qualitative semi-structured interviews were conducted with two company owners, two mentors, and a regional coordinator.

Findings: The results indicate that employable migrants are expected to adapt to workplace culture, learn the language, and comply with legal requirements. Their competence, proactivity, creativity, and willingness to acquire new skills are valued. Inclusion strategies focus on language acquisition, social interaction, and support from management and colleagues, while recognising the policies and training programs provided by society. The responsibility for inclusion often falls on migrants, rather than addressing systemic barriers, framing workplace integration as an individual duty.

Conclusion: Achieving inclusion necessitates balancing personal effort with structural change to create more equitable workplaces.

Keywords

skilled migration, employability, inclusion, workplace stakeholders

1 Introduction

Immigrants navigating the Swedish labour market face a complex interplay of factors influencing their ability to re-enter their past vocational fields. While individual characteristics like education and language skills play a role (Behtoui, 2007; Coleman, 1988) in the process, research increasingly emphasizes the limitations of focusing solely on personal skills or qualifications. Broader societal structures—such as policies, economic conditions, and cultural norms—along with employer actions, significantly shape inclusion outcomes (Anthias, 2001; Dehghanpour Farashah & Blomqvist, 2019; Mozetič, 2022a; Mozetič, 2022b). In this context, it is vital to point out that research on labour market integration in Sweden and the Nordic

region often overlooks the employer perspective (Mozetič, 2022a; Mozetič, 2022b). Thus, this paper focuses on the pivotal role employers and workplace play in vocational inclusion. Their decisions on recruitment, training, mentoring, and workplace culture impact migrants` possibilities to access their vocation in Sweden and career progression.

This paper aims to explore how employers and workplace stakeholders perceived skilled migrants' re-enter to their vocational areas after moving to Sweden, and especially how they described an employable immigrant and what kind of inclusion strategies they mentioned. Two research questions guided the analyses:

1. How do workplace stakeholders characterize an employable immigrant?
2. What facilitating strategies do workplace stakeholders identify for vocational inclusion?

Through our aim and research questions, we seek to contribute to the critical discussion on what defines an employable migrant and the strategies for workplace inclusion.

2   Previous Studies from Employers' Perspectives

Most of the research on how employers describe employable migrants concern workers in low-wage industries. Jakobsen and Saether (2023) mean that employers in low-wage occupations prefer to hire migrants, a phenomenon that is visible both in Europe and in the USA (Ruhs & Andersen, 2010; Waldinger & Litcher, 2003). It leads to a clear segmentation of the labour market, with migrants being employed in the least attractive jobs (Rye & Reilly, 2020), while the domestic labour force has either moved upwards in the hierarchy of work or have been left outside of the labour market.

In a study of the horticulture industry in Norway, the employers constituted "the good worker" as persistent, motivated, flexible, takes little sick leave and does not complain about work tasks. Furthermore, they have "a deferent attitude in terms of pay and workplace hierarchies." (Jakobsen & Saether, 2023, p. 6). Jakobsen and Saether (2023) highlight that emphasizing certain soft skills legitimate employers' hiring of migrants from Eastern Europe, because they are considered most suitable for the job. However, focusing these skills are inseparable from the fact that low-wage migrant workers is a group that can be easily exploited (Farinella & Nori, 2020).

In a quantitative study, Dehghanpour Farashah & Blomqvist (2019), concluded that for managers, migrants' commitment to the host country's way of life seemed to be more important than job skills, educational level and language proficiency. This is similar to Riemsdijk et al. (2015), where the manager describes Norwegian culture already in the recruitment process to find out how the job applicant fits in. Bloch and McKay (2015), who studied ethnic enclave business entrepreneurs from Chinese, Bangladeshi and Turkish-speaking communities in London, described how the entrepreneurs preferred workers from the same ethnic group, based on stereotypical descriptions of commitment, ability and attitudes. Ponzoni et al. (2017) found that while employers from small companies described refugees as any other employee, employers in big companies talked about the value of diversity. However, the employers still used the discourse of lack when they described individual refugees. Ponzoni et al (2017), describes that the most striking aspects in refugees' narratives were their high motivation to adapt. The downside of this can be that migrants can become too humble, grateful and adaptable, skills that do not support career advancement. The researchers mean that both employers and refugees reproduce the discourse of lack and deficits.

It is also important that migrants feel included once they get a job. Riemsdijk et al. (2015) have studied the petroleum industry in Norway to examine firm initiatives for the socio-cultural incorporation of skilled migrants, and the perceived challenges. They state that employers play an important role in the incorporation process (cf. Syed, 2008; OECD, 2006). Riemsdijk et al.

(2015) interviewed HR managers and foreign-born engineers in different companies. One measure initiated by companies was language courses free of charge, not only because Norwegian was needed at work, but to enable the workers to engage in informal dialogue with Norwegian colleagues. Riemsdijk et al. (2015) highlight the key role of HR, line managers and colleagues for the incorporation of skilled migrants at the workplace, but they also argue that much depends on the initiative of individual companies.

3   The Concepts of Employability and Facilitating Strategies for Workplace Inclusion

The concept of employability is defined in various ways including multiple dimensions (Guilbert et al., 2016). Employability has also been used as a European and national policy concept to legitimise measures in education systems and the labour market (Fejes & Berglund, 2009). Guilbert et al's (2016) review suggested three main approaches: the educational and governmental, which is connected to policies of the nation, organizational referring to workers employability to organisations and individual, which highlighted individuals' abilities and competences. The researchers propose an integrative conception that would consider individual, organizational, governmental and educational aspects of employability, thus, combining dispositional, developmental, systemic, and process-related aspects of it (Guilbert et al., 2016). In this study, we follow their perception of an employable individual.

The concept of inclusion is commonly used in special education studies, where it ideally means that all children attend the same schools and classrooms, reflecting the principle of equality. However, interpretations and practices of inclusion often vary (e.g., Mamas & Avramidis, 2013). Göransson and Nilholm (2014) identified four categories of definitions: placement, specified individual support, general individual support and creation of community. We see inclusion as social and vocational activity that fosters participation into working community. In the same line, we see a facilitating strategy for inclusion that promotes social and vocational activities in the workplace. It involves removing obstacles, streamlining communication, and providing necessary resources or support to achieve a goal. (e.g., Hauck et al., 2013; Dogherty et al., 2010).

4   Methods

We used a qualitative research strategy. We followed a purposeful sampling technique and did five semi-structured interviews: three women and two men. Interviews lasted between 17 to 45 minutes. Interviews were done 2020-2021 digitally because of the COVID19 pandemic. Interviewees were selected, because they had several years of working experience with migrants: two mentors at hospitals, two company owners and one regional coordinator of a health care sector. The mentors had guided several migrants during practical periods and the entrepreneurs, one owned a bakery and another a company providing home care services, had employed several migrant workers The fifth participant worked as a regional coordinator for health care workers and had a broad perspective on the needs of employers in the area.

In the analysis, we applied the version of thematic analysis that Braun and Clarke called a reflective thematic and a codebook thematic analysis (Braun & Clarke, 2021). Thematic analysis offered us a flexible, yet structured method to explore the interviews. In the first phase, we read the transcriptions of interviews carefully, in the second phase we did systematic coding. Thereafter, we generated themes. Lastly, we explored the interviews through the lenses of our concepts: employability and facilitation strategy for inclusion. We identified 7 themes in relation to an employable migrant and 14 themes in relation to facilitating strategy for inclusion (see Table 1). These themes were intertwined and partly overlapping covering micro level individual aspects, meso level organisational and macro level societal aspects.

During the research process we followed the ethical guidelines from the Swedish Research Council (2017), such as informed consent, confidentiality, voluntary nature of the study and possibility of withdrawal at any time. The project was accepted by the Swedish Ethical Authority (2020-01139). The study was part of a larger research project called "Integration and Inclusion of Migrants in and Through Vocation and Work" and funded by The Swedish Research Council for Health, Working Life and Welfare (FORTE) Grant 2019-00832.

Table 1
Identified Themes in The Interviews

Employability	Facilitating strategies for inclusion
Professional and social knowledge and competence	Specialized programmes
Swedish language skills	Diversity and inclusion policies
Knowledge of Swedish cultural practices at work (laws)	Support from politicians
Flexibility and adaptability	Practical periods/work
Willingness to listen and be humble	Inclusive attitudes
Creativity and activity	Trial service
Openness to learn new skills	Double staffing
Willingness to integrate	Support (supervision) from the management and colleagues (mentoring)
	Discussion and informal meeting places
	Introduction in the beginning
	Teambuilding and different groups
	Managing problems, conflicts quickly
	Clear instructions and protocols
	Bureaucracy

5   Findings

The participants came from various vocational fields and had differing expectations of migrants joining their teams. All participants had experience of working with multiple migrant colleagues. Two mentors, Frank and Alice[1], worked with highly skilled migrants, including doctors and nurses. The two company owners, Lena and Anne, had contrasting approaches: Anne welcomed skilled migrants, while Lena preferred hiring unskilled migrants to train within her bakery business. Sam, a regional coordinator, provided a broader perspective on employment challenges in the healthcare sector.

5.1 Characterization of an Employable Migrant Worker

Most interviewees emphasized relevant professional skills and experience. Only the bakery owner preferred to train employees in company-specific skills. Swedish language proficiency was universally valued for facilitating inclusion and effective communication. Flexibility and adaptability were also key expectations, with employable immigrants seen as those who could align with Swedish work culture and norms. These aspects reflect Guilbert's et al (2016) individual dimension of the concept of employability. However, the interviewees also recognized and appreciated what migrants brought to the workplace. For example, Frank stated:

---

[1]   All names are pseudonyms.

There are many who are very well educated and have a long professional career and are very motivated to contribute. And they have often also very, very difficult times behind them and are very motivated to get a new job and also find a social connection where they can feel safe and at home.

Interestingly, Frank pointed out not only migrants' contributions but also the sense of belonging "they can feel safe and at home", which has been described as an important aspect of inclusion (cf. Lund, 2020). Anne, for her part, appreciated their view of the elderly. "But for me, it was also to see that... They have a completely different view of our elderly. They have such a respectful view. Yes, they have such a nice view, at least of our elderly. And that's what I really fell for." She described migrants' approach to people and especially elderly people, who are often receivers of homecare services. This was the point, why she wanted to hire migrants.

When considering what kind of person one should be, the participants highlighted different aspects. Mentors Frank and Alice emphasised activeness, creativity, and motivation to learn, as did Anne, adding that they would also dare to take their place at the workplace.

> Yes, I would like them to... that they dare to be themselves. That they dare to take their place. (….) They can be curious, ask questions, share their experiences and qualities. It may emerge after several years that they have worked as a nurse down in their home country. So, dare to bring it out.

These statements can reinforce the individual dimension of employability meaning that it is up to the individual to adapt to a new environment, and it is up to their individual competences and professional expertise that are valued at workplaces (Guilbert et al., 2016). But there were also other perspectives on the importance of prior knowledge, Lena highlighted that the person should not be too competent and needed to be humble.

> …because we then train on site, because that's what we've found is the most profitable ... in the long run for us ... that we do. It's almost easier to take people who haven't worked as bakers, because then you're humble, that 'I can't do this, and I have to learn this'. If you come in with a cruel self-confidence, that you have worked as a baker for 20 years, you do not listen much.

Thus, a migrant needed to be an active, competent person, but not too competent and not too active. This may be due to different vocational areas, Frank, Alice, Anne and Sam working in the health care sector, and Lena in the food sector. Also, Frank and Alice met highly skilled migrants, whereas Lena wanted to educate her employees herself for the bakery work. Also, their organisations differed: small, private companies and big, public organisations.

Migrants needed to learn Swedish working practices and adapt to them, as Frank said: "There may also be attitude problems because you may have grown up in a context where the role of the doctor is very different from how we interpret it in Sweden. And you have to be prepared to adapt to how we do". His comment refers to different roles and status medical doctors have in different countries. Anne mentioned the Swedish laws: "We are in Sweden now, and we have to follow the Swedish laws. You must be able to do your job. She pointed out that …... You can't say no to certain jobs, whether you're in the home care sector or in hospital...".
Sam confirmed this by saying:

> Laws and rules govern. So the most important thing is that the person coming to a new country needs to know what the work culture is like here in Sweden. That is very important. And also the person, the individual must be prepared and take to the new country's rules, laws.

These are two different aspects of working in a new cultural environment. All, both employers and employees, must follow the laws of the society, which can be regarded as governmental dimension of employability (Guilbert et al., 2016). Whereas cultural practices of the work are historically accumulated and change and evolve over time. Besides being adaptable, all interviewees highlighted the role of the Swedish language. Alice highlighted that professional language is different from everyday language. "It is a different language to work professionally in a different context, also linguistically.". Lena described how they used their home languages during the first two weeks of work and then switched to Swedish.

> Then we usually do so that we take someone who knows their home language as a tutor first, so the first two weeks they are allowed to speak Persian or Thai or Arabic or whatever it may be, and we are very good with that; for two weeks they can do that, then it will be spoken Swedish. And when it comes to explaining risks or so on, it's done in both languages. So that's what we do.

This type of working practice can also be described as a facilitating strategy of inclusion, how migrants can learn Swedish and also that important issues can be learned bilingually. This type of practice can also be described as a translanguaging practice meaning that different languages are seen as a resource for learning. New working practices to support migrant workers can be reflected as an organisational dimension of employability (Guilbert et al., 2016), but also as a facilitating strategy for inclusion at the organisational level.

5.2 Facilitating Strategies for Inclusion in Workplaces

The participants identified several strategies to facilitate inclusion: learning Swedish and new working practices were seen as essential. From a societal perspective, diversity and inclusion policies were highlighted, with regional leaders advocating for prioritizing skills and qualifications over nationality or origin. As Sam said: "Knowledge is what matters. It is not where you come from." Specialized programs, such as the Fast Track (*Snabbspåret*), were noted for bridging gaps in skills and language. Political and managerial support was deemed crucial for fostering a welcoming environment for professional migrants.

At the workplace level, measures like thorough introductions, practical training periods, and informal meeting spaces were emphasized. Bilingual working practices and pairing employees, as suggested by Anne, were also seen as effective inclusion methods.

But what we did very well, at least in [name of the area omitted] where we took in quite a lot of people, was that we had a double staffing group. It was a group of staff. They went two all the time, the clients were double-staffed. And that's where we saw a breakthrough in learning the job. Because then there was one who was fluent in Swedish all the time, while the other one didn't need to speak so much, but to take in information. Because we saw that when you knew your job, when you proved that 'I know this even though I can't speak the language completely', then the customers gained a lot of confidence in them. Because they could still have a dialogue with the other person. And those who came in and worked in the double staffing group, those migrants learnt Swedish so much faster.

Anne saw this type of working practice as important for both learning the work and the Swedish language. But also for customers to learn that there are diversity of vocational persons. This type of working practice required support from colleagues too. This aspect was mentioned by all the interviewees. Frank stated that the colleagues' role was important to deliver information and support. "Well, it's to bring them along and be a, both a supervisor and a friend and create security and tell them how things work here and be a sounding board". Frank also pointed out that a colleague could be a sparring partner, someone to discuss with.

Alice stated that it is also important to have structures that facilitate inclusion in the organisation.

> And this means that we are extremely used to receiving people who do not work in our organisation every day, but who... well, but who are supposed to work here. So we have a lot of structures for how we integrate new people. What we want to see is that we make an assessment of the level of knowledge, but also the level of competence. And in that competence, it's not just putting your medical knowledge into practice, but it's also social competence and cultural competence. And that, of course, is a subjective judgement. We do not do some kind of final exam. Instead, we work with these people as our colleagues in everyday clinical practice. And in our practice, we have an ongoing dialogue about all our patients. So all of us at senior level have a lot of exposure to these people. And therefore, as an employer, I often get quite a... well, a broad picture. In our organisation, there are nine other people besides myself who make these assessments.

In her statement, Alice took up different assessments that they do to facilitate learning and inclusion. Alice is referring to the validation process. When a migrant professional seeks for validation of their competence in Sweden, it includes theoretical and language tests and practical assessment at work.

Discussions with colleagues and informal encounters were also mentioned as important inclusion practice as Anne stated:

And also this. 'No, come on, we shall, we go and have lunch?' Or this simple thing. Not the one that is just organised, that 'on Thursday at three o'clock you and I will have coffee'. But: 'Do you have a lunch box with you? Yes, but how nice. Why don't we go and eat now?' That you do this a little simple. That it's not so organised all the time, like that. To invite. You could say, inviting them into the group. That's kind of the most important thing in everyday life. Small things. Not always that we three go away, but that everyone is welcome.

Anne's statement also shows, what the other interviewees pointed out, that an attitude that makes everyone feels welcome, is important when there are people with different backgrounds working together.

Sam thought that inclusion is "about tolerance. Um, it's about curiosity. (…) So it's about someone trying to accept another." Reflecting the individual's approach to new people and their way of doing things.

Lena took up that if there are conflicts it is important to raise the issue and discuss. "And that... that's how we've chosen to deal with the different cultures,... when there's a clash and we stand and look at each other like we're from different planets, then we choose to sit down when there's time to talk about it."

6   Discussion

This study aims to explore how workplace stakeholders perceived skilled migrants' re-enter to their vocational areas after moving to Sweden, and especially how they described an employable immigrant and what kind of inclusion strategies they mentioned. A limitation of this study is the small number of participants, with four persons working in the same sector, the healthcare sector. In addition, some were working in small, private companies and others in big, public organisations.

The employable Immigrant Worker

The interviewees worked across various fields, from industries requiring no formal education to professions demanding extensive university training. Notably, the bakery employer's

description of an ideal worker aligns with research on low-wage industries—prior skills matter less than adaptability to workplace needs. Like in Jakobsen and Saether (2023), she values humility and flexibility. Many studies highlight employers' expectations for migrants to adapt to local norms and workplace culture (Dehghanpour Farashah & Blomqvist, 2019; Riemsdijk et al., 2015). However, cultural adaptation extends beyond low-wage jobs to high-status professions like medicine. Healthcare work requires teamwork and patient interaction, meaning doctors must adjust not to obedience, as seen in unskilled jobs, but to a cooperative work culture. This also involves updating professional knowledge and understanding Swedish laws. A recurring theme is the emphasis on migrants' resilience—their drive to relocate is seen as a strength by both bakery employers and medical mentors, contributing to motivation and employability. Yet, a tension exists between adaptability and the assertiveness associated with drive, particularly in the bakery industry. Some statements highlighted specific migrant advantages, such as attitude to elderly people. Language development was mentioned as crucial for workplace inclusion. These results bring forward the individual dimension of employability (Guilbert et al., 2016).

Facilitating Strategies for Inclusion in Workplaces

Participants identified various strategies for fostering inclusion, with an emphasis on language acquisition, workplace adaptation, and legal compliance. However, this focus on individual adjustment risks placing the burden of inclusion solely on migrants rather than addressing structural barriers. While policies like the Fast Track program, were seen as effective in bridging language and competence gaps, they still operate within a system that often demands conformity rather than mutual adaptation. The extent to which workplaces and institutions actively change to accommodate diversity remains unclear.

Echoing Hauck et al. (2013) and Dogherty et al. (2010), participants stressed clear guidance, open communication, and collaboration as key to inclusion. Workplace strategies included onboarding, practical training, and social interactions, with double staffing—pairing newcomers with fluent Swedish speakers—cited as a way to accelerate language learning. However, these measures largely assume that migrants must fit into existing structures rather than questioning whether those structures should evolve to be more inclusive. Supportive colleagues were seen as crucial for inclusion, informal practices like lunch invitations and casual, open conversations were encouraged. While practical support exists, the emphasis on individual adaptation risks reinforcing a one-sided approach where migrants must conform rather than workplaces and society actively adapting to diversity.

References

Anthias, F. (2001). The concept of 'social division' and theorising social stratification: Looking at ethnicity and class. *Sociology*, *35*(4), 835–854. https://doi.org/10.1017/S0038038501008355

Behtoui, A. (2007). The distribution and return of social capital: Evidence from Sweden. *European Societies - EUR SOC, 9*, 383-407. https://doi.org/10.1080/14616690701314093

Bloch, A., & McKay, S. (2015). Employment, social networks and undocumented migrants: The employer perspective. *Sociology*, *49*(1), 38-55.

Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology, 18*(3), 328–352. https://doi.org/10.1080/14780887.2020.1769238

Coleman, J.S. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94*(1), 95-120.

Dehghanpour Farashah, A., & Blomquist, T. (2020). Exploring employer attitude towards migrant workers: Evidence from managers across Europe. *Evidence-based HRM: A Global Forum for Empirical Scholarship, 8*(1), 18-37. https://doi.org/10.1108/EBHRM-04-2019-0040

Dogherty, E.J., Harrison, M.B., & Graham, I.D. (2010). Facilitation as a role and process in achieving evidence-based practice in nursing: A focused review of concept and meaning. *Worldviews on Evidence-Based Nursing, 7(*2), 76-89. https://doi.org/10.1111/j.1741-6787.2010.00186.x

Farinella, D., & Nori, M. (2020). Lessons from mountains: Mobility and migration in Euro-Mediterranean Agro-Pastoralism. In F.J. Rye & K. O'Reilly (Eds.), *International labour migration to Europe's rural regions* (pp. 70-85). Routledge.

Fejes, A., & Berglund, G. (2009). Employability: A (hi)story of the present. In *the third international conference on training, employability and employment* (ss.84-96). Karlstad University.

Göransson, K., & Nilholm, C. (2014) Conceptual diversities and empirical shortcomings – a critical analysis of research on inclusive education. *European Journal of Special Needs Education, 29*(3), 265-280. https://doi.org/10.1080/08856257.2014.933545

Guilbert, L., Bernaud, JL., & Gouvernet, B. (2016). Employability: Review and research prospects. *International Journal for Educational and Vocational Guidance 16*(1), 69-89. https://doi.org/10.1007/s10775-015-9288-4

Hauck, S., Winsett, R.P., & Kuric, J. (2013). Leadership facilitation strategies to establish evidence-based practice in an acute care hospital. *Journal of Advanced Nursing, 69*(3), 664-674. https://doi.org/10.1111/j.1365-2648.2012.06053.x

Jakobsen, T. S., & Sæther, I. (2023). Labour migration, employer preferences and symbolic boundary work. *Nordic Journal of Migration Research*, *13*(2), 1-17.

Jansson, O. (2020). Suitable, exploitable or undesirable: Employer perceptions and categorisations of migrant workers in the manufacturing industries of post-war central Sweden. *Immigrants & Minorities*, *38*(1-2), 131-150. https://doi.org/10.1080/14616690701314093

Mamas, C., & Avramidis, E. (2013). Promoting social interaction in the inclusive classroom: Lessons from inclusive schools in England and Cyprus. *Learning, Culture and Social Interaction, 2*(4), 217-226. https://doi.org/10.1016/j.lcsi.2013.07.001

Mozetič, K. (2022a). A help or hindrance? Highly educated refugees' perceptions of the role of civic integration programmes in accessing the labour market in Oslo, Malmö and Munich. *Comparative Migration Studies*, *10*(1), 8. https://doi.org/10.1186/s40878-022-00279-z

Mozetič, K. (2022b). In their own time: Refugee healthcare professionals' attempts at temporal re-appropriation. *Time & Society*, *31*(3), 415–436. https://doi.org/10.1177/0961463X221083788

OECD.(2006). *From immigration to integration: Local solutions to a global challenge.* https://www.oecd.org/content/dam/oecd/en/publications/reports/2006/11/from-immigration-to-integration_g1gh76cd/9789264028968-en.pdf

Ponzoni, E., Ghorashi, H., & van der Raad, S. (2017). Caught between norm and difference: narratives on refugees' inclusion in organizations. *Equality, Diversity and Inclusion: An International Journal*, *36*(3), 222-237. https://doi-org.ezp.sub.su.se/10.1108/EDI-11-2015-0093

Riemsdijk, M., Basford, S., & Burnham, A. (2016). Socio-cultural incorporation of skilled migrants at work: Employer and migrant perspectives. *INTERNATIONAL MIGRATION - 54*(3), 20–34.

Ruhs, M., & Anderson, B. (Eds.). (2010). *Who needs migrant workers? Labour shortages, immigration, and public policy*. Oxford University Press. https://doi-org.ezp.sub.su.se/10.1093/acprof:oso/9780199580590.001.0001

Rye, J.F., & O'Reilly, K. (Eds.). (2020). International labour migration to Europe's rural regions. Routledge. https://doi.org/10.4324/9781003022367

Syed, J. (2008). Employment prospects for skilled migrants: A relational perspective. *Human Resource Management Review*, *18*(1), 28–45. https://doi-org.ezp.sub.su.se/10.1016/j.hrmr.2007.12.001

The Swedish Research Council. (2017). *Good research practice*. Vetenskapsrådet.

Waldinger, R., & Lichter, M. I. (2003). How the other half works: Immigration and the social organization of labor. University of California Press.

Biographical Notes

Dr. Marianne Teräs is a Professor of Education at the Stockholm University, Department of Education. Her research interests cover educational questions of migration in vocational and professional education and training, and especially in health care contexts.

Dr. Eva Eliasson is an Associate Professor of Education at the Stockholm University, Department of Education. Her research interests concern vocational and teacher knowledge, and the interplay between power relations and vocational knowledge

Dr. Ali Osman is a Professor of education at the Stockholm University, Department of Education. His research interests are migration, recognition of prior learning, transition between different educational systems and working life.

Reference-Group Effects in Vocational Education and Training (VET): An Exploratory Examination of Contrast and Assimilation Effects on VET Success

Theuer, Nele

nele.theuer@bibb.de, Federal Institute for Vocational Education and Training, University of Tübingen

Abstract

Context: Reference-group effects are well-established in educational psychology. However, whereas they have been thoroughly researched in primary and secondary education, little is known about their influence in vocational educational and training (VET) contexts. In this exploratory study, we examine whether reference-group effects impact multiple indicators of VET success (i.e. satisfaction, motivation, and dropout) – over and above the influence of secondary school learning contexts.

Approach: To test our assumptions, we worked with a sample of VET students from the National Educational Panel Study. We clustered VET students into VET occupational groups as well as former secondary schools; hence, we calculated cross-sectional multilevel models.

Findings: Results show a complex pattern of VET reference-group effects. VET occupational status positively affects VET satisfaction, whereas it negatively influences competition-oriented motivation. We also found negative contrast effects of VET achievement on VET school satisfaction, but not on any of the other outcomes. Lastly, findings reveal that VET students who went to low track secondary schools are disadvantaged regarding multiple measures of career success.

Conclusions: These findings reveal the necessity to acknowledge VET contexts as relevant frames of reference and to invest more research into understanding their complex influence. Secondly, they hint at the importance of offering extra support to VET students from low track schools in order to counterbalance the long-term disadvantages of secondary school reference-groups on their occupational success.

Keywords

reference-group effects, big-fish-little-pond-effect, dropout from VET, satisfaction, motivation

1   Introduction

Adolescents spend much of their time in educational contexts, such as secondary schools, universities, vocational training firms or vocational schools. These learning environments constitute an important stepping stone to adolescents' further occupational pathways and hence can be considered relevant influences on career success (Achatz et al., 2022; Göllner et al., 2018; Leuze, 2007; van den Broeck et al., 2023).

Amongst other aspects of the learning environment, the peer group has been identified as a highly impactful influence on individual success (Hattie, 2002; Trautwein et al., 2009; Nikolov & Dumont; 2020; Ryan, 2000). In particular, *reference-group theory* states that social groups provide points of reference to individuals, thereby shaping their self-perception and subsequent behaviour. Specifically, two types of reference-group effects can be distinguished: positive *assimilation* and negative *contrast* effects (Kelley, 1952; Marsh, 1984, 1987; Sherif, 1937). Strong empirical evidence for both has been found in educational environments: whereas school status positively affects academic self-concept and other educational or occupational outcomes (i.e. assimilation effect), school achievement has a negative impact (i.e. contrast effect; Göllner et al., 2018; Marsh, 1991; Marsh et al., 2023). Hence, educational reference-groups can be considered highly relevant to adolescents' career success.

The majority of reference-group research focuses on the impact of compulsory educational contexts, such as primary and secondary schools and classrooms. Post-compulsory reference-groups, i.e. higher or vocational education contexts, remain largely unexamined (Warwas et al., 2016; Zhang, 2021). However, evidence from one learning context cannot be generalised to another, as each environment displays unique characteristics (Tynjälä, 2013). Therefore, the aim of our study is to test the exact nature of reference-group effects on career success in non-compulsory educational contexts.

To achieve this goal, we will make use of the German educational system. In Germany, non-compulsory education is not only highly prevalent but also institutionalised, which makes it possible to cluster individuals into VET reference-groups (BIBB, 2023; Cedefop, 2020). We will focus on vocational education and training (VET) as for most German adolescents VET constitutes the first step towards an occupational qualification (BIBB, 2023) and hence can be considered a highly relevant point of reference.

We we will examine VET reference-group effects on multiple indicators of VET success. To account for both contrast and assimilation effects, we will analyse how a) the achievement composition of VET occupations and b) VET status impact VET success. As little knowledge exists regarding reference-group effects in VET, we will take an exploratory perspective by examining the impact on various outcomes that we do not only deem relevant to VET students' career success (Achatz et al., 2022; Boehm & Lyubomirsky, 2008; Idris et al., 2023) but that also have been related to peer influences in past research: satisfaction, motivation and dropout (Nikolov & Dumont, 2020; Rathmann et al., 2018; Rjosk et al., 2015; Wu & Becker, 2023).

2 Theoretical Background

2.1 Reference-Group Effects: Contrast and Assimilation

Educational psychologists have demonstrated repeatedly that adolescents' learning environments shape their self-perceptions, academic performance and career development (e.g. Kyriakides et al., 2021; Marsh et al., 2023; Reynolds et al., 2014; van den Broeck et al., 2023). *Reference-group research* is one psychological research tradition that focuses on such educational context effects and has identified two opposing mechanisms underlying these relations: negative *contrast* and positive *assimilation* effects (Kelley, 1952; Marsh, 1984, 1987; Sherif, 1937).

Contrast effects describe negative influences of peer group *achievement* on academic and career outcomes. According to reference-group theory they result from comparisons *within* the reference-group, which stress differences between oneself and other group members (Bergold et al., 2021; Marsh, 1984, 1987). The most prominent contrast effect is the *big-fish-little-pond effect* (BFLPE), which describes a negative effect of average group achievement on academic self-concept–while controlling for individual achievement (Marsh, 1984, 1987, 1991; Marsh et al., 2000). Assimilation effects, on the other hand, describe a positive effect of reference-group

status on educational outcomes. The assumed underlying mechanism is a *between*-group comparison process, which leads to an identification with one's own reference-group. Consequentially, norms, values and behaviours of one's group members spill over to the individual (Bergold et al., 2021; Lüdtke et al., 2005; Marsh, 1984, 1987; Marsh et al., 2000; Ryan, 2000). A well-known assimilation process is the *basking-in-the-reflected-glory-of-others-effect* (BIRGE), which describes a positive influence of reference-group status on academic self-concept (Cialdini et al., 1976; Marsh, 1984, 1987, 1991; Marsh et al., 2000; Marsh et al., 2023).

Psychological research shows that assimilation and contrast effects exist simultaneously, although sometimes the contrast effect is reported to be stronger (Göllner et al., 2018; Lüdtke et al., 2005; Marsh et al., 2000, 2023; Wolff et al., 2021). In order to disentangle the two mechanisms from each other, the majority of current studies model contrast and assimilation effects simultaneously (e.g. Göllner et al., 2018; Marsh et al., 2023; Nagengast & Marsh, 2012; Wolff et al., 2021). Hence, in our study, we will adapt this procedure to gain a comprehensive picture of the opposing reference-group effects at play.

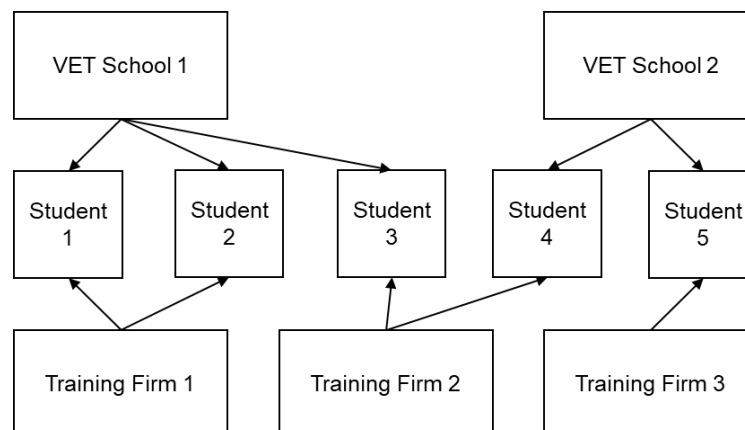## 2.2 Reference-Group Effects in German VET

Although reference-group effects have been found to be highly robust across nations (Fang et al., 2018; Nagengast & Marsh, 2012; Seaton et al., 2009) and compulsory educational settings (e.g. Kohlmeier, 2024; Preckel et al., 2010; Szumski & Karwowski, 2015), they have only rarely been tested in non-compulsory educational contexts. Most research focuses on various types of primary or secondary schools, whereas we only know of few studies examining reference-group effects in higher education (Payne & Smith, 2020; Zhang, 2021) and in VET (Warwas et al., 2016).

Although VET constitutes the major educational pathway for German secondary school graduates (BIBB, 2023), we are aware of only one study exploring reference-group effects in VET: Warwas et al. (2016) examined the influence of VET classroom achievement on students' intrinsic learning motivation and did not find significant contrast effects. One possible explanation for these null-results lies within the unique structure of the German VET system. The authors argue that VET classrooms might not be the most relevant frame of reference for VET students, as they also spend time in a second learning environment: training firms.

While learning in VET schools is highly standardised, training firms constitute workplace-based learning environments. Depending on their VET occupation, students spend more time in one of the two contexts: In dual VET occupations (e.g. service and industrial occupations), students visit school 1-2 days per week and work at the training firm the rest of the week. In school-based VET occupations (e.g. social and health occupations), longer periods of schooling alternate with multiple-week-long internships in training firms (Cedefop, 2020). The former type of VET makes up the majority of positions (BIBB, 2023).

Usually, VET students from multiple training firms, but from the same occupations are clustered within VET classrooms. This structure fosters multiple types of comparisons between VET students: They might relate their own status and achievement to that of their peers at school and/or in the training firm. These peers, in turn, are impacted by an often-different group of VET students, as they spend time in different VET schools or training firms. Consequently, training firm and VET school environments are strongly intertwined in the German VET context, resulting in a complex system of multiple direct and indirect reference-group influences (see Figure 1).

Based on these considerations, we argue that it is necessary to identify reference-groups that are able to depict this complex network of peers. Therefore, in our study we will focus on VET occupational groups instead of examining either training firm or VET school effects in isolation. We believe that this methodology allows us to capture the effect of VET reference-groups on career success.

Figure 1
Exemplary Clustering of VET Students Within VET Schools and Training Firms

2.3 Reference-Group Effects on VET Success

Traditionally, contrast and assimilation effects have been examined on academic self-concept (Marsh, 1984, 1987; Marsh et al., 2000). However, they have long been generalised to a variety of outcome variables, including interest (Lohbeck et al., 2024; Trautwein et al., 2006), educational attainment (Göllner et al., 2018; Marsh et al., 2023), aspirations (Göllner et al., 2018; Nagengast & Marsh, 2012; Marsh et al., 2023), career choices (Rosenqvist, 2018; van den Broeck et al., 2023) and labour market outcomes (Göllner et al., 2018). In our study, we will focus on multiple indicators of success that are relevant to VET students' career pathways: satisfaction, motivation and dropout. We argue that these outcomes are not only relevant to positive occupational development, but also that their association with reference-group effects is highly plausible.

Previous research shows that satisfaction and motivation are positively associated with VET success: Both have been related to dropout from VET (Böhn & Deutscher, 2022; Holtmann & Solga, 2023), which in turn is an important risk factor for long-term negative career development, including unemployment or unskilled labour (Achatz et al., 2022; Brzinsky-Fay, 2022; Brzinsky-Fay & Solga, 2016).

Furthermore, reference-group research has related these two indicators of career success to peer group influences. In some studies, satisfaction (Bear et al., 1998; Rathmann et al., 2018; Wu & Becker, 2023) and intrinsic motivation (Rjosk et al., 2015) were found to be impacted by reference-group achievement. Others, however, did not find such contrast effects, neither on satisfaction (Nikolov & Dumont, 2020; Wu & Becker, 2023; for review see Dijkstra et al., 2008), nor on motivation (Warwas et al., 2016). We aim to shed light on these inconsistencies by examining reference-group status and achievement effects on both of these indicators of VET success. Additionally, we will examine effects on dropout from vocational training, as dropout is related to both satisfaction and motivation (Böhn & Deutscher, 2022; Holtmann & Solga, 2023). Hence – although not tested previously – we hypothesise that reference-group influences might also be at play here.

3 Methods

3.1 Sample

We worked with data from Starting Cohort 4 of the National Educational Panel Study (NEPS-SC4, Blossfeld & Roßbach, 2019).[1]. NEPS is a multi-cohort-sequence survey that follows adolescents' educational and occupational trajectories over their life course. It comprises a large set of information on adolescents' competencies, sociodemographic backgrounds, socio-emotional resources and educational environments, including secondary school and VET contexts. Hence, it is well suited to examine reference-group effects on VET success (Blossfeld et al., 2011; Fuß et al., 2016).

Our sample consists of adolescents who reported to be in VET during wave 8 (autumn/winter 2014/15) of the study, when information on all outcome variables was available. We only included VET students from reference-groups with data from at least 10 individuals to minimise sampling error of reference-group information (Lüdtke et al., 2008). This procedure is in line with previous reference-group studies (Jansen et al., 2022; Stäbler et al., 2017). It leads to a final sample size of $N = 3,282$.

3.2 Measures

3.3 VET Success: Satisfaction, Motivation and Dropout

In an exploratory manner, we examined reference-group effects on eight outcome variables in total, most of which were measured in wave 8: three subdimension of satisfaction, 4 types of learning motivation and dropout from VET (LifBi, 2024).

Self-reported satisfaction with VET school, with VET overall and with life in general was measured using one 11-point item each. The wording of the items was: "All in all, how satisfied are you with your life at the moment?" for life satisfaction and "How satisfied are you with your vocational training (school situation)?" for satisfaction with VET (VET school). Individuals answered on a scale from *completely unsatisfied (0)* to *completely satisfied (10).*

Apart from that, we examined effects on four types of learning motivation: profession-oriented, competition-oriented, performance-related and intrinsic motivation. All of them were measured using four 4-point-scale items each. Item examples for each subdimension of motivation can be found in Table 1 (see Appendix). For each dimension, we calculated Weighted Likelihood Estimates (WLEs) based on Multidimensional Item Response Theory, making use of the *mirt* package in R (Chalmers, 2012; R Core Team, 2023). Reliability levels were acceptable (performance-related: .76, competition-oriented: .83, profession-oriented: .68, intrinsic: .75). Lastly, we dummy-coded dropout based on self-reported episodic information, indicating whether the training in question was completed successfully (0 = no, 1 = yes).

3.4 Contrast Effects: Individual, VET-Average and School Average Achievement

To measure contrast effects of reference-group achievement, we used math achievement test scores. Previous research has shown that reference-group effects are strongest in the mathematical domain (Becker et al., 2024; Bergold et al., 2021). Consequently, if we do not find significant effects in this domain, we would not expect to find them in any other domain.

The main focus of our study are the effects of VET reference-group achievement; additionally, we included individual achievement and secondary school-average achievement data into

---

[1] This paper uses data from the National Educational Panel Study (NEPS; see Blossfeld & Roßbach, 2019). The NEPS is carried out by the Leibniz Institute for Educational Trajectories (LIfBi, Germany) in cooperation with a nationwide network.

our analyses. Modelling individual achievement is common practice in reference-group research to disentangle individual from group achievement effects (e.g. Marsh, 1991; Marsh et al., 2023; Wolff et al., 2021). Furthermore, we controlled for secondary school average achievement, as previous reference-group studies found lasting secondary school reference-group effects on individual development, even after graduation (Göllner et al., 2018; Marsh, 1991; Marsh et al., 2023).

All three variables were calculated based on Weighted Likelihood Estimates (WLEs) of math achievement test scores. Tests were conducted in wave 1 (grade 9) and wave 7 (grade 12). For each individual, we used the most current test score available before entering VET (Fuß et al., 2024). Reliability was acceptable (wave 1: .79; wave 7: .76; Duchhardt & Gerdes, 2013; Fischer et al., 2017). To account for VET reference-group effects, we averaged math achievement scores within VET contexts. These were identified based on 4-digit KldB-classifications (German Classification of Occupations), which differentiate between 702 occupational groups (BA, 2010; Paulus & Matthes, 2013). To minimise sampling errors, we included data from all students who reported to be in VET at some point during data collection to calculate cluster-means (i.e. not only those VET students from the final sample).

Secondary school average achievement was calculated in the same manner, using school identifiers and all students from the study to create meaningful reference-groups (Keyserlingk et al., 2019).

3.5 Assimilation Effects: Individual Social Status, VET Status and Secondary School Status

Again, we included individual, VET-average and secondary school social status information into our analyses to disentangle VET-related assimilation effects from secondary school assimilation and individual status effects.

To measure individual status, we used parental ISEIs (International Socio-Economic Index of Occupational Status, ISEI-08; Ganzeboom et al., 1992; Ganzeboom, 2010). If data of both parents was available, we created the combined maximum, i.e. we used the larger value for analyses (Ganzach, 2000; Hartung et al., 2022). We preferred data from parent questionnaires over student reports and more recent information over earlier time points.

VET-related social status was also calculated using ISEIs. We averaged ISEI information on self-reported VET occupations within 4-digit KldB-2010-clusters.

Lastly, we used school track information to measure reference-group status of secondary schools, as is common practice in reference-group research (Wolff et al., 2021; Wu & Becker, 2023). The data was dummy-coded, differentiating between lower, intermediate, academic and mixed track schools. Lower track schools were used as the reference category.

3.6 Covariates

We also controlled for covariates that might confound the relationships under examination, including sex, migration background and school leaving certificate (Achatz et al., 2022; Beicht & Walden, 2019; Hillmert et al., 2017; Holtmann & Solga, 2023; Nießen et al., 2020). We defined migration background as having at least one parent who was born in a foreign country (Olczyk et al., 2014) and dummy-coded the information. Furthermore, we distinguished between male (1) and female (0) sex. Lastly, we included a dummy-coded variable into our analyses indicating whether VET students had obtained a lower, intermediate or higher school leaving certificate. A lower degree was used as the reference category.

3.7 Analytic Strategy

In our data, individuals are clustered a) within VET occupational groups and b) within (former) secondary schools. These clusters overlap partly, meaning that adolescents from the same secondary school transition into multiple occupational groups and that an occupational group is made up of students from multiple secondary schools. This data structure calls for the use of cross-classified multilevel models (Becker et al., 2024; Hox et al., 2017). Linear models were calculated for satisfaction- and motivation-outcomes, logistic models for dropout.

Models were built in a stepwise manner, first examining contrast effects of VET occupational groups (Model 1), then adding assimilation effects of VET occupational groups (Model 2) and covariates (Model 3). Lastly, we included secondary school reference-group effects into the models (Model 4). All analyses were conducted in R, after multiple imputation of missing data using the *mice* package (Enders, 2022; R Core Team, 2023; van Buuren, 2018; van Buuren & Groothuis-Oudshoorn, 2011). In line with reference-group research we z-standardised all numeric variables based on grand-mean-centering before multivariate analyses (Becker et al., 2024; Huguet et al., 2009; Lüdtke et al., 2008; Bryk & Raudenbush, 2002). All results were pooled using Rubin's Rules (Enders, 2022; Rubin, 1987; van Buuren, 2018).

4 Results

4.1 Descriptive Results

Findings of descriptive analyses are presented in Tables 2-4 (see Appendix). Medium correlations between VET and secondary school variables suggest that VET reference-groups are indeed distinct from secondary school reference-groups. This finding indicates the necessity to analyse their effects on VET success separately and conjointly.
Correlation coefficients of average VET achievement and average VET status with VET success differ depending on the outcome variable. These findings hint at the possibility that reference-group effects are dependent on the success indicator under examination. Multivariate analyses will shed more light on these findings.

4.2 Multivariate Analyses

4.3 Reference-Group Effects on Satisfaction

We found significant VET reference-group effects on two subdomains of satisfaction (see Table 5 and 6, Appendix). Firstly, average VET status positively influences general VET satisfaction ($\beta = .04$, $p = .08$), suggesting that VET students in prestigious occupations are happier about their training than those in low-status jobs. These results are in line with reference-group theory, suggesting that individuals identify with the status of their learning environment. Additionally, we found a negative contrast effect of average VET achievement on satisfaction with VET school ($\beta = -.08$, $p = .008$). This effect also supports reference-group theory: It indicates that in VET occupations with higher average achievement, VET students are less happy with VET school. Each of these effects was only found on one domain of satisfaction.
Over and above VET-related reference-group effects, we found multiple positive assimilation effects of secondary school status on the same two dimensions of satisfaction. Specifically, average secondary school status positively affects both VET school satisfaction. Individuals who went to higher school tracks report more satisfaction with VET school and with VET in general than those who visited low-track schools.
Lastly, we did not find significant effects of any reference-group measures on life satisfaction (see Table 7, Appendix). Possibly, this is due to the broadness of the construct: Arguably, educational reference-groups are not relevant to all subdimensions of life satisfaction, e.g. health,

family and living environment (Proctor et al., 2009), so that their overall effect might be negligibly small.

4.4 Reference-Group Effects on Motivation

The exploration of VET reference-group effects on motivation reveal somewhat unexpected findings. We found a negative effect of VET-average status on competition-oriented motivation ($\beta = -.11$, $p < .001$). Contradictory to reference-group research, these findings suggest that VET students who train in prestigious occupations have lower competition-oriented motivation. We suggest that high-status occupations per se might function as signals of career success, so that these VET students do not feel the need to further prove themselves by outperforming their peers. No other VET reference-group effects on motivation were detected.

Regarding secondary school effects, we found a positive assimilation effect on competition-oriented motivation (see Table 8, Appendix): Former intermediate track students reported higher motivation than lower track students ($\beta = .12$, $p = .02$). Possibly, these students are confident that they can outperform their peers from low track schools, hence develop stronger competition-oriented motivation.

The other three dimensions of motivation – intrinsic, profession-oriented and performance-related motivation – were not affected by reference-group effects in our study (see Tables 9-11, Appendix), indicating that neither VET nor secondary school reference-groups influence these types of motivation. Our results suggest that these subdimensions of motivation are influenced by factors other than learning environments. For instance, labour-market influences might play a larger role for profession-oriented motivation than learning contexts, as they are known to impact adolescents' career behaviour (Hartung & Weßling, 2024; Weßling et al., 2015).

4.5 Reference-Group Effects on Dropout

We did not find any significant effects of VET reference-groups on dropout from VET, neither status nor achievement effects (see Table 12, Appendix). However, a positive effect of secondary school track indicates that students who went to intermediate tracks have a higher chance of completing their training (versus those from lower track schools; $\beta = .44$, $p = .04$).

5 Discussion

In this study we examined VET reference-group effects on multiple indicators of VET success. In an exploratory manner we focused on how average VET status and achievement impact eight indicators of VET success, over and above the influence of long-lasting secondary school reference-group effects.

We detected multiple VET status effects. Whereas we found a positive assimilation effect – in line with reference-group theory – on VET satisfaction, the effect of VET status on competition-oriented motivation was negative. These results indicate that VET status shapes adolescents' experience during VET but also hint at the danger of an over-generalisation of these influences. Whereas VET students in high-prestige occupations are more likely to be satisfied, they might report low competition-oriented motivation. Nevertheless, we argue that VET students in low-status occupations would profit from a positive change of societal perceptions of these occupations, as they would feel more satisfied with their training and might feel less need to compete against their peers. More generally speaking, researchers and practitioners should take into consideration that reference-group effects are outcome-specific as they try to enhance adolescents' experience during vocational training.

This interpretation is supported by the fact that we found a negative contrast effect of VET average achievement on satisfaction with VET school, but not on any of the other outcomes under examination. Hence, not all indicators of VET success are impacted by negative contrast

effects. It would be helpful to learn more about these differential influences to understand under which circumstances reference-group effects impact VET success (and when they do not).

Over and above VET-related reference-group effects, we also found long-lasting assimilation effects of secondary schools on satisfaction with VET, VET school satisfaction, dropout from VET and competition-oriented motivation. These findings indicate that early educational stratification has a long-term impact on adolescents' careers. Going to low track secondary schools negatively influences career trajectories, even after students have transitioned into VET. Practitioners and policy makers should be aware of this long-lasting disadvantage for low-track students. These adolescents need to receive tailored support during vocational training to ensure that they remain satisfied and motivated and ultimately are able to successfully complete their training. Otherwise, these disadvantages for low-track students will persist throughout their further career pathways.

References

Achatz, J., Jahn, K., & Schels, B. (2022). On the non-standard routes: Vocational training measures in the school-to-work transitions of lower-qualified youth in Germany. *Journal of Vocational Education and Training*, *74*(2), 289–310. https://doi.org/https://doi.org/10.1080/13636820.2020.1760335

Bear, G. G., Minke, K. M., Griffin, S. M., & Deemer, S. A. (1998). Achievement-related perceptions of children with learning disabilities and normal achievement: Group and developmental differences. *Journal of Learning Disabilities*, *31*(1), 91–104.

Becker, D., Fleischmann, M., Wessling, K., Nagengast, B., & Trautwein, U. (2024). Living in the big pond: Adding the neighborhood as a frame of reference for academic self-concept formation. *AERA Open*, *10*(1). https://doi.org/10.1177/23328584241269816

Beicht, U., & Walden, G. (2019). Transition to company-based vocational training in Germany by young people from a migrant background – the influence of region of origin and generation status. *International Journal for Research in Vocational Education and Training*, *6*(1), 20–45. https://doi.org/10.13152/IJRVET.6.1.2

Bergold, S., Weidinger, A. F., & Steinmayr, R. (2021). The "big fish" from the teacher's perspective: A closer look at reference group effects on teacher judgments. *Journal of Educational Psychology*, *114*(3), 656–680. https://doi.org/10.1037/edu0000559

Blossfeld, H.-P., & Roßbach, H.-G. (Eds.). (2019). Education as a lifelong process: The German National Educational Panel Study (NEPS). Edition ZfE (2nd edition). Springer VS.

Blossfeld, H.-P., von Maurice, J., & Schneider, T. (2011). The National Educational Panel Study: Need, main features, and research potential. *Zeitschrift Für Erziehungswissenschaft*, *14*, 5–17. https://doi.org/10.1007/s11618-011-0178-3

Boehm, J. K., & Lyubomirsky, S. (2008). Does happiness promote career success? *Journal of Career Assessment*, *16*(1), 101–116. https://doi.org/10.1177/1069072707308140

Böhn, S., & Deutscher, V. (2022). Dropout from initial vocational training – A meta-synthesis of reasons from the apprentice's point of view. *Educational Research Review*, *35*. https://doi.org/10.1016/j.edurev.2021.100414

Bryk, A. S., & Raudenbush, S. W. (2002). *Hierarchical Linear Model: Applications and data analysis methods*. Sage Publications Inc.

Brzinsky-Fay, C. (2022). NEET in Germany: Labour market entry patterns and gender differences. In *The dynamics of marginalized youth: not in education, employment, or training around the world*. https://doi.org/10.4324/9781003096658-3

Brzinsky-Fay, C., & Solga, H. (2016). Compressed, postponed, or disadvantaged? School-to-work-transition patterns and early occupational attainment in West Germany. *Research in Social Stratification and Mobility*, *46*, 21–36. https://doi.org/10.1016/j.rssm.2016.01.004

Bundesagentur für Arbeit. (2010). *Klassifikation der Berufe 2010 – Band 1: Systematischer und alphabetischer Teil mit Erläuterungen*. https://ec.europa.eu/esco/portal/howtouse/21da6a9a-02d1-4533-8057-dea0a824a17a%0Ahttps://ec.europa.eu/esco/portal/skill%0Ahttp://statistik.arbeitsagentur.de/Navigation/Statistik/Grundlagen/Klassifikation-der-Berufe/KldB2010/KldB2010-Nav.html

Bundesinstitut für Berufsbildung (BIBB). (2023). *Datenreport zum Berufsbildungsbericht 2023: Informationen und Analysen zur Entwicklung der beruflichen Bildung*. http://datenreport.bibb.de/media2012/BIBB_Datenreport_2012.pdf

Chalmers, R. P. (2012). mirt: A multidimensional item response theory package for the R environment. *Journal of Statistical Software*, *48*(6). https://doi.org/10.18637/jss.v048.i06

Cialdini, R. B., & et al. (1976). Basking in reflected glory: Three (football) field studies. *Journal of Personality and Social Psychology*, *34*(3), 366–375. https://doi.org/10.1037/0022-3514.34.3.366

Dijkstra, P., Kuyper, H., Van Der Werf, G., Buunk, A. P., & Van Der Zee, Y. G. (2008). Social comparison in the classroom: A review. *Review of Educational Research*, *78*(4), 828–879. https://doi.org/10.3102/0034654308321210

Duchhardt, C., & Gerdes, A. (2013). *NEPS technical report for mathematics: scaling results of starting cohort 4 in ninth grade* (No. 22; NEPS Working Paper). https://www.neps-data.de/Portals/0/Working Papers/WP_XXI.pdf

Enders, C. K. (Ed.). (2022). *Applied Missing Data Analysis* (2nd edition). The Guilford Press.

European Centre for the Development of Vocational Training (Cedefop). (2020). *Vocational education and training in Germany: Short description*. http://data.europa.eu/doi/10.2801/329932%0AA

Fang, J., Huang, X., Zhang, M., Huang, F., Li, Z., & Yuan, Q. (2018). The big-fish-little-pond effect on academic self-concept: A meta-analysis. *Frontiers in Psychology*, *9*(AUG), 1–11. https://doi.org/10.3389/fpsyg.2018.01569

Fischer, L., Rohm, T., & Gnambs, T. (2017). NEPS technical report for mathematics: Scaling results of starting cohort 4 for grade 12 (No. 12; NEPS Survey Paper).

Fuß, D., Gnambs, T., Lockl, K., Attig, M., & Nusser, L. (2024). Competence data in NEPS: Overview of measures and variable naming conventions (Starting Cohorts 1 to 6).

Fuß, D., Von Maurice, J., & Roßbach, H. G. (2016). A unique research data infrastructure for educational research and beyond: The National Educational Panel Study. *Journal of Economics and Statistics*, *236*(4), 517–528. https://doi.org/10.1515/jbnst-2015-1021

Ganzach, Y. (2000). Parents' education, cognitive ability, educational expectations and educational attainment: Interactive effects. *British Journal of Educational Psychology*, *70*(3), 419–441. https://doi.org/10.1348/000709900158218

Ganzeboom, H. B. G. (2010). A new International Socio-Economic Index (ISEI) of occupational status for the International Standard Classification of Occupation 2008 (ISCO-08) constructed with data from the ISSP 2002-2007. *Annual Conference of International Social Survey Programme*. http://www.harry-ganzeboom.nl/Pdf/2010 - Ganzeboom-ISEI08-ISSP-Lisbon-(paper).pdf

Ganzeboom, H. B. G., de Graaf, P. M., & Treiman, D. J. (1992). A standard international socio-economic index of occupational status. *Social Science Research*, *21*(1), 1–56. https://doi.org/10.1016/0049-089X(92)90017-B

Göllner, R., Damian, Rodica Ioana, Nagengast, B., Roberts, B. W., & Trautwein, U. (2018). It's not only who you are but who you are with: High School composition and individuals' attainment over the life course. *Psychological Science*, *29*(11), 1785 –1796. https://doi.org/10.1177/0956797618794454

Hartung, A., & Weßling, K. (2024). Discouraged and hedged–why students enter VET after obtaining university eligibility. *Journal of Vocational Education and Training*, 1–24. https://doi.org/10.1080/13636820.2024.2307536

Hartung, A., Weßling, K., & Hillmert, S. (2022). Interplay between family background and labour-market conditions in shaping students' occupational status expectations. *Journal of Education and Work*, *35*(4), 405–421. https://doi.org/10.1080/13639080.2022.2073338

Hattie, J. A. C. (2002). Classroom composition and peer effects. *International Journal of Educational Research*, *37*(5), 449–481. https://doi.org/10.1016/S0883-0355(03)00015-6

Hillmert, S., Hartung, A., & Weßling, K. (2017). A decomposition of local labour-market conditions and their relevance for inequalities in transitions to vocational training. *European Sociological Review*, *33*(4), 534–550. https://doi.org/10.1093/esr/jcx057

Holtmann, A. C., & Solga, H. (2023). Dropping or stopping out of apprenticeships: The role of performance- and integration-related risk factors. *Zeitschrift Fur Erziehungswissenschaft*, *26*(2), 469–494. https://doi.org/10.1007/s11618-023-01151-1

Hox, J. J., Moerbeek, M., & van de Schoot, R. (2017). *Multilevel analysis: Techniques and applications*. Routledge Taylor & Francis Group.

Huguet, P., Dumas, F., Marsh, H., Régner, I., Wheeler, L., Suls, J., Seaton, M., & Nezlek, J. (2009). Clarifying the role of social comparison in the Big-Fish-Little-Pond Effect (BFLPE): An integrative study. *Journal of Personality and Social Psychology*, *97*(1), 156–170. https://doi.org/10.1037/a0015558

Idris, R., Govindasamy, P., Nachiappan, S., & Bacotang, J. (2023). Exploring the impact of cognitive factors on learning, motivation and career in Malaysia's STEM education. *International Journal of Academic Research in Business and Social Sciences*, *13*(6). https://doi.org/10.6007/ijarbss/v13-i6/17227

Jansen, M., Boda, Z., & Lorenz, G. (2022). Social comparison effects on academic self-concepts —Which peers matter most? *Developmental Psychology*, *58*(8), 1541–1556. https://doi.org/10.1037/dev0001368

Kelley, H. H. (1952). Two functions of reference groups. *Readings in Social Psychology*, *2*, 410–414.

Kohlmeier, M. (2024). Challenges of upward track mobility into German upper secondary education for students' academic self-concept. *European Journal of Psychology and Educational Research*, *7*(1), 11–31. https://doi.org/10.12973/ejper.7.1.11

Kyriakides, L., Creemers, B. P. M., Panayiotou, A., & Charalambous, E. (2021). *Quality and equity in education: Revisiting theory and research on educational effectiveness and improvement*. Routledge. https://doi.org/10.4324/9780203732250-1

Leibniz-Institut für Bildungsverläufe (LIfBi). (2018). Informatonen zur Kompetenztestung: NEPS Startkohorte 4 — Klasse 9 Schule und Ausbildung — Bildung von Schülerinnen und Schülern ab Klassenstufe 9.

Leibniz-Institut für Bildungsverläufe (LIfBi). (2024). Codebook: NEPS Starting Cohort 4 —Grade 9 School and Vocational Training. Scientific Use File Version 14.0.0.

Leuze, K. (2007). What makes for a good start? Consequences of occupation-specific Higher Education for career mobility: Germany and Great Britain compared. *International Journal of Sociology*, *37*(2), 29–53. https://doi.org/10.2753/ijs0020-7659370202

Lohbeck, A., Gilbert, W., Kocaj, A., Jansen, M., & Morin, A. J. S. (2024). Tests of moderation of the big-fish-little-pond effect across students with and without special educational needs in regular versus special education schools. *Learning and Instruction*, *93*, 101966. https://doi.org/10.1016/j.learninstruc.2024.101966

Lüdtke, O., Köller, O., Marsh, H. W., & Trautwein, U. (2005). Teacher frame of reference and the big-fish-little-pond effect. *Contemporary Educational Psychology*, *30*(3), 263–285. https://doi.org/10.1016/j.cedpsych.2004.10.002

Lüdtke, O., Marsh, H. W., Robitzsch, A., Trautwein, U., Asparouhov, T., & Muthén, B. (2008). The multilevel latent covariate model: a new, more reliable approach to group-level effects in contextual studies. In *Psychological Methods* (Vol. 13, Issue 3, pp. 203–229). https://doi.org/10.1037/a0012869

Makowski, D., Ben-Shachar, M. S., Patil, I., & Lüdecke, D. (2022). Methods and algorithms for correlation analysis in R. *Journal of Open Source Software*, *5*(51), 2306. https://doi.org/10.21105/joss.02306

Marsh, H. W. (1984). Self-concept: the application of a frame of reference model to explain paradoxical results. *The Australian Journal of Education*, *28*(2), 165–181. https://doi.org/10.1177/000494418402800207

Marsh, H. W. (1987). The big-fish-little-pond effect on academic self-concept. *Journal of Educational Psychology*, *79*(3), 280–295.

Marsh, H. W. (1991). Failure of high-ability high schools to deliver academic benefits commensurate with their students' ability levels. *American Educational Research Journal*, *28*(2), 445–480. https://doi.org/10.3102/00028312028002445

Marsh, H. W., Kong, C. K., & Hau, K. T. (2000). Longitudinal multilevel models of the big-fish-little-pond effect on academic self-concept: Counterbalancing contrast and reflected-glory effects in Hong Kong schools. *Journal of Personality and Social Psychology*, *78*(2), 337–349. https://doi.org/10.1037/0022-3514.78.2.337

Marsh, H. W., Pekrun, R., Dicke, T., Guo, J., Parker, P. D., & Basarkod, G. (2023). Disentangling the long-term compositional effects of school-average achievement and SES: A substantive-methodological synergy. *Educational Psychology Review*, *35*(3), 1–36. https://doi.org/10.1007/s10648-023-09726-4

Nagengast, B., & Marsh, H. W. (2012). Big fish in little ponds aspire more: Mediation and cross-cultural generalizability of school-average ability effects on self-concept and career aspirations in science. *Journal of Educational Psychology*, *104*(4), 1033–1053. https://doi.org/10.1037/a0027697

Nießen, D., Danner, D., Spengler, M., & Lechner, C. M. (2020). Big Five personality traits predict successful transitions from school to vocational education and training: A large-scale study. *Frontiers in Psychology*, *11*(1827), 1–18. https://doi.org/10.3389/fpsyg.2020.01827

Nikolov, F., & Dumont, H. (2020). Das Ganze ist mehr als die Summe seiner Teile. Schulkomposition, Schulzufriedenheit und normverletzendes Verhalten. *Journal of Educational Research Online*, *12*(1), 26–46. https://doi.org/10.25656/01

Olczyk, M., Will, G., & Kristen, C. (2014). *Personen mit Zuwanderungshintergrund im NEPS: Zur Bestimmung von Generationen-Status und Herkunftsgruppe* (Nr. 41b; NEPS Working Papers). https://www.lifbi.de/Portals/0/Working Papers/WP_XXXXIb.pdf

Paulus, W., & Matthes, B. (2013). *Klassifikation der Berufe: Struktur, Codierung und Umsteigeschlüssel* (08/2013; FDZ-Methodenreport). https://doku.iab.de/fdz/reporte/2013/MR_08-13.pdf

Payne, A. A., & Smith, J. (2020). Big fish, small pond: The effect of rank at entry on postsecondary outcomes. *Southern Economic Journal*, *86*(4), 1475–1509. https://doi.org/10.1002/soej.12420

Preckel, F., Gotz, T., & Frenzel, A. (2010). Ability grouping of gifted students: Effects on academic self-concept and boredom. *British Journal of Educational Psychology*, *80*(3), 451–472. https://doi.org/10.1348/000709909X480716

Proctor, C., Linley, P. A., & Maltby, J. (2009). Youth life satisfaction measures: A review. *The Journal of Positive Psychology*, *4*(2), 128–144. https://doi.org/10.1080/17439760802650816

R Core Team. (2023). *R: A language and environment for statistical computing* (R version 4.0.5). R Foundation for Statistical Computing.

Rathmann, K., Herke, M., Bilz, L., Rimpelä, A., Hurrelmann, K., & Richter, M. (2018). Class-level school performance and life satisfaction: Differential sensitivity for low-and high-performing school-aged children. *International Journal of Environmental Research and Public Health*, *15*(12), 1–17.

https://doi.org/10.3390/ijerph15122750

Revelle, W. (2022). *psych: Procedures for personality and psychological research* (R package version 2.2.9). Northwestern University. https://cran.r-project.org/package=psych

Reynolds, D., Sammons, P., Bieke, F., van Damme, J., Townsend, T., Teddlie, C., & Stringfield, S. (2014). Educational effectiveness research (EER): A state-of-the-art review Author. *School Effectiveness and School Improvement*, *25*(2), 197–230. https://doi.org/10.1080/09243453.2014.885450 Copyright

Rjosk, C., Richter, D., Hochweber, J., Lüdtke, O., & Stanat, P. (2015). Classroom composition and language minority students' motivation in language lessons. *Journal of Educational Psychology*, *107*(4), 1171–1185. https://doi.org/10.1037/edu0000035.supp

Rosenqvist, E. (2018). Two functions of peer influence on upper-secondary education application behavior. *Sociology of Education*, *91*(1), 72–89. https://doi.org/10.1177/0038040717746113

Rubin, D. B. (1987). Multiple imputation for nonresponse in surveys. John Wiley & Sons.

Ryan, A. M. (2000). Peer groups as a context for the socialization of adolescents' motivation, engagement, and achievement in school. *Educational Psychologist*, *35*(2), 101–111. https://doi.org/10.1207/S15326985EP3502_4

Seaton, M., Marsh, H. W., & Craven, R. G. (2009). Earning its place as a pan-human theory: Universality of the big-fish-little-pond effect across 41 culturally and economically diverse countries. *Journal of Educational Psychology*, *101*(2), 403–419. https://doi.org/10.1037/a0013838

Sherif, M. (1937). An experimental approach to the study of attitudes. *Sociometry*, *1*(1/2), 90–98. https://doi.org/10.2307/2785261

Stäbler, F., Dumont, H., Becker, M., & Baumert, J. (2017). What happens to the fish's achievement in a little pond? A simultaneous analysis of class-average achievement effects on achievement and academic self-concept. *Journal of Educational Psychology*, *109*(2), 191–207. https://doi.org/10.1037/edu0000135

Szumski, G., & Karwowski, M. (2015). Emotional and social integration and the big-fish-little-pond effect among students with and without disabilities. *Learning and Individual Differences*, *43*, 63–74. https://doi.org/10.1016/j.lindif.2015.08.037

Trautwein, U., Lüdtke, O., Marsh, H. W., Köller, O., & Baumert, J. (2006). Tracking, grading, and student motivation: Using group composition and status to predict self-concept and interest in ninth-grade mathematics. *Journal of Educational Psychology*, *98*(4), 788–806.

Trautwein, U., Lüdtke, O., Marsh, H. W., & Nagy, G. (2009). Within-school social comparison: How students perceive the standing of their class predicts academic self-concept. *Journal of Educational Psychology*, *101*(4), 853–866. https://doi.org/10.1037/a0016306

Tynjälä, P. (2013). Toward a 3-P model of workplace learning: A literature review. *Vocations and Learning*, *6*, 11–36.

van Buuren, S. (2018). *Flexible imputation of missing data* (2nd edition). CRC Press.

van Buuren, S., & Groothuis-Oudshoorn, K. (2011). mice: Multivariate imputation by chained equations in R. *Journal of Statistical Software*, *45*(3), 1–67. https://doi.org/10.18637/jss.v045.i03

Van den Broeck, L., Vandelannote, I., Demanet, J., & Van Houtte, M. (2023). High school never ends. Normative and comparative peer group effects on higher education outcomes through the school-level students' expectation culture. *Educational Review*, *75*(2), 217–242. https://doi.org/10.1080/00131911.2021.1923459

von Keyserlingk, L., Becker, M., Jansen, M., & Maaz, K. (2019). Leaving the Pond-Choosing an Ocean: Effects of Student Composition on STEM Major Choices at University. *Journal of Educational Psychology*, *112*(4), 751–764. https://doi.org/10.1037/edu0000378

Warwas, J., Kärner, T., & Geck, A.-L. (2016). Individuelle und kontextuelle Prädiktoren intrinsischer Lernmotivation von Auszubildenden an beruflichen Schulen. *Zeitschrift Für Bildungsforschung*, *6*(3), 285–306. https://doi.org/10.1007/s35834-016-0168-x

Weßling, K., Hartung, A., & Hillmert, S. (2015). Spatial structure counts: The relevance of regional labour-market conditions for educational transitions to vocational training. *Empirical Research in Vocational Education and Training*, *7*(12). https://doi.org/10.1186/s40461-015-0024-6

Wolff, F., Lüdtke, O., Helm, F., & Möller, J. (2021). Integrating the big-fish-little-pond effect, the basking-in-reflected-glory effect, and the internal/external frame of reference model predicting students' individual and collective academic self-concepts. *Contemporary Educational Psychology*, *65*, 101952. https://doi.org/10.1016/j.cedpsych.2021.101952

Wu, Y. J., & Becker, M. (2023). Association between school contexts and the development of subjective well-being during adolescence: A context-sensitive longitudinal study of life satisfaction and school satisfaction. *Journal of Youth and Adolescence*, *52*(5), 1039–1057. https://doi.org/10.1007/s10964-022-01727-w

Zhang, J. (2021). Big fish in a big pond: Peer effects on university students' academic self-concept. *International Journal of Chinese Education*, *10*(3). https://doi.org/10.1177/22125868211046031

Biographical Notes

Nele Theuer is a PhD student in psychology at the Federal Institute for Vocational Education and Training (BIBB) and at Tübingen University. In her dissertation, she explores reference-group effects in vocational education and training contexts as part of the BIBB project ConVET.

Appendix

Table 1

Item Examples Learning Motivation

Subdimension	Item example
	I learn for the vocational training program…
Intrinsic motivation	…because I find working with the content fun.
Performance-related	…because I want to successfully complete the vocational training.
Competition-oriented	…because I want to be one of the best.
Profession-oriented	…in order to have good career opportunities later.

Table 2

Distribution of Categorical Variables

variable	response	count	percent
Dropout from VET	completion	2902	88.4%
	non-completion	379	11.6%
Sex (0 = female)	female	1476	45.0%
	male	1807	55.0%
Migration background	yes	721	22.0%
	no	2561	78.0%
School	academic track	443	13.5%
	intermediate track	951	29.0%
	lower track	1249	38.1%
	mixed track	639	19.5%
School leaving certificate	HE entrance degree	722	18.9%
	intermediate certificate	774	23.6%
	lower certificate	1786	54.4%
type of VET (0 = dual)	dual VET	2733	83.3%
	school-based VET	549	16.7%

Table 3

Means and Standard Deviations of Numeric Variables

Variable	M	SD
Individual math achievement	0.68	0.61
VET-average math achievement	0.68	0.11
Secondary school-average math achievement	0.71	0.27
Individual socioeconomic status	44.67	18.61
VET-average socioeconomic status	38.79	12.47
Satisfaction with VET school	7.51	1.56
Satisfaction with VET	8.02	1.59
Satisfaction with life	8.21	1.15
Intrinsic motivation	−0.01	0.94
Competition-oriented motivation	0.02	1.04
Performance-related motivation	−0.11	0.88
Profession-oriented motivation	−0.16	0.80

Table 4
Correlations of Predictor and Outcome Variables

	3	4	5	6	7	8	9	10	11	12	13	14
1. School track												
Academic	.10*	.09	.75***	.18***	-.01	.04*	.04*	-.01	.04+	-.05*	-.04*	-.01
intermediate	.02	.11	-.08	.12***	.12*	.02	.02	.01	-.03+	.03+	-.01	.02
mixed	-.03	-.04	-.09**	-.01	-.02	-.00	-.00	-.00	.03	-.01	.03+	.01
3. individual achiev	.	.17***	.14**	.02	.01	.01	-.01	-.01	-.01	.01	-.03	-.01
4. VET-average achievement		.	.12+	.13	.05*	.05*	.01	.01	.02	.00	-.04	.00
5. school-average achievement			.	.17***	.03	-.08**	.01	-.00	.03	-.04*	-.05*	-.02
6. VET-average SES				.	-.01	.03	-.00	.01	.06**	-.12***	-.01	-.01
7. dropout					.	-.01	.01	.05*	.01	.02	.02	.02
8. VET school satisfaction						.	.33***	.24***	.19***	.11***	.20***	.15***
9. VET satisfaction							.	.29***	.31***	.12***	.22***	.17***
10. life satisfaction								.	.16***	.08***	.13***	.13***
11. intrinsic motiv.									.	.26***	.44***	.32***
12. competition-oriented motivation											.43***	.37***
13. performance-related motivation												.55***
14. profession-oriented motivation												

Note. Tetrachoric correlations were calculated between two binary variables; Pearson correlations between all other variables (Makowski et al., 2022; Revelle, 2022). The reference category for school track is 0 = lower track
*** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .10$

Table 5
Reference-Group Effects on VET School Satisfaction

	Model 1 β (p)	Model 2 β (p)	Model 3 β (p)	Model 4 β (p)
(Intercept)	−.00 (.92)	−.00 (.92)	.02 (.63)	−.10 (.09)+
Individual achievement	.00 (.88)	.00 (.87)	.01 (.83)	.00 (.90)
VET-average achievement	−.07 (.01)*	−.08 (.008)**	−.07 (.01)*	−.08 (.008)**
Socioeconomic status		−.01 (.62)	−.01 (.70)	−.02 (.27)
VET-average social status		.01 (.71)	−.00 (.92)	−.02 (.58)
Intermediate certificate			.02 (.69)	.00 (.95)
Higher education entrance degree			.05 (.47)	.01 (.84)
Migration background			.03 (.56)	.05 (.27)
Sex (0 = female)			−.08 (.08)+	−.07 (.11)
School-average achievement				−.05 (.15)
Intermediate school track				.17 (.003)**
Academic school track				.37 (.001)**
Mixed school track				.10 (.09)+
df	2, 254.76	2, 175.75	4, 584.43	4, 1115.57
F-value	3.19 (p = .04)*	0.16 (p = .85)	0.85 (p = .49)	4.16 (p = .002)**

Note. The reference categories for school leaving certificate and school track are 0 = lower certificate and 0 = lower track. *** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .10$

Table 6
Reference-Group Effects on Satisfaction with VET

	Model 1 β (p)	Model 2 β (p)	Model 3 β (p)	Model 4 β (p)
(Intercept)	−.01 (.63)	−.01 (.66)	−.00 (.95)	−.06 (.22)
Individual achievement	−.00 (.85)	−.00 (.89)	−.00 (.88)	−.01 (.81)
VET-average achievement	.01 (.76)	.01 (.80)	.01 (.81)	.00 (.93)
Socioeconomic status		−.05 (.008)**	−.05 (.008)**	−.06 (.002)**
VET-average social status		.06 (.02)*	.05 (.04)*	.04 (.08)+
Intermediate certificate			.00 (.99)	−.01 (.86)
Higher education entrance degree			.01 (.85)	−.01 (.91)
Migration background			−.03 (.52)	−.02 (.75)
Sex (0 = female)			−.01 (.88)	−.00 (.96)
School-average achievement				−.02 (.52)
Intermediate school track				.08 (.15)
Academic school track				.21 (.04)*
Mixed school track				.06 (.29)
df	2, 200.00	2, 1087.64	4, 616.06	4, 1814.14
F-value	0.06 (p = .94)	5.62 (p = .003)**	0.09 (p = .99)	1.54 (p = .19)

Note. The reference categories for school leaving certificate and school track are 0 = lower certificate and 0 = lower track. *** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .10$

Table 7
Reference-Group Effects on Life Satisfaction

	Model 1	Model 2	Model 3	Model 4
(Intercept)	−.02 (.32)	−.02 (.31)	−.04 (.39)	−.04 (.43)
Individual achievement	−.01 (.60)	−.01 (.60)	−.01 (.62)	−.01 (.63)
VET-average achievement	−.01 (.72)	.01 (.75)	.01 (.77)	.00 (.78)
Socioeconomic status		.00 (.82)	.01 (.68)	.01 (.68)
VET-average social status		.01 (.69)	.01 (.66)	.01 (.67)
Intermediate certificate			.02 (.77)	.02 (.77)
Higher education entrance degree			−.01 (.90)	−.01 (.91)
Migration background			.06 (.24)	.06 (.24)
Sex (0 = female)			.01 (.80)	.01 (.83)
School-average achievement				.00 (.98)
Intermediate school track				.01 (.98)
Academic school track				−.01 (.92)
Mixed school track				−.00 (.99)
df	2, 233.69	2, 1112.00	4, 377.63	4, 1180.77
F-value	0.19 (p = .82)	0.11 (p = .89)	0.26 (p = .90)	0.02 (p = .99)

Note. The reference categories for school leaving certificate and school track are 0 = lower certificate and 0 = lower track. *** $p < .001$, ** $p < .01$, * $p < .05$, [+] $p < .10$

Table 8
Reference-Group Effects on Competition-Oriented Motivation

	Model 1	Model 2	Model 3	Model 4
(Intercept)	−.00 (.83)	−.00 (.88)	−.04 (.31)	−.09 (.09)[+]
Individual achievement	.01 (.80)	.01 (.78)	.01 (.81)	.01 (.73)
VET-average achievement	−.00 (.91)	.01 (.57)	.00 (.85)	.00 (.95)
Socioeconomic status		−.01 (.64)	−.01 (.61)	−.01 (.54)
VET-average social status		−.12***	−.11***	−.11***
Intermediate certificate			−.02 (.78)	−.02 (.68)
Higher education entrance degree			−.01 (.93)	−.01 (.83)
Migration background			.01 (.79)	.02 (.70)
Sex (0 = female)			.07 (.08)[+]	.08 (.08)[+]
School-average achievement				−.02 (.39)
Intermediate school track				.12 (.02)*
Academic school track				.05 (.65)
Mixed school track				.02 (.68)
df	2, 134.19	2, 1130.37	4, 660.95	4, 1767.64
F-value	0.03 (p = .97)	14.62 (p < .001)***	0.57 (p = .69)	1.93 (p = .10)

Note. The reference categories for school leaving certificate and school track are 0 = lower certificate and 0 = lower track. *** $p < .001$, ** $p < .01$, * $p < .05$, [+] $p < .10$

Table 9

Reference-Group Effects on Intrinsic Motivation

	Model 1	Model 2	Model 3	Model 4
(Intercept)	−.01 (.82)	−.01 (.80)	.03 (.59)	−.00 (.97)
Individual achievement	−.01 (.63)	−.01 (.64)	−.01 (.66)	−.01 (.54)
VET-average achievement	.02 (.61)	.02 (.68)	.02 (.61)	.02 (.63)
Socioeconomic status		−.02 (.39)	−.02 (.36)	−.02 (.24)
VET-average social status		.04 (.25)	.03 (.36)	.03 (.46)
Intermediate certificate			.01 (.82)	.01 (.88)
Higher education entrance degree			−.02 (.81)	−.03 (.68)
Migration background			−.04 (.33)	−.03 (.48)
Sex (0 = female)			−.05 (.36)	−.04 (.41)
School-average achievement				.01 (.88)
Intermediate school track				−.01 (.77)
Academic school track				.13 (.20)
Mixed school track				.07 (.23)
df	2, 250.45	2, 768.74	4, 551.73	4, 1436.48
F-value	0.22 (p = .80)	0.93 (p = .40)	0.38 (p = .82)	1.79 (p = .13)

Note. The reference categories for school leaving certificate and school track are 0 = lower certificate and 0 = lower track. *** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .10$

Table 10

Reference-Group Effect on Profession-Oriented Motivation

	Model 1	Model 2	Model 3	Model 4
(Intercept)	−.01 (.56)	−.01 (.55)	.05 (.29)	.01 (.80)
Individual achievement	−.01 (.49)	−.01 (.49)	−.01 (.51)	−.01 (.59)
VET-average achievement	.00 (.92)	.00 (.93)	.01 (.70)	.01 (.69)
Socioeconomic status		.00 (.91)	.00 (.99)	.00 (.99)
VET-average social status		−.01 (.76)	−.02 (.50)	−.02 (.49)
Intermediate certificate			−.02 (.75)	−.02 (.72)
Higher education entrance degree			−.02 (.81)	−.02 (.81)
Migration background			−.06 (.17)	−.06 (.18)
Sex (0 = female)			−.07 (.11)	−.07 (.12)
School-average achievement				−.04 (.28)
Intermediate school track				.05 (.32)
Academic school track				.07 (.52)
Mixed school track				.04 (.46)
df	2, 623.79	2, 723.45	4, 712.14	4, 1645.14
F-value	0.25 (p = .78)	0.04 (p = .96)	0.87 (p = .48)	0.65 (p = .62)

Note. The reference categories for school leaving certificate and school track are 0 = lower certificate and 0 = lower track. *** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .10$

Table 11

Reference-Group Effects on Performance-related Motivation

	Model 1	Model 2	Model 3	Model 4
(Intercept)	−.01 (.80)	−.01 (.80)	.07 (.11)	.06 (.15)
Individual achievement	−.03 (.26)	−.03 (.27)	−.02 (.31)	−.02 (.18)
VET-average achievement	−.03 (.26)	−.03 (.26)	−.01 (.62)	−.01 (.18)
Socioeconomic status		−.01 (.54)	−.01 (.64)	−.00 (.77)
VET-average social status		−.00 (.96)	−.03 (.29)	−.02 (.86)
Intermediate certificate			.01 (.88)	.01 (.95)
Higher education entrance degree			.02 (.82)	.03 (.69)
Migration background			−.00 (.99)	−.01 (.81)
Sex (0 = female)			−.14 (.002)**	−.14 (< .001)***
School-average achievement				−.04 (.25)
Intermediate school track				−.01 (.92)
Academic school track				−.01 (.93)
Mixed school track				.07 (.26)
df	2, 272.06	2, 511.30	4, 619.04	4, 1090.64
F-value	1.47 (p = .23)	0.19 (p = .83)	1.92 (p = .11)	1.52 (p = .20)

Note. The reference categories for school leaving certificate and school track are 0 = lower certificate and 0 = lower track. *** p < .001, ** p < .01, * p < .05, + p < .10

Table 12

Reference-Group Effects on Dropout from VET

	Model 1	Model 2	Model 3	Model 4
(Intercept)	2.08***	2.08***	2.11***	2.03***
Individual achievement	.01 (.92)	.01 (.91)	.00 (.98)	−.00 (.96)
VET-average achievement	.14 (.12)	.16 (.13)	.14 (.16)	.13 (.19)
Socioeconomic status		−.01 (.89)	−.04 (.51)	−.07 (.33)
VET-average social status		−.02 (.82)	−.03 (.80)	−.05 (.61)
Intermediate certificate			.13 (.44)	.09 (.60)
Higher education entrance degree			.18 (.32)	.13 (.51)
Migration background			−.42 (.008)**	−.36 (.02)*
Sex (0 = female)			.01 (.96)	.01 (.95)
School-average achievement				.11 (.39)
Intermediate school track				.44 (.04)*
Academic school track				−.12 (.76)
Mixed school track				.12 (.51)
df	2, 219.08	2, 248.83	4, 743.03	4, 601.14
F-value	1.10 (p = .33)	0.04 (p = .96)	2.16 (p = .07)+	1.52 (p = .19)

Note. The reference categories for school leaving certificate and school track are 0 = lower certificate and 0 = lower track. *** p < .001, ** p < .01, * p < .05, + p < .10

The Skills Experts Program at the German Chambers of Commerce Abroad—A Model for Implementing a Global Skills Partnership? A Case Study

Triebelhorn, Marina

triebelh@uni-bremen.de, University of Bremen

Abstract

Context: To strengthen the immigration of skilled workers and apprentices from third countries to Germany, the German government has liberalized the regulations for the immigration of skilled workers and apprentices. However, practical hurdles remain in the implementation of immigration processes, that are examined in this paper.

Approach: In order to identify practical difficulties, the Skills Experts Program (SEP) of the Federal Ministry for Economic Affairs and Climate Action is examined as part of a case study using document analysis. Through a comparison with the Global Skill Partnerships approach by Clemens (2015), this case study derives key factors that may be critical to the success of Transnational Skills and Mobility Partnerships, as described by Sauer and Volarević (2020).

Findings: The SEP was further developed into a project that tests the practical implementation of immigration of apprentices and skilled workers from third countries to Germany due to changing framework conditions that necessitated the strengthening of immigration for apprentices and skilled workers. It exhibits eight out of eleven identified GSP characteristics. Moreover, the challenges identified within the SEP pertain to the five success factors awareness of and trust in institutions, demand for apprentices or skilled workers from companies in the country of destination, willingness of companies in the country of origin to train apprentices for the country of destination, internships and language proficiency.

Conclusions: The German government can utilize the insights gained from the SEP, to initiate improvements in the immigration processes for skilled workers and apprentices from third countries to Germany.

Keywords

immigration of apprentices, immigration of skilled workers, international vocational education cooperation, global skill partnerships

1 Initial situation in Germany: Legal Adjustments to Increase the Number of International Apprentices and Skilled Workers

In 2018, the German legislature recognized the need for action to create conditions that would facilitate immigration of apprentices and skilled workers from non-EU countries by adopting a framework for skilled labour immigration (Die Bundesregierung, 2018). With the law and regulation on skilled immigration passed in 2019, along with their 2023 amendments,

the legislature expanded and made access to the German labour and training market more flexible for non-EU nationals. However, there remain practical implementation barriers (Adunts et al., 2023, pp. 30–31; Studthoff et al., 2024, pp. 13–14).

2   Research Question and Methodology

Sauer and Volarević (2020) divide forms of Transnational Skills and Mobility Partnerships (TSMP) into three types:

1. Skilled labour mobility: Skilled workers acquire their professional qualifications in their country of origin and can migrate to the destination country to work there by having their qualifications recognized.
2. Training partnerships: The migrant's vocational training takes place in the destination country. Immigration to the destination country is for the purpose of vocational training. No recognition of professional qualifications is required for migration.
3. Vocational education and training partnerships: Dual-track vocational training takes place in the country of origin, in which future skilled workers are trained for both, the country of origin and the destination country. After completing the vocational training, some of the trained workers migrate to the destination country (abroad track). Vocational training structures are established in the country of origin and some of the trained workers remain in the country of origin (home track). This partnership corresponds to the Global Skill Partnerships (GSP) approach by Clemens (2015).

This paper examines key characteristics that can be decisive for the success of TSMP. Using the embedded single case study design following Yin (2018), the study focuses on the Skills Experts Program (SEP) of the German Federal Ministry for Economic Affairs and Climate Action (BMWK). The SEP was selected for this case study because it contains or plans to incorporate all three types of TSMP in the field of industrial and commercial occupations. Other (pilot) projects and programs can be excluded, as they do not simultaneously include approaches for all three types of TSMP in the field of industrial and commercial occupations.

The study is guided by the following questions: (1) How and why was the SEP developed from a program to secure skilled workers for German companies abroad into a pilot project for recruiting apprentices and skilled workers for Germany? (2) To what extent does the SEP exhibit characteristics of a GSP? (3) What challenges did the SEP face in recruiting apprentices and skilled workers in their countries of origin for employment in Germany?

To address these questions a literature review and a document analysis are conducted, followed by the application of the characteristics of the GSP approach (Clemens, 2015). Data on the development of the SEP, collected through document analysis, is extracted from (1) two evaluation reports of the SEP (Jansen & Pierenkemper, 2019; Ulikowski, 2023), (2) reports from the skills experts coordination office at the project management organization of the German Chamber of Industry and Commerce (DIHK), and (3) the anthology about transnational skills partnerships by the Bertelsmann Stiftung published in 2024. Data analysis is carried out through qualitative content analysis (Kuckartz & Rädiker, 2022).

3   Description of the SEP

Since 2017, the SEP has aimed to establish vocational training structures modelled on the German dual vocational education and training system at selected German Chambers of Com-

merce Abroad (AHKs) in order to support German companies abroad in tailoring local work-force qualifications to their specific needs.[1] As part of its foreign trade promotion efforts, the BMWK funds vocational training experts, known as skills experts, who operate within the AHKs. This funding is intended to help the AHKs develop a sustainable and self-sufficient business field (Ulikowski, 2023, p. 2).

Since 2023, skills experts additionally have been supported in the focus area of skilled workers for Germany (Frey, 2024, p. 89). In this focus, currently skills experts are funded at four AHKs in countries that are open to emigration (DIHK Service GmbH [DIHK Service], 2023a). This focus tests or plans to test all three types of TSMP approaches to the immigration of skilled workers and apprentices to Germany through the German-Brazilian Chamber of Commerce and Industry in São Paulo (AHK São Paulo), the German-Turkish Chamber of Commerce and Industry (AHK Turkey), the German-Arab Chamber of Industry and Commerce (AHK Egypt) and the Southern African-German Chamber of Commerce and Industry (AHK Southern Africa) as shown in Table 1 (Bundesministerium für Wirtschaft und Klimaschutz [BMWK], n.d.).

Table 1

Allocation of SEP Locations in the Focus Area Skilled Workers for Germany According to TSMP (Sauer und Volarević, 2020)

TSMP according to Sauer and Volarević (2020)	Skills experts locations within the skilled workers for Germany focus
Skilled labor mobility	AHK São Paulo, AHK Turkey, AHK Egypt, AHK Southern Africa,
Training partnerships	AHK Turkey, AHK São Paulo and AHK Southern Africa (possibilities of the approach under review)
Vocational education and training partnerships	AHK São Paulo

4 Answers to the research questions and discussion

First research question: How and why was the SEP developed from a program to secure skilled workers for German companies abroad into a pilot project for recruiting apprentices and skilled workers for Germany? The inclusion of the skilled workers for Germany focus in the SEP can be explained by the demographic decline in the number of working-age nationals, the evolving labor market demand in Germany, external events and the expertise and experience available at the AHKs.

In Germany, the workforce potential is expected to decline (Fuchs et al., 2021, p. 10). Moreover, the demand for qualifications in the labor market is shifting due to transformative processes such as digitalization and decarbonization, leading to job reductions in certain industries and regions in Germany while creating a need for skilled workers with new qualifications elsewhere (Bundesministerium für Arbeit und Soziales [BMAS], 2022, p. 31). External factors, such as the COVID-19 pandemic and Russia's war of aggression in Ukraine, also influence labor market demand and economic development (BMAS, 2022, p. 8).

Germany requires a net migration of 400,000 people per year to maintain its labor force potential at the current level of 47.4 million (Fuchs et al., 2021, p. 1). Against this backdrop in

---

[1] Chambers of Commerce Abroad (AHKs), Delegations and Representative Offices of the German Economy operate worldwide. As part of the SEP in the skilled workers for Germany focus, AHKs in Brazil, Egypt and South Africa as well as a delegation in Turkey receive support. In This paper, the term "Chambers of Commerce Abroad (AHKs)" refers to both the Chambers of Commerce Abroad, as well as the delegations and representative offices of the German economy.

2023, the amendment of the Skilled Immigration Act (Gesetz zur Weiterentwicklung der Fach-kräfteeinwanderung, 2023) and the Employment Regulation (Achte Verordnung zur Änderung der Beschäftigungsverordnung, 2023) were passed. To test the framework of these legislative updates and support the immigration of skilled workers and apprentices to Germany, the SEP was expanded to include the skilled workers for Germany focus (BMWK, n.d.; Deutsch-Bra-silianische Industrie- und Handelskammer [AHK São Paulo], 2024a, p. 2; Deutsch-Türkische Industrie- und Handelskammer [AHK Turkey], 2024, pp. 2–3). In 2023, the AHK São Paulo and the AHK Turkey were integrated into the SEP, followed by the AHK Egypt and the AHK Southern Africa in 2024 (BMWK, n.d.). At these AHKs, the German federal government is implementing additional funding projects in the areas of skilled labor immigration and recog-nition counselling like "Pro Recognition" at the AHK Turkey, AHK São Paulo and AHK Egypt, as well as "Hand in Hand for International Talents" at the AHK São Paulo (AHK São Paulo, n.d.-a; AHK Turkey, n.d.; Deutsch-Arabische Industrie- und Handelskammer [AHK Egypt], n.d.-a; Federal Employment Agency, n.d.). Through these projects, the AHKs gain knowledge and experience in skilled labor immigration, which the skills experts can leverage (Frey, 2024, p. 92).

Second research question: To what extent does the SEP exhibit characteristics of a GSP? To address this research question, three levels of fulfilment of a GSP characteristic within the SEP locations in the skilled workers for Germany focus are considered: "included", "partially included", and "not included". A total of eleven GSP characteristics is identified, which are presented along with their level of fulfilment in Table 2.

Characteristic 2 is included in the SEP due to its governance structure. Its key components include the BMWK, the skills experts coordination office and the AHKs. The AHKs support and represent their member companies locally. At their locations, they serve as an interface between German and local companies as well as educational providers (Ulikowski, 2023, p. 1). The skills experts coordination office coordinates the SEP in consultation with the BMWK and serves as the link between the AHKs and private and public actors in Germany, for example, the German Chambers of Commerce and Industry (IHKs) and their member companies (DIHK Service, 2023b, pp. 12–13).

Characteristic 3 is partially included in the SEP. Started in 2025, a group of skilled workers with a local education in mechatronics is getting training as skilled workers for Germany in Brazil while at the same time, apprentices with no local training get their training for the home track (H. Frey, personal communication, February 14, 2025). At the other three SEP locations in the skilled workers for Germany area, the AHKs focus on the placement of apprentices and already trained professionals.

Away track: The AHK Turkey collaborates with the Bodensee-Oberschwaben Chamber of Commerce and Industry (IHK Bodensee-Oberschwaben), testing approaches to placing Turkish apprentices with companies in Germany (AHK Turkey 2024, p. 3; Industrie- und Handelskam-mer Bodensee-Oberschwaben [IHK Bodensee-Oberschwaben], n.d.-a). Before 2025, the AHK São Paulo only tested the placement of trained Brazilian electricians with companies in Ger-many (AHK São Paulo, n.d.-b). A portion of the fees paid by companies for successful place-ments is intended to be reinvested in the qualification of skilled workers in Brazil (AHK São Paulo, n.d.-b). From 2025, the AHK São Paulo has a first cohort of professionals in Brazil being specifically trained one additional year for Germany (AHK São Paulo, 2024b, p. 4; H. Frey, personal communication, February 14, 2025). The AHK Egypt offers German companies ac-cess to a pool of trained Egyptian professionals and plans to test the placement of these profes-sionals (AHK Egypt, n.d.-b). The AHK Southern Africa has identified a group of skilled work-ers, is building structures to place already-trained South African professionals with companies in Germany and plans to explore the possibilities of recruiting apprentices from South Africa.

(Deutsche Industrie- und Handelskammer für das südliche Afrika [AHK Southern Africa], 2025, pp. 5–6).

Table 2
Eleven Characteristics of the GSP Approach (Clemes, 2015)

No.	Description of the characteristic	Level of fulfilment
1.	An agreement between the country of origin and the target country, signed before the start of cooperation, in which the countries define the terms of the partnership.	not included
2.	The implementation of the training cooperation takes place in close cooperation between public and private actors (public-private partnership).	included
3.	The training in the country of origin takes place on two tracks: a. The away track qualifies apprentices for the labor market in the destination country. b. The home track trains apprentices for the labor market in the country of origin.	partially included
4.	Apprentices on the away track attend pre-integration and language training courses tailored to their needs.	included
5.	The training is financed through various models or a combination thereof: a. state funding from the target country, b. contributions from employers in the target country, c. loans that partially finance the training for the country of origin through future earnings of the skilled workers in the destination country.	included
6.	The countries of origin and destination coordinate the training content and curricula in order to facilitate the mutual recognition of qualifications.	included
7.	A contingency plan considers possible risks, such as the failure of away track graduates to migrate or the unexpected migration of home track graduates.	not included
8.	Employers in the destination country have a demand for the skilled workers.	partially included
9.	Trade unions and employee representatives in the destination country must be involved in the partnership.	not included
10.	There is close coordination between various ministries to ensure the implementation of the model.	partially included
11.	The migrated skilled workers have the opportunity to change their employer in the destination country.	included

Note. Characteristic 1 is not included in the SEP.

Home track: The AHK Turkey plans vocational training programs with companies and educational institutions to offer training and adaptation qualifications for German vocational certificates to Turkish apprentices and professionals (AHK Turkey, 2024, p. 4). The AHK São Paulo and AHK Egypt have a vocational training department and offer vocational training services in several training programs and further education courses for companies in Brazil and Egypt (AHK Egypt, n.d.-c; Deutsche Industrie- und Handelskammer [DIHK], n.d.). The AHK Southern Africa, supported by the SEP in the focus areas of capacity building and green jobs between 2019 and 2022, has established vocational training structures for the South African market (Ulikowski, 2023, p. 1).

Characteristic 4 is included in the SEP. The AHK São Paulo offers pre-integration measures to professionals being placed in Germany, such as language training and a course on life and work culture in Germany (AHK São Paulo, n.d.-b). The AHK Turkey and the IHK Bodensee-Oberschwaben support apprentices with language qualification and integration in Germany (IHK Bodensee-Oberschwaben, n.d.-a). The AHK Egypt provides continuing education measures like language courses and job-relevant programs (AHK Egypt, n.d.-b). The AHK Southern Africa plans to offer language courses and continuing education measures for professionals being placed in Germany (AHK Southern Africa, 2025).

Characteristic 5 is included in the SEP. The AHK locations receive funding for the SEP from the BMWK, fulfilling the criterion of public financing. In the cooperation between the

AHK Turkey and the IHK Bodensee-Oberschwaben, companies are charged a fee of 750 Euro after the successful start of training. Additionally, the placed youth pay for their language training, visa, and travel to Germany (IHK Bodensee-Oberschwaben, n.d.-a). The AHK Southern Africa plans to charge a placement fee to companies in Germany for successfully placed South African professionals (AHK Southern Africa, 2025, p. 6). The AHK São Paulo introduced a tiered co-payment model for companies during the pilot phase. Costs for companies with up to 49 employees are 2,900 Euro, and for companies with 50 or more employees, 3,400 Euro (AHK São Paulo, n.d.-b). The AHK Egypt plans a co-payment model for companies per successful placement of an Egyptian professional (AHK Egypt, 2024, p. 4).

Characteristic 6 is included in the SEP. The vocational training services provided by the AHK fall into three categories "A", "B" and "C". Certificates in Category A correspond to a German dual vocational training program conducted abroad, certificates in Category B to a local dual vocational training program modelled on the German system, and certificates in Category C to a local dual vocational training program incorporating elements of the German system (Deutscher Industrie- und Handelskammertag, 2019).

Characteristic 7 is not included in the SEP.

Characteristic 8 is interpreted to mean that a company's need for a professional or apprentice must exist before placement occurs. This feature is partially included in the SEP. Of the four locations supported under the skilled workers for Germany focus of the SEP, the AHKs in Brazil and Egypt are testing and the AHK in Southern Africa plans to test a talent pool approach from which locally trained professionals can subsequently be placed with companies in Germany. The AHK São Paulo provides companies in Germany with an overview of anonymized short profiles of professionals in a talent pool (AHK Qualifica Germany, 2024). This suggests that professionals are identified first, rather than the demand from companies in Germany. The AHK Turkey takes the opposite approach, identifying suitable candidates for training or working in Germany based on the specific needs of a particular company (IHK Bodensee-Oberschwaben, n.d.-a).

Characteristic 9 is not included in the SEP, as trade unions and employee representatives are not a part of the program.

Characteristic 10 is partially included in the SEP. Within the framework of the "Round Table for International Vocational Education and Training Cooperation" (Bundesinstitut für Berufsbildung, 2024), regular exchanges take place on various topics related to international vocational training cooperation between the relevant ministries in Germany.

Characteristic 11 is included in the SEP. Employees in Germany have the right to terminate their employment relationship through regular resignation, a termination agreement, or upon reaching a contractually or collectively agreed retirement age, as well as in cases of business closure or the death of the employee or employer (BMAS, 2023). Upon termination of an employment relationship, international talents residing in Germany based on a residence permit may, under certain conditions, change their employer. Since November 2023, skilled workers in non-regulated professions have been allowed to take up employment in any non-regulated profession (The Federal Government, n.d.).

Third research question: What challenges did the SEP face in recruiting apprentices and skilled workers in their countries of origin for employment in Germany? To address this research question, the challenges identified in the skilled workers for Germany focus of the SEP are analysed using the characteristics of the GSP model by Clemens (2015) and insights from the anthology about transnational skills partnerships by the Bertelsmann Stiftung. Identified challenges that pertain to the GSP characteristics are shown in Table 3.

Table 3

GSP Characteristics for Which Challenges Were Found in the SEP

No. according to Table 2	Description of the GSP characteristic
2.	The implementation of the training cooperation takes place in close cooperation between public and private actors (public-private partnership).
3.	The training in the country of origin takes place on two tracks: a. The away track qualifies apprentices for the labor market in the destination country. b. The home track trains apprentices for the labor market in the country of origin.
4.	Apprentices on the away track attend pre-integration and language training courses tailored to their needs.
9.	Employers in the destination country have a demand for the skilled workers.

On GSP characteristics 2 and 9: Within the SEP, the AHKs an IHKs act as intermediaries between various stakeholders. In Germany, the IHKs serve as points of contact for vocational education for their member companies, as they are the competent authorities for vocational training in non-craft trade professions (Berufsbildungsgesetz, 2005). In the countries of origin, the SEP faced the challenge that skills experts were not known to all the companies surveyed during the program's first evaluation in 2019: 65.0 percent of the surveyed companies stated that they feel very well or fairly well informed about the support services offered by the AHKs (Jansen & Pierenkemper, 2019, p. 5, 17). During the second evaluation in 2022, it was 80.0 percent (Ulikowski, 2023, p. 6, 101). In Germany, the SEP aims to strengthen the cooperation between AHKs and IHKs so that IHK member companies can recognize and increasingly utilize the potential of vocational training abroad (DIHK Service, 2024, p. 13).

Clemens (2015) suggests that trust among actors in a training cooperation is a prerequisite for successful collaboration and that companies in the target country should exhibit demand for trained professionals to ensure the success of a GSP. Stronger involvement of the private sector in recruitment is deemed critical for the success of TSMP models, and the German (external) trade sector must be integrated from the outset of the cooperation (Abate & Azahaf, 2024, p. 22; Shahin & Thomann, 2024, p. 75). For sustainable recruitment of skilled workers, the principles of ethical recruitment of skilled workers need also be taken into account (IRIS Ethical Recruitment, n.d.).

The AHK São Paulo had difficulties placing professionals in German companies at the early stage of the program in 2024 and 2025 (AHK São Paulo, 2025, p. 4). This can be attributed to companies preferring to meet potential professionals before making hiring decisions (AHK São Paulo, 2024b, p. 3). Due to the significant distance, high costs, and logistical challenges, this was not feasible from Brazil (AHK São Paulo, 2024b, p. 3). Additionally, the economic situation in Germany in the industrial sector including hiring freezes further complicated placements (DIHK Service, 2024, p. 8). According to Clemens (2015), external factors such as an economic recession can hinder the success of a GSP. Therefore, it can be concluded that ensuring demand from companies for professionals before initiating training cooperation or talent recruitment is crucial to improving placement prospects.

On GSP characteristic 3: In the meantime, the SEP partially includes a dual-track training system for professionals targeting both the country of origin and Germany, although the AHK São Paulo planned the dual track approach from the start of the program in 2023 (Frey, 2024, p. 92). The later launch of the dual track approach in Brazil can be explained by the insufficient practical training component in Brazilian vocational education, which hindered full or almost full recognition of Brazilian qualifications in Germany, and due to the lack of opportunity to conduct the adaptation qualification in companies in Brazil (AHK São Paulo, 2023, p. 2). Additionally, there tend to be conflicts of interest between training companies in the country of

origin and Germany's aim to increase skilled labor migration. AHK member companies generally seek to train personnel to meet their local needs and are sometimes not willing to risk losing trained staff to migration, which would represent a loss of investment (Frey, 2024, p. 92; Shahin & Thomann, 2024, p. 75). Furthermore, the migration of a skilled worker trained in the country of origin to a destination country, e.g. due to better conditions of work or greater social protection, would contribute to an increase in the brain drain in the country of origin (International Labour Organization, 2018, p. 3). In conclusion, it can be stated that, prior to initiating a training cooperation between the country of origin and the destination country, companies in the country of origin must demonstrate a willingness to train personnel specifically for the destination country. Brain drain should be compensated for in the country of origin.

On GSP characteristic 4: According to Clemens (2015), language proficiency in the target country's language is a key element for the success of a GSP. In the SEP, challenges related to linguistic preparation have arisen in preparing international talents for immigration to Germany. The first call for applications to establish a skilled worker pool in Egypt received relatively low response due to the requirement of German language proficiency at level A2 of the Common European Framework of Reference for Languages (AHK Egypt, 2024, p. 3). In Brazil, candidates who have completed a language course to reach A2 proficiency are expected to continue to B1 level to improve their placement prospects (AHK São Paulo, 2024b, p. 3).

The challenges faced by AHK Egypt can be attributed to a lack of willingness among some of the participants to attend language courses (Weiss & Olma, 2024, p. 103). In Brazil, further linguistic qualification aims to enhance candidates' chances of being placed with companies in Germany. However, attending advanced language courses can result in long waiting periods during which participants may lose previously acquired language skills (Laxczkowiak & Beckmann-Schulz, 2024, p. 200). With regard to vocationally oriented language training, inadequate quality of German language courses in the country of origin can pose an additional barrier (Laxczkowiak & Beckmann-Schulz, 2024, p. 205).

5 Conclusions

The SEP was further developed from a program within the framework of foreign trade promotion into a project that tests the practical implementation of immigration of apprentices and skilled workers from third countries to Germany. This transformation was driven by changing framework conditions that necessitated the strengthening of immigration for apprentices and skilled workers. Synergies from other projects related to skilled labor immigration at the supported AHKs are used within the SEP. As a result, challenges and solution approaches in the immigration process can be identified and discussed with decision-makers to initiate improvements.

The SEP exhibits eight out of eleven GSP characteristics, which can be classified as either fully or partially included. It started to offer dual-track vocational training in one out of four SEP locations, so that the prerequisites for a dual track training approach can be considered as in place, also since the AHKs already provide certified vocational training services based on the German dual training model.

The challenges identified within the SEP pertain to the following success factors, which may be crucial for the success of TSMP:

- awareness of and trust in AHKs and IHKs as contact points for companies in both the country of origin and Germany
- existing concrete demand from German companies for apprentices and skilled workers from third countries with specific skills and qualifications
- willingness of companies in the country of origin to train for the target country

- internships in Germany to assess the skills of international talents
- language proficiency and training—primarily related to the country of origin and the matching process between candidates and companies

For successful training cooperation or the placement of apprentices and already trained professionals, additional factors in the target country may also play a decisive role. The AHK São Paulo places emphasis on identifying companies in Germany that offer integration programs and have prior experience with hiring professionals from abroad (AHK São Paulo, 2024b, p. 4). In the collaboration between AHK Turkey and the IHK Bodensee-Oberschwaben, apprentices in Germany are to receive ongoing support, while host companies are expected to assist apprentices in finding affordable housing (IHK Bodensee-Oberschwaben, n.d.-a, n.d.-b). This suggests that experiences of companies with the recruitment of apprentices and skilled workers from third countries, the support for international talents during their integration in Germany and access to affordable housing are also critical factors for the success of TSMP. These factors require further research. Furthermore, in order to continue the research work, it would be possible and useful to record the stakeholder perspectives in addition to the document analysis carried out.

References

Abate, P., & Azahaf, N. (2024). Von der Vision zur Praxis transnationaler Skills Partnerships in Deutschland: Eine Standortbestimmung sechs Jahre nach Verankerung im Globalen Migrationspakt [From vision to practice: Assessing transnational skills partnerships in Germany six years after their integration into the Global Compact for Migration]. In Bertelsmann Stiftung (Ed.), *Fachkräftemigration fair gestalten durch transnationale Skills Partnerships* (pp. 15–24). Verlag Bertelsmann Stiftung.

Achte Verordnung zur Änderung der Beschäftigungsverordnung [Eighth Ordinance Amending the Employment Ordinance], Dec. 13, 2023, BGBl I at 353 (Ger.), https://www.recht.bund.de/bgbl/1/2023/353/VO.html

Adunts, D., Brücker, H., Fendel, T., Hauptmann, A., Jaschke, P., Keita, Sekou., Konle-Seidl, R., Kosyakova, Y., & Vallizadeh, E. (2023, May). *Zum Gesetzesentwurf der Bundesregierung zur Weiterentwicklung der Fachkräfteeinwanderung* [On the German government's draft law for the further development of skilled worker immigration]. Institut für Arbeitsmarkt- und Berufsforschung der Bundesagentur für Arbeit. https://doku.iab.de/stellungnahme/2023/sn0523.pdf

AHK Qualifica Germany (2024, December). *Anonymisierte Kurzprofile: AHK qualifica Germany* [Anonymized short profiles: AHK qualifica Germany]. https://qualificagermany.wordpress.com/talentpool/

Berufsbildungsgesetz [BBiG] [Vocational Training Act], Mar. 23, 2005, BGBl I at 931, last amended by Gesetz [G], July 19, 2024, BGBl I at 246, art. 2 (Ger.), https://www.gesetze-im-internet.de/bbig_2005/

Bundesinstitut für Berufsbildung. (2024, May 24). *Der Runde Tisch für internationale Berufsbildungszusammenarbeit* [The round table for international vocational education and training cooperation]. https://www.govet.international/de/2353.php

Bundesministerium für Arbeit und Soziales (2022, October). *Fachkräftestrategie der Bundesregierung* [The German federal government's skilled workforce strategy]. https://www.bmas.de/SharedDocs/Downloads/DE/Publikationen/fachkraeftestrategie-der-bundesregierung.pdf?__blob=publicationFile&v=8

Bundesministerium für Arbeit und Soziales. (2023, September). *Arbeitsrecht: Informationen für Arbeitnehmerinnen und Arbeitnehmer und für Arbeitgeber* [Labor law: Information for employees and employers]. https://www.bmas.de/SharedDocs/Downloads/DE/Publikationen/a711-arbeitsrecht.pdf?__blob=publicationFile&v=7

Bundesministerium für Wirtschaft und Klimaschutz. (n.d.). *Skills Experts: Fachkräfte für deutsche Unternehmen im Ausland ausbilden und sichern* [Skills experts: Training and securing skilled workers for German companies abroad]. Retrieved February 4, 2025 from https://www.bmwk.de/Redaktion/DE/Artikel/Ausbildung-und-Beruf/skills-experts.html

Clemens, M. A. (2015). Global Skill Partnerships: A proposal for technical training in a mobile world. *IZA Journal of Labor Policy*, *4*(2), 1–18. https://doi.org/10.1186/s40173-014-0028-z

Deutsch-Arabische Industrie- und Handelskammer. (n.d.-a). *Recognition of Foreign Qualifications in Germany*. Retrieved February 4, 2025, from https://aegypten.ahk.de/en/services/recognition-of-qualifications

Deutsch-Arabische Industrie- und Handelskammer. (n.d.-b). *Migration and Employment: Matchmaking of Skilled Talent from Egypt*. Retrieved February 4, 2025, from https://aegypten.ahk.de/en/services/migration-and-employment

Deutsch-Arabische Industrie- und Handelskammer. (n.d.-c). *Duale Berufsausbildung* [Dual vocational training]. Retrieved February 4, 2025, from https://aegypten.ahk.de/dienstleistungen/duale-berufsausbildung

Deutsch-Arabische Industrie- und Handelskammer. (2024, July 10). *Halbjahresbericht 2024—Skills Expert Programm* [Semi-annual report 2024—skills expert program] [Unpublished report]. Bundesministerium für Wirtschaft und Klimaschutz.

Deutsch-Brasilianische Industrie- und Handelskammer. (n.d.-a). *ProRecognition: Anerkennung von Berufsausbildungen für die Arbeitsaufnahme in Deutschland* [Recognition of vocational qualifications for employment in Germany]. Retrieved February 4, 2025, from https://www.ahkbrasilien.com.br/de/projetos/formacao-profissional/prorecognition

Deutsch-Brasilianische Industrie- und Handelskammer. (n.d.-b). *Fachkräftevermittlung aus Brasilien* [Recruitment of skilled workers from Brazil]. Retrieved February 4, 2025, from https://www.ahkbrasilien.com.br/de/projetos/formacao-profissional/qualifica-germany

Deutsch-Brasilianische Industrie- und Handelskammer. (2023, July 11). *Halbjahresbericht 2023—Skills Expert Programm* [Semi-annual report 2023—skills experts program] [Unpublished report]. Bundesministerium für Wirtschaft und Klimaschutz.

Deutsch-Brasilianische Industrie- und Handelskammer. (2024a, January 10). *Halbjahresbericht 2023—Skills Expert Programm* [Semi-annual report 2023—skills expert program] [Unpublished report]. Bundesministerium für Wirtschaft und Klimaschutz.

Deutsch-Brasilianische Industrie- und Handelskammer. (2024b, July 10). *Halbjahresbericht 2024* [Semi-annual report 2024] [Unpublished report]. Bundesministerium für Wirtschaft und Klimaschutz.

Deutsch-Brasilianische Industrie- und Handelskammer. (2025, January 30). *Halbjahresbericht 2024* [Semi-annual report 2024] [Unpublished report]. Bundesministerium für Wirtschaft und Klimaschutz.

Deutsche Industrie- und Handelskammer. (n.d.). *Kompetenzstelle Internationale Berufsbildung* [Competence center for international vocational education and training]. Retrieved February 4, 2025, from https://dihk.twentymedia.de/cms/map_public#standorte

Deutsche Industrie- und Handelskammer für das südliche Afrika. (2025, January 20). *Halbjahresbericht 2024—Skills Expert Programm* [Semi-annual report 2024—skills expert program] [Unpublished report]. Bundesministerium für Wirtschaft und Klimaschutz.

Deutscher Industrie- und Handelskammertag. (2019). *Duale Berufsbildung im Ausland* [Dual vocational education and training abroad]. Deutscher Industrie- und Handelskammertag e.V. https://www.dihk.de/resource/blob/2924/91300b7c7694a9444fb248e97399bbc6/bildung-duale-berufsbildung-im-ausland-data.pdf

Deutsch-Türkische Industrie- und Handelskammer. (n.d.). *ProRecognition/ Anerkennungsberatung* [ProRecognition/Recognition Counseling]. Retrieved February 4, 2025, from https://turkiye.ahk.de/de/sonstige-dienstleistungen/prorecognition-anerkennungsberatung

Deutsch-Türkische Industrie- und Handelskammer. (2024, January 12). *Halbjahresbericht 2023—Skills Expert Programm* [Semi-annual report 2023—skills expert program] [Unpublished report]. Bundesministerium für Wirtschaft und Klimaschutz.

Die Bundesregierung. (2018). *Eckpunkte zur Fachkräfteeinwanderung aus Drittstaaten* [Key points on skilled worker immigration from third countries]. https://www.bmi.bund.de/SharedDocs/downloads/DE/veroeffentlichungen/2018/eckpunkte-fachkraefteeinwanderung.pdf?__blob=publicationFile&v=1

DIHK Service GmbH. (2023a, January 3). *Skills experts—The next generation: Wir fördern und unterstützen 2023 10 AHK-Standorte weltweit durch Berufsbildungsexperten* [Skills experts—The next generation: In 2023, we promote and support 10 AHK locations worldwide through vocational education experts]. https://www.dihk-service-gmbh.de/de/skills-experts-the-next-generation-89142

DIHK Service GmbH. (2023b, April 5). *Quartalsbericht Skills Experts Programm: Januar 2023–März 2023* [Quarterly report skills experts program: January 2023–March 2023] [Unpublished report]. Bundesministerium für Wirtschaft und Klimaschutz.

DIHK Service GmbH. (2024, April 15). *Quartalsbericht Skills Expert Programm: Januar 2024–März 2024* [Quarterly report skills expert program: January 2024–March 2024] [Unpublished report]. Bundesministerium für Wirtschaft und Klimaschutz.

Federal Employment Agency. (n.d.). *Über das Projekt: Zuwanderung für ausländische Fachkräfte mit Berufsausbildung* [About the project: Immigration for foreign skilled workers with vocational training]. Retrieved February 4, 2025, from https://www.arbeitsagentur.de/vor-ort/zav/projects-programs/interprofessional-trainee/hand-in-hand/ueber-das-projekt

Frey, H. (2024). Die Auslandshandelskammern und die Internationalisierung der Berufsbildung „Made in Germany" [The German Chambers of Commerce Abroad and the internationalization of vocational education and training made in Germany]. In Bertelsmann Stiftung (Ed.), *Fachkräftemigration fair gestalten durch transnationale Skills Partnerships* (pp. 83–95). Verlag Bertelsmann Stiftung.

Fuchs, J., Söhnlein, D., & Weber, B. (2021). *Projektion des Erwerbspersonenpotenzials bis 2060: Demografische Entwicklung lässt das Arbeitskräfteangebot stark schrumpfen* [Projection of the workforce potential until

2060: Demographic development leads to a significant decline in labor supply]. Institut für Arbeitsmarkt- und Berufsforschung der Bundesagentur für Arbeit. https://doku.iab.de/kurzber/2021/kb2021-25.pdf

Gesetz zur Weiterentwicklung der Fachkräfteeinwanderung [Law on the further development of skilled worker immigration], Aug. 18, 2023, BGBl I at 217 (Ger.), https://www.recht.bund.de/bgbl/1/2023/217/VO.html

Industrie- und Handelskammer Bodensee-Oberschwaben. (n.d.-a). *AHK Türkei—Ausbildungsprogramm* [AHK Turkey—training program]. Retrieved February 4, 2025, from https://www.ihk.de/bodensee-oberschwaben/ausbildung/orientierung/ausbildungsprogramm-mit-der-ahk-tuerkei-6007682

Industrie- und Handelskammer Bodensee-Oberschwaben. (n.d.-b). *Ausbildungsprogramm der IHK Bodensee-Oberschwaben mit der AHK Türkei* [Training program of the IHK Bodensee-Oberschwaben in cooperation with the AHK Turkey]. Retrieved February 5, 2025, from https://www.ihk.de/blueprint/servlet/resource/blob/6007746/3e2bdfdf12b2979a8ad183ab97b4de8e/ausbildungsprogramm-mit-der-ahk-tuerkei-flyer-data.pdf

International Labour Organization. (2018). *Skills for migration and employment* [Skills for employment policy brief]. Retrieved April 2, 2025, from https://www.ilo.org/publications/skills-migration-and-employment

IRIS Ethical Recruitment. (n.d.). *Frequently asked questions: What is IRIS?* International Organization for Migration. Retrieved April 2, 2025, from https://iris.iom.int/frequently-asked-questions

Jansen, A., & Pierenkemper, S. (2019). Fachkräftesicherung deutscher Unternehmen im Ausland: Formative Evaluation des Skills Experts-Programms im Auftrag des Bundesministeriums für Wirtschaft und Energie: Abschlussbericht [Securing skilled workers for German companies abroad: Formative evaluation of the skills experts program on behalf of the Federal Ministry for Economic Affairs and Energy: Final report]. Institut der deutschen Wirtschaft. https://www.iwkoeln.de/studien/dirk-werner-anika-jansen-sarah-pierenkemper-daniel-woerndl-formative-evaluation-des-skills-experts-programms.html

Kuckartz, U., & Rädiker, S. (2023). *Qualitative content analysis: Methods, practice and software* (2nd ed.). SAGE Publications.

Laxczkowiak, J., & Beckmann-Schulz, I. (2024). Deutschspracherwerb im Kontext transnationaler Skills Partnerships [German language acquisition in the context of transnational skills partnerships]. In Bertelsmann Stiftung (Ed.), *Fachkräftemigration fair gestalten durch transnationale Skills Partnerships* (pp. 195–209). Verlag Bertelsmann Stiftung.

Sauer, M., & Volarević, J. (2020). *Transnational skills and mobility partnerships (TSMP): Contextual factors, conceptual design an application*. Bertelsmann Stiftung. https://www.bertelsmann-stiftung.de/fileadmin/files/Projekte/Migration_fair_gestalten/IB_Studie_tQMP_Sauer_Volarevic_2021_en.pdf

Shahin, S., & Thomann, B. (2024). Berufliche Qualifizierung in transnationalen Skills Partnerships—Erfahrungen aus der intenrationalen Berufsbildungszusammenarbeit nutzen [Vocational training in transnational skills partnerships—leveraging experiences from international vocational education cooperation]. In Bertelsmann Stiftung (Ed.), *Fachkräftemigration fair gestalten durch transnationale Skills Partnerships* (pp. 71–81). Verlag Bertelsmann Stiftung.

Studthoff, A., Thomann, B., Niediek, S., & Shahin, S. (2024, February). Einwanderung in die Ausbildung: Möglichkeiten und Herausforderungen der gezielten Gewinnung, Vorbereitung und Integration von Auszubildenden aus Drittstaaten [Immigration into vocational training: Opportunities and challenges of targeted recruitment, preparation, and integration of apprentices from third countries]. Bundesinstitut für Berufsbildung. https://res.bibb.de/vet-repository_782182

The Federal Government. (n.d.). *The new Skilled Immigration Act at a glance*. Retrieved February 4, 2025, from https://www.make-it-in-germany.com/en/visa-residence/skilled-immigration-act

Ulikowski, A. C. (2023). *Evaluation des Programms Skills Experts: Endbericht* [Evaluation of the skills experts program: Final report]. Bundesamt für Wirtschaft und Ausfuhrkontrolle [Unpublished manuscript]. Bundesministerium für Wirtschaft und Klimaschutz.

Weiss, P., & Olma, M. (2024). Transnationale Ausbildungspartnerschaften des deutschen Handwerks in der Entwicklungszusammenarbeit: Ein Gewinn für alle Beteiligten [Transnational training partnerships of German craftsmanship in development cooperation: A win-win for all involved]. In Bertelsmann Stiftung (Ed.), *Fachkräftemigration fair gestalten durch transnationale Skills Partnerships* (pp. 97–109). Verlag Bertelsmann Stiftung.

Yin, R. K. (2018). Case study research and applications: Design and methods (6th ed.). SAGE Publications.

Biographical Notes

Marina Triebelhorn holds a Master of Arts in Economics and serves as a senior policy advisor at the Federal Ministry for Economic Affairs and Climate Action. She is pursuing her doctorate under Professor Michael Gessler at the University of Bremen on Global Skill Partnerships.

Making Sense of the Reasons for Students Dropping Out from VET in Estonia: Attention on Emotional Wellbeing

Ümarik, Meril
meril.umarik@tlu.ee, Tallinn University

Bentsalo, Inna
inna.bentsalo@tlu.ee, Tallinn University

Abstract

Context: This study examines the factors contributing to student dropout from initial vocational education and training (IVET) in Estonia, with a specific focus on the role of emotional wellbeing in shaping student retention. Given the increasing dropout rates in Estonian vocational schools, similar to many other European countries, the research highlights the need to create supportive school environments that contribute to students' emotional wellbeing.

Methods: The paper is based on qualitative research. Semi-structured interviews were conducted with 20 at-risk students and 16 vocational teachers and support staff. The analysis explores students' perspectives on factors influencing their well-being and teachers' perceptions of their role in supporting students.

Findings: The results indicate that multiple interrelated factors - such as bullying, poor teacher-student relationships, and mental health struggles - contribute to student vulnerability and dropout. Students emphasize the need for greater support in emotional well-being, while teachers acknowledge their role but face challenges due to limited resources and institutional support. Some good practices for fostering a supportive school culture were identified, including initiatives to strengthen student relationships and enhance the physical learning environment, though no school-wide practices were identified focusing on emotional well-being of students and teachers in VET.

Conclusions: Addressing emotional well-being in vocational schools is essential for reducing dropout rates. School leadership, teacher training, and increased institutional support are critical in fostering an environment that promotes student retention and success.

Keywords

vocational education, emotional well-being, student dropout, teacher support

1 Introduction

The focus of this paper is on making sense of the interplay of reasons for dropping out from IVET and the role of the school environment supporting emotional wellbeing as a critical preventive factor. Vocational education and training (VET) is recognized as a key pathway for helping young people integrate into the labour market (CEDEFOP, 2016) and society more broadly. However, in Estonia, the dropout rate from initial vocational education and training (IVET) is a growing concern, with approximately 20% of vocational students leaving their

studies each year. This issue is not unique to Estonia but is also observed in other European countries, albeit with national variations depending on the type of vocational program, sector, and professional field. Factors such as the appeal of VET and the employment prospects of graduates influence these dropout rates (CEDEFOP, 2016).

A broad body of literature explores the reasons behind dropping out from initial vocational education and training (IVET). Studies conducted in Estonia (e.g. Espenberg et al., 2012) have identified key factors contributing to early school leaving, including (1) individual circumstances, (2) family situation, (3) school environment, and (4) economic reasons. Research suggests that dropping out is typically the result of a combination of multiple factors rather than a single cause (Krötz & Deutscher, 2022). However, it has been argued that many studies tend to emphasize personal factors over contextual influences related to vocational schools or training placements (Krötz & Deutscher, 2022; Böhn & Deutscher, 2021). One of the important contextual factors is the capacity of educational institutions to foster students' well-being and emotional development (Stanton, et al. 2016).

Well-being includes a variety of aspects, such as mental, physical, and emotional safety, along with a sense of belonging, purpose, achievement, and self-fulfilment. Emotional well-being encompasses an individual's ability to cope with daily challenges, maintain a positive attitude towards oneself and others, and adapt to life changes. It is not merely the absence of negative emotions or stress but also the presence of positive feelings, high-quality relationships, effective stress management, and a sense of control over one's own life. (WHO, 2023). Emotional well-being involves a positive balance between pleasant and unpleasant emotions along with a cognitive assessment of overall life satisfaction (Keyes, 2003). Numerous sources (e.g. Hanley et al., 2020; Roffey 2012) provide insight into how emotional well-being contributes not only to academic success but also to lifelong coping skills and overall quality of life.

This paper aims to deepen our understanding by relating the perspectives of Estonian students and vocational teachers in order to make sense of the reasons for dropping out and find possible solutions that support students' emotional well-being within the vocational school environment. The sample of the students included vocational students who were at risk of dropping out of school or had already dropped out of education and participated in a reintegration program in VET.

The central research questions are: (1) What are the factors supporting and hindering at risk students´ wellbeing as perceived by students? (2) How do vocational teachers perceive their role and resources to support at-risk students´ emotional wellbeing? (3) What are the good practices from Estonian VET schools?

2   Context: Vulnerable Students in VET and Support Available

In Estonia, the education system features a low level of tracking. Following nine years of compulsory education in basic schools (general education schools), tracking begins at the age of 16. At this stage, students choose between an academic path in gymnasiums, which lasts three years, and a vocational path in VET schools.

In Estonia, the upper-secondary education system is predominantly academic, with only 30% of students opting for initial vocational education and training (IVET) after completing basic school. Vocational education has often been perceived as a secondary option for students with lower academic performance or educational outcomes (Loogma et al., 2019). A growing concern is the high dropout rate following the 9th grade, with approximately 5% of basic school graduates neither continuing their education nor entering the labour market, placing them in the NEET (Not in Education, Employment, or Training) category. Additionally, dropout rates in vocational education are particularly high, especially in the first year, where nearly 20% of students leave their studies (Haridussilm, 2024). Despite the steady increase in the number of support specialists over the years, their overall availability remains limited. Currently, Estonian

vocational education institutions employ 45 support specialists, including 7 special pedagogues, 12 school psychologists, and 26 social pedagogues (Haridussilm, 2025). This is still a relatively low number, considering that vocational schools often teach students with weaker academic abilities and social skills—those who require more comprehensive support.

Vocational schools in Estonia vary significantly in terms of support systems: some have a dedicated support unit, others rely on a single specialist to fulfil multiple roles, and in some cases, teachers themselves take on the responsibilities of a support person. Support structures at schools are often insufficiently organized (Haaristo & Kirss, 2018). The same study (Haaristo & Kirss, 2018) identifies four main approaches to organizing support services in Estonian vocational schools: 1) No On-Site Specialists: In about 25% of schools, there are no dedicated support specialists, and teachers primarily assist students when issues arise. 2) School-Appointed Support Staff: Some schools assign various staff members—such as dormitory staff, hobby leaders, nurses, and librarians—to provide support. This model is used in four vocational institutions. 3) Single Support Specialist: Around one-third of VET schools employ a dedicated support specialist, such as a social pedagogue or psychologist, who may take on multiple roles alongside teachers and group leaders. 4) Comprehensive Support Teams: Another third of schools have a structured support unit with a team of specialists, such as a counselling centre or support services department, ensuring a well-coordinated approach to student support. This support unit also consults teachers. Nevertheless, in many vocational schools one person is taking on multiple roles, such as a group supervisor or teacher acting as a social pedagogue without formal qualifications. (Haaristo & Kirss, 2018). As a result, vocational teachers' roles have become more diverse in practice, with social work and counselling taking up an increasing share of their responsibilities (Ümarik & Rekkor, 2013; Sirk et al., 2019). This places greater demands on their social, pedagogical, and psychological competencies. Moreover, the vocational students are increasingly diversified in terms of age, previous experience and motivation.

3 Approach

The paper is based on data gathered as part of the Baltic Research Programme Project "Vocational education and workplace training enhancing social inclusion of at-risk young people". We base our arguments on the analysis of qualitative semi-structured interviews with 20 students from different VET schools at risk of dropping out from IVET or from reintegration programs targeted to young people in the status of NEET. Prior to contacting the schools and the respondents, the methodological approach of the study, study instruments and informed consent forms were approved by the Ethics Committee of Tallinn University. The interviews followed a pre-designed interview guide including questions about the students' present school, previous school and possible workplace arrangements and reflections on what supported and hindered them in their learning paths.

In the student interviews, mental health-related issues such as feelings of loneliness, anxiety, and depression were frequently highlighted. These challenges often prevented students from participating in school activities and affected their relationships with teachers and classmates. As the next phase of the project, interviews were conducted with 16 vocational teachers and support staff to study their perceptions and practices in supporting students 'emotional wellbeing. Moreover, in those interviews the aim was to map good school level practices. Four focus groups, each with four participants from various Estonian vocational schools, included social pedagogues, vocational teachers, educational technologists, and support specialists. The teachers and other staff interviewed participated in a training "Creating a learning environment in vocational schools that supports mental health". Therefore, when interpreting the results, we must keep in mind that the interviewees were those teachers that were motivated to deal with the topic of emotional well-being and mental health, although their competencies tended to vary.

All interviews were recorded, transcribed and analysed by applying the thematic analysis method. The Braun & Clarke's (2006) six-step thematic analysis model was applied: data familiarization, coding, theme identification, review, redefinition, and reporting. First, the transcribed interviews were reviewed, with initial notes made. Then, text-based coding was conducted, labelling meaningful thought units based on the research questions. Next, the codes were reviewed, and thematic categories were developed. The code tree guided the coding of subsequent interviews, ensuring consistency in categorizing meaningful units. When presenting the results, some citations have been used to illustrate the main themes, and names of the respondents have been changed.

4   Findings

4.1 Students´ Perspective on Supportive and Hindering Factors

The young people's stories reflected that dropping out of school is usually not caused by a single causal factor, but by the cumulative effect of several risk factors. Young people's well-being and coping are significantly shaped by relationships with family, peers and teachers, which affect emotional well-being in a broader sense as well as academic results.

A recurring risk factor for dropping out of education was being a victim of bullying in basic school, which in some cases lasted for years. This was accompanied by students' frequent absences, a decline in academic performance, strained or bad relationships with teachers, and often adverse family circumstances. It has been quite difficult for young people to break out of this vicious circle of accumulating disadvantages. The stories of young people reflected that both bullying and mental health problems (e.g. anxiety, depression) have often gone unnoticed by teachers or were not taken seriously by teachers.

> In elementary school a teacher yelled at me constantly. She asked me to read a text, but I couldn't read very well and she started yelling at me until I started to cry... (Karen, age: 16, study field: IT Specialist, 2nd year; at risk of dropping out, as identified by teachers).

Parents also often lack the awareness and skills to help young people or direct them to find help. In many cases, students´ emotional problems started already during elementary school and remained unnoticed, or in many cases, resulted from cases of bullying.

> I was bullied from the first grade...in the fourth grade I already went to a psychologist...my teacher labelled me as the worst boy in the class. (Mark, age: 21, study field: Construction, 3rd year; at risk of dropping out, as identified by teachers).

The students´ interviews clearly emphasised that more attention should be paid to mental health issues among the students and staff of vocational schools and the importance of creating school cultures supporting emotional wellbeing.

> I wanted to leave the vocational school, I was so anxious. I didn't go to school for two weeks, I was afraid to go there. Some teachers didn't understand that, and I had a panic attack once. (Elis, age: 20; study field: Hairdressing, 2nd year; at risk of dropping out, as identified by teachers).

The stories of the young people reflected that even the recognition and support of a single teacher can be empowering, which can bring about a positive change in the young person's self-esteem. In some cases, it didn't even have to be a teacher, but it was supportive when someone

listened and created a trusting contact. A supportive confidant could also be, for example, a school cook or a dormitory staff.

> When I started school, I didn't like socializing. I came from a tiny school with only four students in my class, so suddenly having to share a class with nearly twenty felt overwhelming. But over time, that changed - Now I have no problem talking to new people. The good thing is that some teachers and some school staff are kind and helpful, which makes a big difference…The school cook actually gave me a lot of support. For example, whenever I had a problem, I would help out in the kitchen on Thursdays, knowing I could share all my worries with her. She listened to everything - both my struggles and joys - offering her perspective. Sometimes she reassured me, other times she confirmed I was on the right track. I could talk about anything, and at the same time, I felt useful - like a two-in-one deal: doing something productive while easing my mind. (Ene, age: 18, study field: Commerce, at risk of dropping out, as identified by teachers)

Some students experienced a positive change when moving from elementary school to a vocational educational institution. Meelis shared that he found his time in basic school rather difficult, as the teachers treated him poorly, and his academic outcomes declined. When he continued in the vocational school, the situation improved, and he felt that this change was influenced by the teachers' attitude at the new school:

> I feel more successful here because, right after I came from primary school, my grades started to improve - mostly quite good grades. In primary school, the grades were quite terrible. The teachers here in vocational school are much more supportive. For example, yesterday we had a math test, and I didn't really understand much, but the teacher encouraged me to keep going so I could continue solving problems and writing (Meelis, age: 17, study field: IT specialist; at risk of dropping out, as identified by teachers)

Students´ stories emphasise that relations matter. In addition to relations with peers, teachers and other school staff tend to have crucial roles supporting students' coping at school.

4.2 Teachers´ Perceptions and Practices Aimed to Supporting Students´ Emotional Well-Being

Especially in the Estonian context, where there is a shortage of support staff, vocational teachers need to take the broader role in addition to teaching the occupation related skills and knowledge. According to the interviews with teachers, most of the interviewees recognized their responsibility to provide guidance and support to students facing various challenges and support students in a wider sense, including emotional support.

> I am both a support specialist and I am a teacher. This means that I perform both roles, and sometimes it can overlap. However, these roles are different. Perhaps I have now acquired more skills that I can apply to meet the needs of the students. In school, being the link between students and teachers, I can contribute to ensuring that teachers feel important. Sometimes we don't feel that teachers feel involved enough. (PG2Õ2)

However, according to them not all colleagues share the same understanding. Moreover, when this sense of mission is not supported by adequate resources or collaborative leadership, it can lead to burnout or frustration, as teachers feel they are carrying a heavy burden without sufficient institutional support.

And actually, where we ourselves as support staff, when we work, we must not forget ourselves, because burnout happens imperceptibly... The Ministry of Education should value support specialists more in vocational schools, and create more working positions, if possible, because we should be able to support each other in terms of burnout. It's like walking on very, very thin ice. "(EG4Õ1)

In this work, it is this sense of mission that carries forward. (EG4Õ3)

School leaders play a significant role in shaping and maintaining a supportive school culture. Our interviews revealed cases with more or less supportive and conscious school leaders, regarding contributing into professional development of the teaching staff to enhance student well-being and also the wellbeing of the staff members. Vocational teachers emphasised in several cases that leadership in their school should prioritize the well-being and mental health of teachers and support staff more as this is a prerequisite for teachers to be able to support students.

Our mental health is also not good; we would wish to be more included in decision-making processes, but they only do it superficially and don't really involve us. (PG2Õ4).

One of the aims of our study was to map good school level practices supporting emotional well-being. However, only a few good practices were shared by the staff members interviewed. This reveals that in most of the schools the well-being has not been considered as a central focus and not strategically supported in VET institutions. Some of the vocational schools contribute to building trust and positive relations between the students, organizing activities such as games and evening campfire talks, which promote social interactions, helping students make new friends and feel more connected. According to teachers, students who have participated in these activities show a sense of belonging and increased self-confidence. The two-year COVID-19 lockdown made it challenging to organize such activities, and according to teachers, it is more difficult to achieve the same positive results in regular classes.

For the past five years, we've had a tradition of a two-day freshman orientation camp, including an overnight stay at tourist farms. This camp, which helps students adapt quickly and safely, was canceled for the last two years due to COVID-19. The camp includes group leaders, teachers, and support staff who help freshmen overcome their initial fears. After the camp, students feel more confident and connected, greeting everyone and forming new friendships through activities like games and evening bonfire talks. The absence of the camp for two years has clearly affected the cohesion and confidence of the students. Teachers also find it difficult to achieve the same positive results in regular classes as they did during the camp. (PG3Õ3)

Moreover, teachers and vocational school support staff highlighted that the physical environment plays its role in supporting students' emotional well-being. Several group interviews mentioned the importance of creating a friendly, safe, and inclusive space. They envisioned having bean bag chairs where students could sit, relax, and talk to each other. In addition to the physical environment, the teaching approach applied by vocational teachers matters. For example, vocational teachers reflected on their practices. Teaching that applies the student-centered approach, where learning tasks are authentic and sufficiently complex, helps students develop their skills. Teachers emphasized that teaching should support key competencies such as self-regulation and problem-centered collaboration. Teachers considered coaching, rather than traditional teaching, to be a good practice, as it allows students to progress at their own pace and according to their needs. They stressed the importance of reflective dialogue with mentors, as

it helps students better understand their learning process and make informed decisions about their development. Nevertheless, the high workload often hinders teachers from applying those practices to the extent they would like.

5 Conclusions

The study identified several factors supporting or hindering wellbeing of vocational students. Interviews with students revealed that multiple interconnected challenges, such as bullying, poor relationships with teachers and peers, and learning difficulties, contribute to their vulnerability. They emphasized that relationships with family, teachers, and peers have an important role in their well-being, motivation, and self-esteem. Several students admitted feeling overwhelmed by loneliness, stress, depression, and anxiety, which not only hindered their school participation but also negatively affected their academic performance. Similar to the results of the earlier studies (e.g. Solberg et al. 2023), the students' stories clearly indicated that both in society at large and in (vocational) schools, significantly more attention needs to be paid to mental health issues, and a conscious contribution needs to be made to creating school cultures that support emotional well-being.

According to vocational teachers the supportive teacher-student relationships, a sense of belonging, and access to counselling services were key factors in promoting students' wellbeing, while heavy workloads, an unsupportive school environment, and a lack of mental health resources were significant barriers for teachers to support students. Vocational teachers emphasized their dual role as both educators and counsellors in supporting students' emotional wellbeing but faced challenges such as limited training, heavy workloads, and insufficient institutional support. While some felt confident in providing emotional support, others struggled due to a lack of resources and clear guidance. Despite increased awareness, issues such as inadequate support systems, high workloads and lack of mental health resources are of concern. Though some practices aimed to support wellbeing of students and build social bonds were shared by teachers (e.g. orientation camps and other events) no strategical school level approaches were identified.

The results indicate that school leaders have a decisive role supporting teachers´ professional development and providing needed resources (including time resources) in order to create school-level change and change in school culture valuing and supporting (emotional) wellbeing of students and teachers. Our study included vocational teachers who were interested in the topic and served as key figures potentially developing well-being-supportive practices within their vocational schools in the future. Teacher leadership is essential for implementing transformative change and ensuring sustainability. At the same time, the school leader has a critical role in creating supportive conditions for teachers to take the leadership, as well. (Wenner and Campell, 2017) Teachers' professional development communities (PLC) guide teachers collectively to reflect their practices and co-design a learning environment that supports students´ learning (Oppi & Eisenschmidt, 2022) and wellbeing. PLCs tend to be a more effective way to bring transformative change in teachers´ practices and students´ outcomes as compared to traditional short-term training courses (Burns et al., 2017). School leadership and increased institutional support are critical in fostering an environment that promotes student wellbeing, retention and success, but also professional development, motivation and wellbeing of the staff of vocational schools. Future research could focus on studying school leaders' views and perspectives on the issue.

References

Burns, M. K., Naughton, M. R., Preast, J. L., Wang, Z., Gordon, R. L., Robb, V., & Smith, M. L. (2017). Factors of Professional Learning Community Implementation and Effect on Student Achievement. *Journal of Educational and Psychological Consultation, 28*(4), 394–412. https://doi.org/10.1080/10474412.2017.1385396

Böhn, S.; Deutcher, V. (2021). Dropout from initial vocational training – A meta-synthesis of reasons from the apprentice's point of view. *Educational Research Review 35*(4),100414, https://doi.org/10.1016/j.edurev.2021.100414

Ministry of Education and Research. (n.d.). Vocational education. https://www.hm.ee/en/education-research-and-youth-affairs/general-education/vocational-education

CEDEFOP. (2016). Leaving education early: Putting vocational education and training centre stage. Volume I: Investigating causes and extent. Publications Office of the European Union. https://www.cedefop.eu-ropa.eu/en/publications/5557

Espenberg, K., Beilmann, M., Rahnu, M., Reincke, E., & Themas, E. (2012). Õpingute katkestamise põhjused kutseõppes. Tartu Ülikool. https://www.hm.ee/sites/default/files/opingute_katkestamise_pohjused_kutseop-pes.pdf

Haaristo, H.-S., & Kirss, L. (2018). Eesti kutseõppeasutuste tugisüsteemide analüüs: Olukorra kaardistus, või-malused ja väljakutsed tugisüsteemi rakendamisel katkestamise ennetusmeetmena. Praxis. https://www.hm.ee/sites/default/files/documents/2022-10/kutsetugi_raport.pdf

Hanley, T., Winter, L. A., & Burrell, K. (2020). Supporting emotional well-being in schools in the context of austerity: An ecologically informed humanistic perspective. *British Journal of Educational Psychology, 90*, 1–18.

Keyes, C. L. M. (1998). Social well-being. *Social Psychology Quarterly, 61*(2), 121–140.

Krötz, M., & Deutscher, V. (2022). Drop-out in dual VET: Why we should consider the drop-out direction when analyzing drop-out. *Empirical Research in Vocational Education and Training, 14*, 1. https://doi.org/10.1186/s40461-021-00127-x

Loogma, K., Ümarik, M., Sirk, M., & Liivik, R. (2019). How history matters: The emergence and persistence of structural conflict between academic and vocational education: The case of post-Soviet Estonia. *Journal of Educational Change, 20*, 105–135. https://doi.org/10.1007/s10833-018-09336-w

McLaughlin, C. (2008). Emotional well-being and its relationship to schools and classrooms: A critical reflection. *British Journal of Guidance & Counselling, 36*, 353–366. https://doi.org/10.1080/03069880802364486

Oppi, P., & Eisenschmidt, E. (2022). Developing a professional learning community through teacher leadership: A case in one Estonian school. *Teaching and Teacher Education: Leadership and Professional Development, 1*, 100011. https://doi.org/10.1016/j.tatelp.2022.100011

Sirk, M., Liivik, R., Ümarik, M., & Loogma, K. (2019). Kutseõpetajate professionaalse mälu roll õpilastega seotud muutuste kogemisel. *Eesti Haridusteaduste Ajakiri, 7*(1), 101–127. https://doi.org/10.12697/eha.2019.7.1.05

Solberg, S., Laundal, Ø., & Garrels, V. (2023). Scoping review of positive mental health research for students in vocational education and training. *International Journal for Research in Vocational Education and Training, 10*(2), 258–287. https://doi.org/10.13152/IJRVET.10.2.6

Stanton, A., Zandvliet, D., Dhaliwal, R., & Black, T. (2016). Understanding students' experiences of well-being in learning environments. *Higher Education Studies, 6*(3), 90–101. https://doi.org/10.5539/hes.v6n3p90

Roffey, S. (2012). Pupil wellbeing–Teacher wellbeing: Two sides of the same coin? *Educational and Child Psychology, 29*(4), 8–17. https://doi.org/10.53841/bpsecp.2012.29.4.8

Ümarik, M., & Rekkor, S. (2013). Diversification of students and professional roles of vocational teachers: Teach-ers' individual approaches to negotiate work identities. In J. Mikk, M. Veisson, & P. Luik (Eds.), *Change in teaching and learning* (Vol. 5, pp. 9–26). Peter Lang.

Wenner, J. A., & Campbell, T. (2017). The theoretical and empirical basis of teacher leadership: A review of the literature. *Review of Educational Research, 87*(1), 134–171. https://doi.org/10.3102/0034654316653478

Biographical Notes

Meril Ümarik (PhD in Sociology) is an Associate Professor of Educational Research at the School of Educational Sciences, Tallinn University. She has a long experience researching the field of VET (e.g. reforms in VET, adoption of innovations, teachers' professionalism)

Inna Bentsalo is PhD student and Junior Research Fellow at School of Educational Sciences, Tallinn University, Estonia. Her research interests involve vocational education and training, student well-being and mental health in education.

Skillful Enough? Examining National Skills Strategies in Times of Transition[1]

Unterweger, Daniel
daniel.unterweger@3s.co.at, 3s Research & Consulting (Vienna)

Steinheimer, Eva
eva.steinheimer@3s.co.at, 3s Research & Consulting (Vienna)

Abstract

Context: Education and skills have the potential to improve both economic performance and societal well-being, while tackling overarching challenges such as the twin digital and green transition. To realise this potential, an increasing share of countries have used strategic policy documents in the area of skills policy, colloquially called "skills strategies". However, despite this prominence, systematic approaches for comparing skills strategies and their implementation across countries are scarce.

Approach: In this report, we conduct a comparative analysis building on in-depth case studies of strategic policy documents on skills and their design and implementation processes in five countries: Austria, Bulgaria, England (UK), Germany, and Norway. By using a most different system research design, we identify the strategies' main benefits for the countries' skills systems and interrelatedly the effectiveness of their specific policy measures, as well as frequent barriers for implementation and the central success factors of such strategies.

Findings: The study shows that skills strategies which are encompassing the preferences of broader groups of stakeholders, adaptable to changing circumstances and internally consistent are particularly well suited to mitigate potential barriers for implementation.

Conclusion: The analysis suggests that while well designed skills strategies can trigger incremental, gradual institutional change by building foundations for policy coordination, reinforcing policy priorities and improving complementarity between individual policy measures, their potential for bringing about outright, disruptive institutional change is limited.

Keywords

Strategic policy documents, institutional change, skills policies

1 Introduction

Education and skills are central for both economic performance and societal well-being, in particular in the face of structural challenges as the twin digital and green transition. Often upon

---

recommendation of the OECD and the EU, an increasing number of countries use strategic policy documents[2] in order to improve their skill formation systems. They are usually seen as a tool to design and implement improvements of skills policies by coordinating policy-making across all stakeholders relevant over a longer period of time (OECD, 2019). Despite the prominence of such strategic approaches, "little is known about the effectiveness, results and impact of developing such strategies" (Working Group on Adult Learning, 2022), and systematic comparisons of skills strategies respectively lifelong learning (LLL) strategies and their implementation are still missing. In applied research literature and national monitoring and evaluation reports, the topic of strategic documents on skills has become more pronounced in recent years, however, not without shortcomings. Isolated analyses of individual strategies exist (Hefler et al., 2018; OECD, 2021; Unterweger, 2020), as well as reports that provide a cross-national, descriptive overview of existing national lifelong learning and skills strategies (Andriescu et al., 2019; European Commission et al., 2015, 2021; Working Group on Adult Learning, 2022). These accounts however do not attempt to provide broader lessons learned for the design and implementation of national skills strategies that would at least allow for "contingent generalization" across a "bounded population of cases" (Beach & Pedersen, 2016, p. 44). Most recently, OECD (2024) and Working Group on Adult Learning (2023) have used surveys and/or workshops among leading stakeholders of skills strategies to identify a set of policy recommendations assisting the further development of skills strategies. While these provide useful theoretical building blocks for further research to identify success factors of skills strategies, they paint an overly optimistic picture of what can realistically be achieved by means of strategic policy documents, and potential barriers for implementation remain relatively unexplored. Furthermore, existing academic literature on strategic policy documents (on skills and beyond) mainly focuses on technical factors for the success of strategic policy documents – e.g. internal consistency and coherence – but largely disregard political dynamics. However, as Steurer (2007) highlights, strategic policy documents often fail as they are "driven by some administrators who have limited political leverage, but who are not capable of shaping key policy decisions in line with the strategy objectives". A fruitful way forward, consequently, can be to "make strategies more strategic by explicitly dealing with the context of limiting polity structures, actors constellations and the ways public administrations work" (Steurer, 2007).

This paper addresses abovementioned research gap and summarizes the findings of Work Package 2 on Skills Policies of the Horizon Europe "Skill2Capabilities" project[3]. *Our main aim is twofold. First, we illustrate what can realistically be achieved via skills strategies, thereby providing the education and training as well as strategic public management literature with a pragmatic picture of strategies' main benefits and limitations. Second, by staying attentive to the broader context of strategy implementation, we aim to identify barriers for implementation, and provide broader lessons learned to mitigate these barriers.*

---

[2] Defined as "official policy documents […] that are usually issued by top-level authorities and set out specific objectives to be met and/or detailed steps or actions to be taken within a given time frame, in order to reach a desired goal". (European Commission, EACEA, & Eurydice 2021).

[3] A long working paper version of this article can be accessed online Report D2.3. Comparative Report on Skills Strategies, openly accessible here: https://www.skills2capabilities.eu/files/results/papers/working_papers_d2-3_s2c_d2-3_comparative_report_19_12_24.pdf

2   Methods and Case Selection

In our study, we conduct a comparative analysis of skills strategies and their design and implementation based on individual case studies in 5 countries[4]. The case studies cover at least two major skills strategies in Austria, Germany, Norway, Bulgaria and England (UK). This country selection covers the main types of skill formation systems (Busemeyer & Trampusch, 2012; Tutlys et al., 2022) present in Europe: collective systems (based on strong social partner involvement, employers as well as the state); statist systems (with the state primarily responsible for skill formation) ; liberal systems (with skill formation primarily left to market forces), as well as transitional/hybrid systems (combining multiple elements of the above). We cover different geographical regions within Europe (North, West, East) and countries of different sizes. Furthermore, we look at different adult learning systems concerning their participation rates (high, medium, low) and the extent of involvement of the state and employers in funding and providing adult learning (Boeren et al., 2017). In terms of research design and comparative strategy, by using "Mill's Method of Agreement" respectively the "most different system design" (Ragin, 1989), we ask what common benefits could be realized in the observed countries, and which factors in the design of the strategic policy documents on skills enabled the successful implementation - despite the chosen countries' large differences with regard to several other key characteristics. The same approach is applied for national skills strategies with a less successful implementation process: what are the common barriers that led to an only limited implementation of certain strategic policy documents, despite the countries' differences? In a complementary step, we can also compare successful and unsuccessful skills strategies within countries using "Mill's Method of Difference", therefore further facilitating the identification of key differences in design that led to success in implementation.

In general, many of the observed skills strategies focused mostly on incremental institutional change of the existing skill formation systems (cf. Mahoney & Thelen, 2010; Thelen, 2004) rather than fundamental, disruptive reforms. For example, in Austria, the *LLL:2020 Strategy (AT1)* strategy involved various improvements concerning learning over the whole lifespan starting with early childhood education to learning in the past-retirement phase and targets different policy areas including education and training, labour market, social affairs and economic policy. This also holds for the second Austrian example, the *Qualification Plan Vienna 2020 (AT2)* aiming to increase the number of individuals with educational attainments beyond compulsory schooling with a focus on IVET, upskilling of adults and information and outreach. Similarly, in Germany, the observed strategies were concerned about a large number of smaller scale changes, with the *Advancement through Education strategy* lining out goals in a broad range of fields from strengthening VET to German language acquisition and cooperation in the federal system; and the *National Skills strategy* (DE3) from 2019 focusing on a variety of (rather vaguely defined) measures to secure skilled labour. Also both Norwegian strategic papers fit into the category. The *Strategy for LLL in Norway* (NO1) from 2006 was primarily drafted by the Ministry of Education and containing rather an analysis of the state of play with no concrete implementation plan. The 2017 *Norwegian Strategy for Skills Policy* (NO2) built on a broader stakeholder process to further develop an already strong adult learning system by deepening cooperation between the various involved stakeholders (social partners, ministries, learning providers).

---

[4]   This paper builds upon empirical material of the country case studies conducted under Work Package 2 of the Horizon Europe Skills2Capabilities project (Report D2.1 & D2.2). The case studies have been authored by Svetlana Alexandrova, Pepka Boyadjieva, Philipp Grollmann, Günter Hefler, Terence Hogarth, Petya Ilieva-Trichkova, Veneta Krasteva, Tove Mogstad Aspøy, Daniel Neff, Torgeir Nyen, Chantal Marie Schumacher and Eva Steinheimer.

Ambition for outright, fundamental, disruptive changes can mostly be identified in the skill strategies of Bulgaria and the England. Both Bulgarian LLL strategies (2008-2013, 2014-2020) adopted a strategic approach that covers a broad range of educational fields, with highly ambitious objectives tied to quantitative indicators. They aimed to address structural problems in the Bulgarian adult learning system to increase participation by adopting the EU concept of LLL and following up on European policies on skills and key competence. Among other goals, this included the ambition to move closer towards a collective skill formation system with considerable employer involvement in the provision of (dual) VET. Similarly, both strategies in England aimed to transition towards a demand-led skill formation system following enterprises' needs, albeit with quite divergent approaches for achieving this. The *Leitch Review of Skills (UK1)*, focused on government subsidies for companies and also developed support for the low-skilled. In contrast, the subsequent *Skills and Sustainable Growth* white paper (UK2), published in the aftermath of the financial crisis and accompanying an economic policy of austerity, focused funding (cutbacks) and directing more funding responsibility towards employers and individuals.

Figure 1

Evolvement of analysed strategies over time
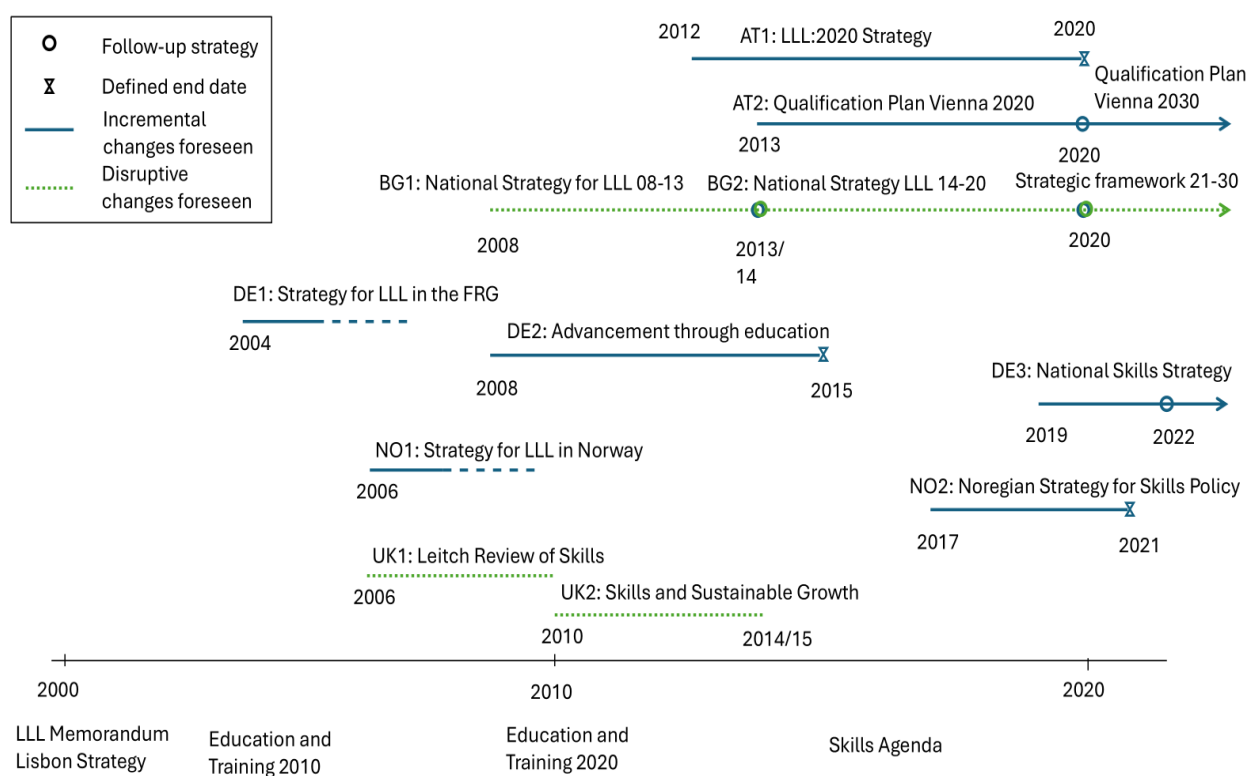
Note. Source: Authors' description

3   Benefits and Limitations of Skill Strategies

The cross-country comparative analysis of abovementioned strategic policy documents and their implementation shows that skills strategies can hardly act as a golden bullet for the reform of skill formation systems. Even for the countries that aimed for large-scale reforms, the observed skills strategies did not lead to outright, disruptive changes of the overall skill formation systems. The subsequent implementation process remained limited and therefore could not

cause such outright, transformative change, as in Bulgaria and England. This for example includes the "Train to Gain" training advice and subsidies programme for employers in England. Backed by a critical evaluation, the programme was abolished by an incoming government deciding that the money could be better spent elsewhere. The later proposed the broader concept of strengthening co-investments in skills (e.g. sharing costs paying for training among employers, individuals and the state) relied on the introduction of sectoral training levies proposed in the strategy, but would have necessitated cooperation with employer representatives and therefore never materialized[5]. And in the other cases, skills strategies were limited in terms of far-reaching, large-scale reform ideas (as in Austria, Germany and Norway) from the outset.

However, first, skills strategies have led to the implementation of at least some rather successful skills policy instruments or established new channels of coordination that build the foundation for later reforms. As shown in historical institutionalist literature, also such initial smaller-scale changes have the potential to ultimately accumulate up to large-scale changes via a process of incremental, gradual institutional change (Mahoney & Thelen, 2010; Streeck & Thelen, 2005). For example, in Norway, the 2017 strategy document is regarded as successful in particular due to the coordination process that was necessary for developing it. It was seen as essential to involve all actors in skills policy to achieve a joint understanding of challenges, set common objectives and coordinate action. It therefore not only reinforced existing communication channels (e.g. among social partners within a certain educational sector) but aimed to achieve improved coordination across multiple educational types and levels.

Laying the groundwork for coordination can also facilitate processes related to the introduction of new instruments and prevent reform-deadlocks, as the case study on Austria shows. It argues that the "LLL:2020 strategy has been most effective in the years prior to its adoption", with the preparation process raising awareness of the need for collaboration across and triggering a process of stock taking and subsequent policy innovation that elicited novel initiatives. Even though the strategy lost most of its formative power later in its life cycle, substantial progress could be achieved via several of its implemented policy measures, for example the implementation of "*Level UP – Adult Education*" (formerly known as the Initiative for Adult Education until 2023). The initiative profited from being developed and implemented alongside the preparatory work and later the coordinative framework of the LLL:2020 strategy, which brought together the relevant stakeholders for its implementation, facilitating smooth knowledge transfer and providing common overarching goals for the design of the instrument: adult (basic) education as a means for personal development, social integration, and empowerment on top of economic and labour market effects. Similarly, the Qualification Plan Vienna substantially smoothed the implementation of later follow-up instruments. The swift implementation of the "Vienna Weeks" (an outreach programme for lifelong learning and guidance) was made possible by prior groundwork achieved under the coordinative framework of the strategic policy document and built on long-existing regional cooperation.

Second, the case studies have shown that skill strategies might improve the interplay between smaller sets of relevant skills policy measures by making them mutually reinforcing and/or avoiding duplications of efforts. For example, in Bulgaria, the inclusion of the "Adult Learning Literacy Programme" in the *National Strategy for Lifelong Learning* (2008-2013, 2014-2020) enabled coordinated reforms across interconnected sectors of the adult learning system, which led to further developments in the underlying legal framework. More specifically, this included enhancing the legal framework for legitimising literacy, certifying learning

---

[5]   A levy was introduced only seven years after launch of the strategy, and with a substantially different (national-level) design than originally foreseen.

outcomes, and validating non-formal and informal learning. Additionally, it facilitated the introduction of the follow-up initiative "Training of adults undergoing literacy courses", aimed at increasing the employment prospects of unemployed individuals who successfully completed literacy courses and met the educational requirements for entry into vocational training, with particular focus on youth. Also in Austria, the beforementioned "Vienna Weeks" were designed as an instrument to implement the objectives of the Vienna Qualification Plan 2020. One of the main success factors of the Vienna Weeks framework is its complementarity with other regional and local (outreach) activities of the Vienna Employment Promotion Fund and the participating partner organisations.

Third and finally, skills strategies served as reference points that help involved stakeholders to push forwards reforms, providing justifications in favour of the introduction and/or funding of specific policy instruments. In the case of Norway, the *National Strategy for Skills Policy* facilitated the integration of skills policies into other policy fields, most importantly migration and integration policy. It served as an important driver for the embeddedness of career guidance in the *Integration Act* of 2021, which introduced the right and duty for refugees to participate in career guidance (see further above). In Bulgaria, the *National Strategies for Lifelong Learning* acted as a common reference point in which policy instruments are normatively justified and financially secured upon the commitment of all relevant stakeholders (state institutions, NGOs, employers, trade unions). Similarly, in Germany, the case studies suggest that the integration of the "Bildungsprämie" (a further education voucher for individuals) in the national strategies increased its visibility and access to funding. Also the "ValiKom" project (2015) that piloted approaches for the validation of non-formal and informal competences was included in the *National Skills Strategy*, and its transformation into a fully-fledged legal framework for validation was foreseen in the revised Skills Strategy in (2022) and finally implemented in 2024.

In sum, while it may be true that strategic policy documents sometimes follow a "political logic that coopts policies that would have been formulated anyway" (Nordbeck & Steurer, 2015), skills strategies can certainly *improve* skills policy-making by building foundations for policy coordination and facilitating change, increasing complementarity between policy measures and reinforcing policy priorities among decision-makers.

4 Success Factors for Strategic Policy Documents on Skills

Cross-country comparative analysis suggests that benefits identified above cannot be taken for granted. Barriers external to the strategy process like government changes, socio-economic shocks, and complexities arising from multi-level systems of government have shown great disruptive potential for the implementation of strategic policy documents. Also, barriers internal to the strategic process, like misalignments between strategies' goals, indicators and actions and misalignments of strategy goals with a specific country context can disrupt implementation. A detailed discussion of how these barriers influenced the implementation of the strategies can be accessed in the full version of the report.

However, our analysis shows that these barriers can also be mitigated. First of all, in particular strategies that encompass the priorities of broader groups of stakeholders are better suited to withstand external disruptions. Skills strategies can be built upon the agreement of social partners (employer associations and labour unions), which in many skill formation systems take over substantial semi-public functions in the governance of skills systems (e.g. training administration, standardization, reform, provision) (Busemeyer & Trampusch, 2012; Emmenegger et al., 2019; Streeck & Schmitter, 1985). Due to their proven expert knowledge, social partners are often seen as the most appropriate actors informing reforms in this policy area (Culpepper, 2011), consequently future governments might be more likely to refrain from

jeopardizing a given skills strategy if it is built upon broad agreement by social partners. Interconnectedly, skills strategies can be designed so that they emphasise goals and policy measures that are accepted across the political landscape. Parties of the political left often prioritize social, personal and human development goals, while parties with economically right-wing positions usually prioritize economic efficiency in skills policy making (Busemeyer, 2015; Carstensen et al., 2021; Carstensen & Ibsen, 2021). For example, a given strategy might focus on goals and actions that do not only have primarily economic aims – i.e. matching skills provided to the demands of firms - but simultaneously also try to create positive effects for social inclusiveness, democratic participation, or individuals' overall well-being. Such a more balanced strategy can resonate with decision-makers also after changes in government.

For example, in Germany, the National Skills Strategy was launched in 2019 under a grand coalition led by Christian Democrats (CDU) together with social democrats (SPD), but has been renewed in 2022 by the a new social-liberal government led by social democrats (SPD), together with the market-liberals (FPD) and the left-wing Green Party. From the beginning, the National Skills Strategy had been created under the lead of the relevant federal ministries together with "strategy partners": the public employment service, representatives of the federated states as well as the social partners and key experts. Also the Norwegian Strategy for Skills Policy (2017-2021) can be considered as a particularly encompassing strategy. Even though the conservative party continued leading the government after the 2017 election, the government's junior partners for the new legislative period changed, and so did lead-positions in the involved ministries (Ministry of Economy, Ministry of Education, Ministry of Labour and Social Affairs). Despite these fluctuations, the strategy remained highly relevant across its whole foreseen lifecycle, with a key facilitator for the successful implementation of the strategy being involvement of the social partners (and other stakeholders) in the strategy process (in particular the central Skills Policy Council) which gave a common understanding and committed both government, regional government and the social partners to its implementation.

Second, if the governance structures of the strategic policy documents' implementation process ensure a certain degree of adaptability (e.g. via foreseen update points), skills strategies can be more easily be adapted to reflect changing external circumstances without derailing the whole strategy process. For example, in the case of the German National Skills Strategy, the original strategic policy document introduced in 2019 under a conservative-led government already scheduled a designated update for the year 2020 – in parallel to the foreseen federal elections. This in-built opportunity, namely to use preexisting coordination channels between the different stakeholders already fostered in the strategies' first phase while being able to refine further implementation according to new preferences, was seized by the newly elected social-democratic-green-liberal government. The Norwegian Strategy for Skills Policy (2017-2021) set up a joint committee responsible to "follow-up" on the implementation of the strategy, the "Skills Policy Council". In this council, the strategy partners themselves had substantial leeway in the design and implementation of the respective policy measures, even though the main overarching strategic policy document officially remained unchanged. Plans could be adapted, for example in the face of the Covid-19 pandemic, with eight additional tripartite training programmes for skills development launching in 2020 and 2021, to deal with the growing number of laid-off workers and workers who had lost their jobs. Also in the case of the Qualification Plan Vienna (2013 – 2020) (Austria), periodic meetings of a steering committee served as a platform for discussing the ongoing implementation progress, addressing emerging challenges (distortions in the aftermath of the pandemic, an increase of incoming refugees), and collaborating on further enhancements of the strategy.

Third and finally, skills strategies that ensure consistency in the face of external and internal pressures - that is complementarity between their overall goals, suitability of policy instruments designed to achieve these goals, and clearly assigned responsibilities for implementation

- appear as particularly resilient. Such consistency can be facilitated by a well-designed monitoring process of strategy implementation with concrete feedback loops. For example, in Norway, process monitoring had been applied directly by the Skills Policy Council under the lead of the (Deputy) Minister of Education, to which each strategy partner had to report planned actions and progress on implementing them. In the case of the Qualification Plan Vienna (2013 – 2020), the strategies' central steering committee met regularly, overseeing developments within the set process, outcome and trend indicators. As this steering committee was composed of representatives of strategy partners with real decision-making power, they could act upon the results provided by the monitoring process and therefore, ensuring consistency of overall goals with the foreseen policy measures by amending the original strategy as deemed necessary.

5   Conclusion

Strategic policy documents can easily appear as a panacea to achieve progress in a policy field shaped by complex governance structures, with a multiplicity of different actors at multiple government levels involved in provision, financing, reform and day-to-day administration. Cross-country comparative analysis suggests that during their foreseen lifecycle, skills strategies can encounter a wide range of different barriers for implementation. Our study shows that skills strategies which are encompassing, adaptable and consistent are particularly well suited to mitigate potential barriers for implementation. However, skills strategies can hardly act as a golden bullet. None of the observed skills strategies were fully implemented, and many skills strategies remained rather limited in the extent to which they aimed for far-reaching, large-scale reforms of the overall skill formation system. In particular in political-economic contexts where abrupt, disruptive reforms are striven for by decision-makers (as is often the case in liberal or transitional skill formation systems that are deemed to be "underperforming"), strategic policy documents might be the wrong "tool" to bring about such change. After all, strategic policy documents formulate long-term (i.e. *strategic*) plans for the further development of skill formation systems that stretch across electoral cycles, and encompassing strategies resting on compromise positions appear better suited to withstand governmental changes. It might be hard to find consensus for fundamental disruptive changes across the partisan divide, making strategic policy documents aiming for such change particularly fragile across electoral cycles.

However, despite the often limited extent to which they could be implemented, it would be unwarranted to call for an overall abandonment of strategic policy documents as an overall approach to policy-making. Many of the observed skills strategies have contributed to the success of at least some policy instruments in the area of skills policies, or have newly established channels of coordination that build the foundation for later reforms. As shown in historical institutionalist literature, also initial smaller-scale changes have the potential to ultimately accumulate up to large-scale changes via a process of incremental, gradual institutional change (Mahoney & Thelen, 2010; Streeck & Thelen, 2005). The respective strategy processes were often able to mitigate reform deadlocks related to the introduction of new policies, increased complementarity between policy measures, and reinforced policy priorities among decision-makers.

The barriers for the implementation of skill strategies and means to mitigate them identified in this study can in turn help policy-makers "make strategies more strategic by explicitly dealing with the context of limiting polity structures, actors constellations and the ways public administrations work" (Steurer, 2007). Providing lessons learned that go beyond the observed country case studies, these insights can support the development of the next generation of skills strategies, and feed back into the broader literature on strategic public management and other policy domains where strategic policy documents are applied, including sustainable development, environmental planning, social policy and healthcare reform (Rayner & Howlett, 2009).

References

Andriescu, M., Broek, S., Dohmen, D., Molyneux, J., & Ravenhall, M. (2019). *Adult learning policy and provision in the member states of the EU*. Publications Office of the European Union.

Beach, D., & Pedersen, R. B. (2016). Causal case study methods. Foundations and guidelines for comparing, matching and tracing. University of Michigan Press.

Boeren, E., Whittaker, S., & Riddel, S. (2017). Provision of seven types of education for (disadvantaged) adults in ten countries: overview and cross-country comparison. . ENLIVEN Deliverable report 2.1.

Busemeyer, M. R. (2015). Skills and inequality. Partisan politics and the political economy of education reforms in western welfare states. Cambridge University Press.

Busemeyer, M. R., & Trampusch, C. (2012). The comparative political economy of collective skill formation. In M. R. Busemeyer & C. Trampusch (Eds.), *The political economy of collective skill formation* (pp. 3-38). Oxford University Press.

Carstensen, M. B., Emmenegger, P., & Unterweger, D. F. (2021). Statism on employers' terms: The politics of inclusiveness in Austrian and Danish vocational education institutions. In *27th International Conference of Europeanists*.

Carstensen, M. B., & Ibsen, C. L. (2021). Three dimensions of institutional contention: efficiency, equality and governance in Danish vocational education and training reform. *Socio-Economic Review*, *19*(3), 1037–1063. https://doi.org/10.1093/ser/mwz012

Culpepper, P. D. (2011). *Quiet politics and business power : corporate control in Europe and Japan*. Cambridge University Press. http://aleph.unisg.ch/hsgscan/hm00399504.pdf

Emmenegger, P., Graf, L., & Trampusch, C. (2019). The governance of decentralized cooperation in collective training systems. *Journal of Vocational Education & Training*, *71*(1).

European Commission, EACEA, & Eurydice. (2015). Adult learning and training in Europe: Widening access to learning opportunities. Eurydice report. Publications Office of the European Union.

European Commission, EACEA, & Eurydice. (2021). Adult education and training in Europe: Building inclusive pathways to skills and qualifications. Euridyce Report. . Publications Office of the European Union.

Hefler, G., Luomi-Messerer, K., Steinheimer, E., & Wulz, J. (2018). Wissenschaftliche Begleitung und Monitoring der Österreichischen Strategie zum lebensbegleitenden Lernen.

Mahoney, J., & Thelen, K. (2010). A theory of gradual institutional change. In J. Mahoney & K. Thelen (Eds.), *Explaining institutional change: Ambiguity, agency, and power* (pp. 1-37). Cambridge University Press.

Nordbeck, R., & Steurer, R. (2015). Multi-sectoral strategies as dead ends of policy integration: Lessons to be learned from sustainable development. *Environment and Planning C: Government and Policy*, *XX*, 1-19. https://doi.org/doi: 10.1177/0263774X15614696

OECD. (2019). *OECD Skills Strategy 2019*. OECD Publishing. https://doi.org/doi:https://doi.org/10.1787/9789264313835-en %U https://www.oecd-ilibrary.org/content/publication/9789264313835-en

OECD. (2021). *Continuing education and training in germany* (Vol. Paris). OECD Publishing.

OECD. (2024). *Insights from skills strategies in the European Union*. https://doi.org/doi:https://doi.org/10.1787/0bf9e78e-en

Ragin, C. C. (1989). The comparative method : moving beyond qualitative and quantitative strategies. University of California Press.

Rayner, J., & Howlett, M. (2009). Introduction: Understanding integrated policy strategies and their own evolution. *Policy and Society*, *28*(2), 99-109. https://doi.org/https://doi.org/10.1016/j.polsoc.2009.05.001

Steurer, R. (2007). From government strategies to strategic public management: An exploratory outlook on the pursiut of cross-sectoral policy integration. *Diskussionspapier/ Discussion Paper 1-2007*, *17*(3), 201-214. https://doi.org/https://doi.org/10.1002/eet.452

Streeck, W., & Schmitter, P. C. (1985). Community, market, state-and associations? The prospective contribution of interest governance to social order. In W. Streeck & P. C. Schmitter (Eds.), *Private interest government: Beyond market and state* (pp. 1-29). Sage.

Streeck, W., & Thelen, K. (2005). Introduction: Instiutional change in advanced political economies. In W. Streeck & K. Thelen (Eds.), *Beyond continuity. Institutional change in advanced political economies*. Oxford University Press

Thelen, K. (2004). How institutions evolve: the political economy of skills in Germany, Britain, the United States, and Japan. Cambridge University Press.

Tutlys, V., Markowitsch, J., Pavlin, S., & Winterton, J. (2022). Skill formation in Central and Eastern Europe. A search for patterns and directions of development. Peter Lang.

Unterweger, D. F. (2020). Norway's skills policy council and future skills needs committee. In Oecd (Ed.), *Strengthening the governance of skills systems: Lessons from six OECD countries.* (pp. 102-121). OECD Publishing.

Working Group on Adult Learning. (2022). Background report PLA on national skills strategies, 20-21 October 2022. European Commission.

Working Group on Adult Learning. (2023). Findings report PLA on national skills strategies (20-21 October 2022, Brussels). Publications Office.

Biographical Notes

Dr Daniel Unterweger is senior researcher, consultant and team leader at 3s Unternehmensberatung GmbH (Vienna). He is specialized in cross-country comparative research on the political economy of skill formation systems. Together with Dr. Jörg Markowitsch, he coordinates the large-scale, international research project "Skills2Capabilities" (Horizon Europe).

Mag.a Eva Steinheimer is senior research and consultant at 3s Unternehmensberatung GmbH (Vienna). Since 2017, she has been working at 3s in national and international research projects on lifelong learning, workplace learning and adult education policies.

Teachers' Social Representations in Vocational Education: Challenges Concerning the Axes of Self-Determination Theory—Learning Autonomy, Competences, and the Teacher-Student Bond

Vecina-Merchante, Carlos
carlos.vecina@uib.es, University of the Balearic Islands

Pinya-Medina, Carmen
carme.pinya@uib.es, University of the Balearic Islands

Garcia de Olalla Gutierrez, Arturo
a.garcia-de-olalla@uib.cat, University of the Balearic Islands

Adame Obrador, Teresa
teresa.adame@uib.es, University of the Balearic Islands

Abstract

Context: This study analyses the vocational training teachers' social representations of their role through Self-Determination Theory, focusing on student autonomy, student and teacher competences, and teacher-student relationships. Methods: A qualitative analysis was conducted using two focus groups (N=20) in a Vocational Training centre in the Balearic Islands, Spain. Data were analysed through discourse analysis using Atlas.ti 9. Results: Teachers perceive systemic challenges, including inadequate student preparation, low motivation, and misalignment between education and labour market needs. Two perspectives emerge: one emphasizing holistic student development and another focused solely on job-specific training. Conclusions: The results highlight contradictions between the social role expected of teachers as educators and the practical constraints they face. Teachers feel unprepared to address students' motivation and autonomy, leading to frustration and a decrease in self-perceived competence. At the same time, they represent a social and educational reality that exceeds their possibilities of action and goes beyond the roles they consider themselves to have.

Keywords

social representations, teaching innovation, self-determination theory, vocational education and training, student motivation

1 Introduction

The theory of self-determination proposes the existence of a causal relationship between the satisfaction of three basic psychological needs: social and collaborative relationships, autonomy in the performance of tasks and the feeling of being competent, the result of which affects the psychological well-being of the person and his degree of motivation to perform a task. A fact that affects better professional performance (Ryan & Deci, 2000). The analysis of

the triad of interrelations of these three axes allows the development of partial theories that expand a holistic framework of relationships between internal variables and contextual factors of great influence on the individual (Stover *et al*., 2017).

The sub-theory of organic integration presents a continuum from non-regulation of behaviour and demotivation to intrinsic regulation and motivation (Litalien *et al*, 2017). In this one is a point characterized by integrated regulation and an extrinsic motivation that is practically imperceptible. In this case, the subject's behaviour is a consequence of what is socially expected of him.

Another sub theory, that of cognitive assessment, links social and contextual factors with the degree of intrinsic motivation. The positive inputs that subjects receive increase their motivation when they feel competent (Ryan & Deci, 2020). Social feedback models behaviours to conform to what is socially expected (Schunk & Dibenedetto, 2020).

Teachers are influenced and pressured by what is socially expected of their role. This affects the loss of intrinsic motivation for teaching, as they lose part of their autonomy in their decisions (Pelletier *et al*., 2002).

The barriers that arise in their teaching practice reduce their chances of expected success, negatively affecting their self-perception of their competencies and expectations of success in their educational work. (Fernet *et al.,* 2012). The impact of the context influences the self-representation of teachers and their competencies to take on the challenges of teaching (Brenner, 2022).

Social representations are mental schemes that allow ordering and objectifying ideas about a perceived and represented universe, shared by subjects to face social contradictions. Its content is configured from lived or perceived experience, socialization and its sociocultural models (Jodelet, 2019). It is an appropriate field of analysis to see how the teacher "faces and seeks to adapt to the processes of change and social phenomena that influence his professional practice." (Suárez & Robles, 2021, p.13) and to see if the social representations of their teaching function influence the representation of their professional competence. Teachers feel more or less competent, depending on the representation they have of their professional performance (Nolkemper et al, 2019).

This work aims to delve into the social representations of Vocational Training teachers about their teaching function, considering an analysis from the theory of Self-Determination (SDT). It is interesting to delve into the social representations that teachers have about each of the axes of SDT, derived from their teaching experience and ultimately about motivation, since this theory proposes the relationship between these elements and the motivation that teachers can generate in students, and their own motivations in this relationship with their teaching and professional practice.

Research questions:

What social representations do teachers have about the axes of SDT and motivation, like a consequence of their impact on students? What is the social representation of your teaching function in this theoretical-practical context?

This is a research carried out within the framework of the project 'Teaching practice and prevention of early dropout in Vocational Training: An empirical approach and intervention proposal'.[1]

---

[1] This is a research carried out within the framework of the project 'Teaching practice and prevention of early dropout in Vocational Training: An empirical approach and intervention proposal.

2 Method

For the development of this research, 2 focus groups have been analysed, corresponding to a Vocational Training centre in the Balearic Islands (Spain), with a total of 20 participants. The composition of the groups has been heterogeneous and balanced, according to sex, professional family and years of experience. The development of the empirical work has been developed during the 2023/24 academic year. The script applied in the focus groups has been made up of questions or issues to be discussed in the group, on the three elements of SDT and motivation. Each of these with different thematic subsections to favour a discourse more focused on particular nuances. For the design and development of the focus groups, the indications proposed by Flick (2018) have been followed. The categories of analysis correspond to the following main nodes: motivation (of teachers and students), teacher-student bond relationships; autonomy of students, competences for the performance of tasks (of teachers and students). The discourse analysis techniques used could be framed in a mixed strategy, combining qualitative content analysis, in terms of comparison, contrast and contradictions that arise in the different contributions, and critical discourse analysis, used at moments of greater depth in the analysis (Ballestín & Fàbregues, 2018). It is a question of appreciating the way in which the subjects position themselves with respect to their way of representing reality from a position of symbolic power, as teachers and with a social and formative function to be developed. For the categorization and analysis of the discursive content, the Atlas ti.9 software has been used.

3 Results

The following is an analysis of the discourse organized on the three axes of the SDT: The autonomy of the students in carrying out their tasks, the competences in the performance of these tasks (both in the case of students and teachers) and the relationships between them. Finally, a brief allusion is made to motivation, as this is the element that the theory considers to be the result of the interaction of its three axes.

3.1 Student Autonomy

Teachers are concerned and have mixed feelings about the lack of autonomy of the students. He considers that it has very little or even, in some cases, no autonomy. Their learning depends excessively on the instructions they are given and that contradicts what they will find in the world of work. Teachers think that it is a learning process that they are not able to transmit. They consider that their function, in this case, is to train students to have autonomy in the workplace, but they do not know what tools they can use to ensure that this competence is acquired effectively. They distrust their results, they think that there is a gap between what the education system and teaching itself offers (teaching practices conditioned by the curriculum, pedagogical methods, etc.) and the reality they will face, that is, the real needs of the labour market. Their function should be in accordance with the world of work, but this is not the case in practice, because teaching is not capable of facilitating this competence of autonomy in the performance of tasks. In short, the curriculum, pedagogical methods and teaching conditions do not always facilitate the development of autonomy, which generates a sense of powerlessness among teachers.

3.2 Student Competences

With regard to the students' skills, a series of elements considered key by teachers appear about the low skills of students and their difficulties in acquiring new ones. It is continuously attributed to a lack of previous academic and transversal skills. A conditioning factor that makes it difficult to improve their formative learning.

One of the main criticisms of this fact is directed towards educational guidance in Secondary Education. Teachers consider that it is the education system and the indiscriminate referral to professional training of those students with low results in Secondary Education, which generates this funnel, with negative consequences for students and teachers, as this has a very negative impact on the result of their educational-training function. Teachers are very critical of this fact, as their capacity as teachers is socially questioned, given the low results obtained and the high percentage of dropouts. This same circumstance ends up influencing students, who are unable to follow the training process, as a result a feedback process is generated with negative consequences: low previous skills make it difficult to acquire new learning and their motivation is drastically reduced.

3.3 Teacher Competences

Teachers are considered competent in the professional subjects for which they are prepared by their career (academic, professional or both), knowledge in accordance with their function of transmitting the appropriate and necessary knowledge for specific professional skills, related to a speciality and job category. The problem arises when they are assigned to practice in a specialty or training module for which they do not have training. This generates a serious problem for them and calls into question their competences in terms of the content and knowledge to be transmitted. They consider that this affects their credibility and makes it difficult to fulfil their teaching role. In addition, it forces them to work hard to adapt to the new modules, of which they sometimes do not have sufficient skills and knowledge.

The competences that they assess as insufficient are those linked to the academic and training needs of the students, prior to joining the Vocational Training centre, among other things because they consider that these circumstances put the results of their teaching action at risk and because they consider that it is not their functions to prepare students in content and skills that they should have previously. These include aspects such as the social skills necessary for future incorporation into a job. Herein lies one of the key points about the social representations of teachers with respect to their competences. They do consider themselves competent to transmit knowledge about professions in which they are trained. Although they are not so clear when the needs of the students are basic knowledge and social skills. On this point, teachers are clearly very critical, as they believe that the Vocational Training system includes other functions that they attribute to teachers, when they should be carried out by other technical professionals or at other times prior to entering a training centre.

Another key aspect in the social representation of teachers is the distinction between their function as technical trainers and their possible pedagogical role. Here two different positions are observed on their function and the consequent powers to be assumed:

A group of teachers with a more pedagogical vision, who consider that their function is not only to transmit technical knowledge, but also to promote the comprehensive development of students, including transversal competences and social skills.

At the other extreme, there is another group of teachers with a more technical approach, who understand their role as specific training for the performance of a profession, without assuming additional responsibilities that have to do with the motivation or comprehensive training of students. They consider that this is the responsibility of the students or of the education and socialization previously received.

This differentiation has an impact on the way teachers perceive their work and how they face educational and training challenges.

3.4 Relationships and Bonding

Teachers agree on the importance of creating a teacher-student bond. Although sometimes they see it more from a romantic approach, extracted from an ideal and a relationship that would place the teacher as a mentor. 'The teacher is a positive role model who pampers the students and gives them ideas. He is attentive to their needs...' (BVT teacher, School 2). The reality is far from this ideal, as it is frustrated by students who reject training, or who arrive at it with a wrong idea and when they see everything they have to study, they develop a counterculture towards the teacher, the school and the training they offer. 'Sometimes I feel like a clown, a comedian, because if you don't entertain them, they can't motivate themselves. (MVT teacher, school 1) 'It's as if we were entertaining them because in reality there are those who have no vocation for the profession or for training. (BVT teacher, school 1). 'They don't know what to study and they enrol wherever they can, out of 25 I only have 5 students left in class (...) they end up unmotivated, they reject the theoretical classes, in the end they reject the training and drop out'. (MVT teacher, centre 2).

3.5 Motivation

Finally, it should be noted that students' motivation is affected by different factors: because the training offer or pedagogical methodologies do not meet their expectations, the previous academic level is not adequate, they are in a complex social context, etc. Teachers are demotivated by the lack of results, by the fact that they consider that they are not fulfilling their teaching function for reasons external to it, etc. The result is that the three basic needs that SDT contemplates to increase intrinsic motivation are at a point full of contradictions that affect the ability to work from teaching to favour an increase in student results and a greater degree of satisfaction in both actors (teachers and students).

4 Conclusions

Teachers present negative social representations about the Vocational Training system and the students, which results in a contradiction between what is considered their social function as trainers for a profession, the difficulties for it to have results and the functions they are forced to assume. The discourse revolves around two positions: a more pedagogical teaching staff that advocates comprehensive training, among which would be the promotion of transversal skills and work promoting the three axes of the SDT: bonding, autonomy and promotion of the students' skills, in all their dimensions and, on the other hand, those teachers who are inserted in a model of company trainer (usually those who come from the world of work and not so much of the academic) that considers their functions strictly formative in direct competencies for work performance. This second group does not consider to the same degree the support for students to act on the three axes of the SDT. In general, its position is based on the following factors:

A Vocational Training system that, together with the Secondary Education guidance departments, directs students with the greatest difficulties towards this offer, without adequately informing them, frustrating their future opportunities and making teaching work difficult. Directing them to studies that, on many occasions, do not correspond to their concerns and abilities.

Students with insufficient basic skills (educational and social), especially in Basic Vocational Training. Lacking interest, motivation and with objectives that do not correspond to the training offered, nor to the pedagogical methodologies used. He considers that his responsibilities to promote the motivation of students are limited, in other cases he considers that he is a technical professional lacking pedagogical and social skills, to respond to the needs of the students, and it is even questioned that this corresponds to his functions. It states that autonomy must be an inherent competence of the students; He gives importance to the teacher-student

bond, as a weighty element, but blames the education system, early dropout and overcrowding as a barrier to positive effects. Teachers feel unaccompanied in this process, without the capacity for autonomy due to overcoming contextual circumstances and with their competencies questioned, by themselves and by society, in the face of the results in early dropout and in the performance of students. Facts that generate dissatisfaction and low motivation, calling into question the definition of their social and educational function.

References

Ballestín, B. & Fàbregues, S. (2018). La práctica de la investigación cualitativa en ciencias sociales y de la educación. Universitat Oberta de Catalunya.

Brenner, C.A. (2022). Self-regulated learning, self-determination theory and teacher candidates' development of competency-based teaching practices. *Smart Learning Environments*, *9*(1), 1-14. https://doi.org/10.1186/s40561-021-00184-5

Fernet, C., Guay, F., Senécal, C., & Austin, S. (2012). Predicting intraindividual changes in teacher burnout: The role of perceived school environment and motivational factors. *Teaching and Teacher Education, 28*(4), 514–525.

Flick, U. (2018). *Designing qualitative research*. Sage Publications.

Jodelet, D. (2019). Représentations sociales. In C. Delory, C. (Dir.), *Vocabulaire des histoires de vie et de la recherche biographique* (pp.143-146). Érès Éditions.

Litalien, D., Morin, A.J.S., Gagne, M., Vallerand, R.J., Losier ,G.F., & Ryan, R.M. (2017). Evidence of a continuum structure of academic self-determination: A two-study test using a bifactor-ESEM representation of academic motivation. *Contemporary Educational Psychology*, *51*, 67-82.

Nolkemper, D., Aydin, H., & Knigge, M. (2019). Teachers' stereotypes about secondary school students: the case of Germany. *Qual Quant*, *53*, 69-89.   https: //doi.org/10.1007/s11135-018-0723-8

Pelletier, L.G., Séguin, C., & Legault, L. (2002). Pressure from above and pressure from below as determinants of teachers' motivation and teaching behaviour. *Journal of Educational Psychology*, *94*(1), 186-196. https://doi.org/10.1037/0022-0663.94.1.186

Ryan, R.M., & Deci, E.L. (2000). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. *American Psychological Association*, *55*(1), 68-78. htpp://doi.org/10.1037110003-066X.55.1.68

Ryan, R.M., & Deci, E.L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, *61*, 1-11. https://doi.org/10.1016/j.cedpsych.2020.101860

Schunk, D.H., & Dibenedetto, M.K. (2020). Motivation and social cognitive theory. *Contemporary Educational Psychology*, *60,* 1-10.
      https://doi.org/10.1016/j.cedpsych.2019.101832

Stover, J.B., Bruno, F.E., Uriel, F.E., & Fernández, M. (2017). Teoría de la Autodeterminación: una revisión teórica. *Perspectivas en Psicología: Revista de Psicología y Ciencias Afines*, *14*(2), 105-115.

Suárez, M., & Robles, E. (2021). Panorama de las Representaciones Sociales. *Educación y Ciencia*, *25*, 1-18. https://doi.org/10.19053/0120-7105.eyc.2021.25.e12578

Biographical Notes

Dr Carlos Vecina Merchante is a professor in the Department of Applied Pedagogy and Educational Psychology at the University of the Balearic Islands, Spain. His research interests include community development, social representations, immigration, social and educational inequality and vocational education and training.

Dr Carme Pinya-Medina is a professor in the Department of Applied Pedagogy and Educational Psychology at the University of the Balearic Islands, Spain. Her current research focuses on inclusive education, teaching methods, and educational innovation.

Arturo Garcia de Olalla Gutierrez is a predoctoral researcher and a member of the Department of Applied Pedagogy and Educational Psychology at the University of the Balearic Islands, Spain. He is currently working on his doctoral thesis.

Dr María Teresa Adame Obrador is a professor and the director of the Department of Applied Pedagogy and Educational Psychology at the University of the Balearic Islands, Spain. Her research interests include career development, school dropout, young people with low educational attainment, and educational guidance.

Why Engineering Students Choose a Career in Teacher Education – Qualitative Analysis of Bachelor Students' Motives

Vernholz, Mats

mats.vernholz@uni-paderborn.de, Paderborn University

Temmen, Katrin

katrin.temmen@uni-paderborn.de, Paderborn University

Abstract

Context: The shortage of teachers can be identified as a European, if not global, problem. To ensure teacher supply in the future, various possibilities have been established recently in Germany to enter vocational teacher education. One of these ways are special cooperation projects between universities of applied sciences for engineering and universities with teacher education programs. A project like this lies in the focus of the research at hand. The aim of the research is to identify the motivational factors of engineering students choosing to participate in the project in order to later enter teacher education. Through this, recruitment potential for possible future students may be identified.

Approach: A qualitative interview study is conducted to gather data on the motives of bachelor engineering students to take part in the project mentioned above. We therefore draw from research results regarding the widely used FIT-Choice scales and the in Germany more prominently used FEMOLA-scales. The FEMOLA-scales are used to conduct guideline-based interviews with n=7 engineering students currently participating in the project. Additionally, narrative inquiry is used in the interviews to get insights on the biographical and academic pathways of the engineering students into the project. For analysis, a combination of narrative inquiry and qualitative content analysis is used.

Findings: The results show three discernible types of students characterised by their respective motivations, namely intrinsic, altruistic and extrinsic. The analysis reveals that the idea of pursuing vocational teacher education is initially formulated during the students' own academic journeys within the education system, particularly within the context of vocational education.

Conclusions: Although the identified types of students differ in their characteristics of motives of entering the project, across all types the interest in a career in vocational teaching stems from own experiences in vocational education. Here, recruitment potential for future teacher students can be identified. Additionally, pedagogical interest and altruistic motives can be identified as the most important influences.

Keywords

VET, career choice, teacher education, study choice, Germany

1 Introduction

Germany is currently experiencing a shortage of teachers, which is particularly pronounced in the field of technical vocational education. This shortage is not a problem singular to Germany. The European Commission states, that across Europe shortages of teachers affect 35 educational systems (European Commission, 2021). Beyond Europe, teacher shortages are a pervasive global issue, as evidenced by reports from the OECD (Organisation for Economic Cooperation and Development) referencing to challenges with teacher supplies in countries such as Korea and the US (OECD, 2021). In Germany, the current low number of new teachers is set to be counterbalanced by a significant projected recruitment need in vocational education over the next few years. First, due to the current high average age of teachers at vocational schools, it is expected that around half of the teaching staff employed will retire by 2032 (Klemm & Bertelsmann Stiftung, 2018). Second, new recruitment requirements in the vocational teaching profession are estimated at 4,800 positions per year between 2025 and 2030 and as many as 6,100 positions per year over the following five-year period (Klemm & Bertelsmann Stiftung, 2018). With around 2.700 new applicants predicted (KMK, 2022), this means that the number of vacancies for vocational teachers will not be sufficiently covered, which could become even more acute in the coming years. It therefore seems sensible to open up new routes into the vocational teaching profession in order to attract more potential teachers. In Germany, special co-operation projects are one of these possibilities, in which engineering students in the bachelor's programme are given the opportunity to take additional pedagogical courses that allow them to enter the teacher training programme in the master's programme. A project like this is at the centre of the research at hand.

1.1 Project EduTechNet OWL

The aim of the project EduTechNet OWL is to attract engineering students in their Bachelor to enrol in a Master of Education, therefore qualifying for a teaching career at vocational schools. This goal is realised through a cooperation between the University of Paderborn and four surrounding universities of applied sciences (UoAS). The participating universities are the University of Applied Sciences and Arts Bielefeld, the University of Applied Sciences Südwestfalen (especially with the locations Soest and Meschede), the Technical University of Applied Sciences OWL and the University of Applied Sciences Hamm-Lippstadt. At all four UoAS locations, engineering students in the fields of mechanical and electrical engineering have the opportunity to attend a total of five additional (subject-specific) didactic courses during their Bachelor of Engineering degree. These allow them to switch to the Master of Education and thus to the professional vocational teacher training at Paderborn University without any additional requirements after completing their Bachelor's degree (at many other universities, students have to complete these additional requirements in their Master's degree). These students then complete the Master's program in the same way as students who may have already completed a teacher-oriented Bachelor's program. A peculiarity of the project EduTech is that it is permanently established and therefore especially sustainable. Although many teachers have been recruited through said project over the years, the number of students is currently declining. Therefore, the present study answers the question of why engineering students choose to participate in additional pedagogical courses, what their motives are, and thus how new potential students can be addressed in the future. These possible recruitment opportunities are potentially transferable to other European VET systems.

2   Theoretical Background

To analyse and identify recruitment potentials for possible future teacher students, career and study choice motives have proven to be an important predictor and are therefore often focused on in literature on teacher shortages around the world (Fray & Gore, 2018; Mičiulienė & Kovalčikienė, 2023; Stellmacher & Paetsch, 2023). Looking at existing literature on the motives for choosing a career in teaching, pre-service vocational teachers are underrepresented (Berger & D'Ascoli, 2012; Kristmansson & Fjellström, 2022). In addition, with regard to the present sample, the engineering students who choose to participate in an additional pedagogical course have not yet made the decision to enter teacher education but only show an affinity for this career path. Therefore, additional motives that differ from the existing literature may influence this decision. In the following sections, we will first characterise (vocational) teacher education in Germany, followed by an analysis of the factors that influence the career and study choices of those entering teacher education.

2.1 Teacher Education in Germany

In order to place the project in the context of the present study, the following section describes teacher education in Germany with its various entry points. Traditionally, teacher education in Germany consists of a Bachelor's degree followed by a Master's degree. Together, these form the first phase of teacher training. After this, students from general education can enter their pre-service training. For vocational education, however, an additional 52 weeks of experience in the field in which the students will teach is required before they can enter pre-service training in a vocational school. This pre-service training lasts 18 months and forms the second phase of (vocational) teacher education. Finally, the third phase is the actual teaching profession, which is accompanied by compulsory in-service training (Jonas-Ahrend et al., 2023). This complex process of teacher education aims to ensure professional development of teacher students but simultaneously may discourage some students to enter teacher education at all (as seen in the results of this study). After all, it takes a minimum of 6,5 years to become a vocational teacher. The present project is situated in the first phase of teacher education, as it is aimed students who, after completing their Bachelor's degree, wish to take up a Master of Education. Although the project does not shorten the time it takes to become a vocational teacher, it offers the possibility for the students to have both an engineering and a teaching degree in the end, offering them multiple vocational pathways and therefore improving the attractivity of teacher education. In order to address the shortage of teachers at vocational schools, it is also possible to enter teacher education after completing a subject-specific bachelor's and master's degree (e.g. a bachelor's and master's degree in mechanical engineering). In this case, teacher students need a specific amount of practical experience in the field they are going to teach and then enter a slightly different pre-service teacher training with additional pedagogical content. These different routes into teacher education were established and permanently institutionalized in the last 10 to 15 years. Lastly, it is also possible to teach at a vocational school without any prior pedagogical teacher training. In this case, people only receive a licence that allows them to teach, but they do not become actual teachers. This is why this career path comes with disadvantages like lower salary and is not as common as the other described paths (for a more detailed description of teacher education in Germany, see Porsch & Reintjes, 2023). In order to understand, why people choose to enter a career in teaching, career choice motives have proven to be an important influence (Fray & Gore, 2018). In the following chapter, the theoretical foundations and existing research results will be discussed.

2.2 Motives for Choosing a Career in Teaching

There are different theories when it comes to career choice processes, ranging from Trait-and-Factor Theory (Holland, 1997) to Gottfredsons Theory of Circumscription and Compromise (Gottfredson, 1981) or more motivationally oriented theories like Self-Determination-Theory (Deci & Ryan, 2008). When looking at peoples' personal motives to choose a career in teaching, studies mostly focus on three kinds of motives: altruistic, intrinsic and extrinsic (Fray & Gore, 2018). For this, the majority of existing research relies on expectancy-value-models (Eccles, 1983; Eccles et al., 2005). These state that the motivation to perform a certain action depends on the expectation that the respective action will be carried out successfully. Additionally, it depends on the value assigned to the respective action. The motivation to perform the action then arises from weighing up these two aspects (Eccles et al., 2005; Wigfield & Eccles, 2000). In the context of research on the career and study choice motivation of pre-service teachers, the two survey instruments FEMOLA (Pohlmann & Möller, 2010) and FIT-Choice (Richardson & Watt, 2014; Watt & Richardson, 2007), which are also based on the described expectation-value-theories, attract a great deal of attention. These differ slightly in their operationalization. The FIT-choice scales are divided into the following dimensions: intrinsic motives like self-perceptions (self-perceived teaching abilities) and intrinsic motivation (intrinsic value), altruistic motives like social utility value (making a social contribution, working with children/young people), and extrinsic motives like personal utility value (job security, compatibility of job and family), task demand (expert career, high demand), usefulness (social status, salary) and fallback career (Watt et al., 2012) and are used particularly in an international context (see e.g. Alvariñas-Villaverde et al., 2022; Fray & Gore, 2018; Heinz, 2015; König & Rothland, 2012; Watt et al., 2012). Meanwhile, the FEMOLA questionnaire is mostly used in German-speaking countries (see e.g. Bauer et al., 2010; Retelsdorf & Möller, 2012; Stellmacher, 2023; Stellmacher & Ohlemann, 2021; Stellmacher & Paetsch, 2023) and is divided into the dimensions of pedagogical interest, professional interest, self-perceived ability, usefulness, social influences and low difficulty (Pohlmann & Möller, 2010). Altruistic motives like helping other people can be found in the scales of pedagogical and professional interest, whereas extrinsic motives like a good salary or encouragement by significant others can be found in the scales of usefulness, low difficulty and social influences. Intrinsic motives can be found in the scale of self-perceived abilities. The present research is based on the FEMOLA questionnaire. The peculiarity of the research at hand is that the quantitative scales of the original questionnaire are used in a qualitative way, conducting guideline-based interviews which are based on the scales appearing in the questionnaire. In the qualitative application of the FEMOLA questionnaire, particular attention is paid to ascertaining both the motives themselves and their influence on the decision to attend the (subject-specific) didactic courses. This is only partially the case in the quantitative survey instrument (see chapter three) as it is focussed merely on how pronounced specific motives are.

Studies using one of these instruments show that different motive profiles can be identified and separated from another according to their intrinsic and extrinsic motives. In general, intrinsic and altruistic motives are shown to be predictors of later job satisfaction and well-being and are therefore characterised as more desirable for people choosing a career in teaching, while extrinsic motives are shown to be less favourable (Driesel-Lange et al., 2017; Stellmacher & Ohlemann, 2021; Stellmacher & Paetsch, 2023). In many studies, altruistic motives are identified as the most important influence (see e.g. Bakar et al., 2014; Reeves & Lowenhaupt, 2016) followed by intrinsic motives. Extrinsic motives (like salary) are often described as less important, especially in western countries (see e.g. Jungert et al., 2014). With respect to extrinsic motives, an underrepresentation due to effects of social acceptance may also be possible (see results of this study).

3   Research Design

In the following sections, the research design of the study at hand will be discussed. First, the research question and subsequent hypothesis will be described. After this, the research and analysis methods will be discussed, followed by a detailed description of the sample used in the presented research.

3.1 Research Question and Hypothesis

The aim of the present research is to identify motives why engineering students choose a career in teaching or show an affinity towards this career. Therefore, the following research question is articulated:

RQ: Why do undergraduate engineering students choose to take part in extra pedagogical courses?

With regard to the existing literature, almost all studies use quantitative approaches to analyse career choice motives. Therefore, hypotheses have to be drawn from these results:

H: It is expected that the motives of the FEMOLA scales are also adaptable to the present sample. As in the existing literature, altruistic and intrinsic motives should be most prominent and connected to positive career choice motives, whereas extrinsic motives can be identified as less promising. As the students in the present sample have not yet fully committed to a career in teaching, additional motives are possible.

3.2 Research and Analysis Method

To answer this question, a qualitative interview study is conducted. The research methodology of this study is a special feature, as it uses a combination of qualitative content analysis according to Kuckartz (2018) and narrative analysis according to Schütze (2016). This methodology also has an impact on the conducted interviews. The interview begins with a narrative, conversation-generating question in which the participants report as openly as possible on their previous academic and professional path up to the interview situation. This is based on Schütze's (2016) explanations of the narrative interview, followed by a questioning section in which possible ambiguities or peculiarities are worked out from the narrative accounts. This narrative introduction is then followed by the guideline-oriented part of the interview, which focuses on the motives based on the FEMOLA questionnaire (Pohlmann & Möller, 2010). Here, the items used in the quantitative questionnaire (e.g. 'I chose the profession of teaching because I am good at explaining' and 'I chose the profession of teaching because I am good at conveying subject-specific content in an interesting way') are replaced in the interview guideline by more open questions (e.g. 'How would you generally rate your ability to explain things to others?' and 'How did these self-assessments influence your decision to attend the (subject-specific) didactic events?'). In this way, both the shape and the influence of the respective motive are considered in the interview. As mentioned before this is only partially the original quantitative instrument. Therefore, the qualitative use of the FEMOLA scales poses a promising extension of existing literature. On average, the interviews lasted an average of around 37 minutes, with the shortest interview lasting around 20 minutes and the longest around 70 minutes. In order to analyse the conducted interviews, firstly, the narrative parts of the interviews are structured and organised into a coherent biography according to narrative inquiry (Schütze, 2016). Secondly, the structured part of the interviews is analysed using a qualitative content analysis (Kuckartz, 2018). Coding categories are mostly built deductively based on the motives of the FEMOLA instrument (Pohlmann & Möller, 2010). The narrative and content analysis are then compared to each other to map out coherent themes or contradictions between both parts, allowing a more

thorough analysis. The coded segments are then analysed with respect to the performed narrative analysis. Through this, distinctive types of students are characterised which are separated from another by their motive profiles that lead them to take part in the pedagogical extra courses.

3.3 Sample

The sample consists of n=7 engineering students of the project. In order to obtain a sample-size sufficient for a qualitative analysis, all project partners of the project were contacted, which in turn forwarded prepared information to their students currently participating in the project. Due to the small population of the target group (appr. 15 to 20 people), a sample size of five to ten students was aimed for. All interviews are performed in a face-to-face environment. Participants are distributed approximately equally across the four UoAS (one participant is recruited directly from Paderborn University, as this participant has recently started their Master of Education after completing their Bachelor of Engineering). All participants are male and between 23 and 33 years old (average age 26,7 years) and report having completed a dual apprenticeship before starting their Bachelor of Engineering.

4 Results Derived from the Interviews

In line with the articulated research question and the discussed analysis method, different types of students are characterised based on the interviews at hand. The results show three discernible types of students, which can be distinguished from one another based on their characterization of intrinsic and extrinsic motives. This is comparable to existing, quantitative research on personal career choice motives (e.g. Stellmacher & Paetsch, 2023). The motives identified in the interviews are in line with the scales used in the FEMOLA-questionnaire (pedagogical interest, subject interest, self-perceived abilities, utility and social influences). Additionally, the general organisational conditions of the project were mentioned. Here, the duality of completing an engineering degree and having the possibility of entering teacher training was mentioned.

4.1 Type 1: The Altruist

The first type of student can be characterised three times in the present material. They display high intrinsic and altruistic motivations, especially in the areas of pedagogical and subject-specific interest, as well as in the dimension of self-perceived abilities.

> And I've known since secondary school at some point, sometime around the ninth grade, that I was definitely interested in being a teacher, because I often helped a lot of people in my class back then, doing little tutorials at home or something like that, (.) where there were problems. I had fun helping other people, for example. (IP01, pos. 7)

As in the example above, this type of student often describes that their interest in becoming a teacher already sparked in their own time at school as a student. Like seen in the example, the general interest of becoming a teacher already sparks in secondary school, the specific interest in becoming a vocational teacher is then formulated during their time at vocational school. This high pedagogical interest becomes apparent in both the narrative and the guideline-based part of the interview, raising the question of why this type of student did not enter teacher education right away. The utility of a teaching career is perceived positively by this type, although it does not appear to be the primary motivation for pursuing a career in teaching.

Um, I think that they are important [talking about utility values]. So, if I had realised that I could only become a teacher if I could barely make a living afterwards, then I think it would have been a job that I wouldn't have taken on because it's been quite a long time to get there. Um, but it wasn't decisive for me in a way, that I said, "teachers have great vacation times, um, so I'm going to become a teacher", rather that was more the basic prerequisite, so that I wanted to become one at all. (IP06, pos. 37).

Here, also the long time it takes to become a teacher is mentioned (although the present project allows new pathways into teacher education, it does not shorten the time it takes to become a vocational teacher). This may explain, why this type of student is hesitant to enter vocational teacher education from the start. This positive perception of the utility of the teaching profession only is mentioned when specifically asked for in the guideline-based part of the interview and not in the narrative part, which underlines the smaller effect on entering a career in teaching. In addition, social influences exert only a partial influence on this decision.

4.2 Type 2: The Pragmatist

The second type of student can only be identified once in the material at hand. However, because its motivational structure is so different from the other two types, it seems reasonable nevertheless to define an additional student type here. For this type, extrinsic motivations exert the greatest influence on their decision to pursue a career in teaching. In particular, the utility values of a high salary and an optimal work-life balance represent pivotal motivations for this type.

That's [extrinsic factors] also a strong factor, of course. [...] I'm not out to have as much free time as possible, then I'd be bored, […]. But the security of having money and more free time than others, […] having enough free time during the job, even though you (.) earn well. And this security, [...], where else can you get that? (IP02, pos. 52)

This main motive of a high salary and a healthy work-life balance is mentioned by this type of student throughout the interview. In the narrative parts, even at very early stages of their academic and vocational biography, decisions are often based on earning money and becoming independent. Therefore, it does not seem surprising that this type of student characterises the utility as a "strong factor", like seen in the example above. In addition, social influences can be identified as a further significant motivating factor. Here, this type is driven by a desire to demonstrate their value to others.

and one of my goals is to graduate next year, probably, and with the certificate, disguised as a mailman, I go to his workshop, ring the bell and then of course there's a note on it with […] a copy of my certificate inside. And then I give it to him, pretending of course that I didn't make it and then when he unpacks his package, he has to see this note with maybe a little reminder behind it about why I did it so that he might remember. (IP02, pos. 12).

In the example above, the participant wants to show his degree to a former teacher in order to prove to them, that they completed their Bachelor's degree and therefore show their own value to this teacher. Interestingly, although the theme of proving oneself to others is a coherent topic throughout the narrative part of the interview, in the guideline-based part of the interview, this type of student denies the influence of social factors. With respect to intrinsic motives, this type evinces a lesser degree than the first type. Nevertheless, this group also exhibits a high level of self-perceived teaching ability.

4.3 Type 3: The Moderate

The last type of student lies between the first two types and can be identified three times. They show moderate levels of intrinsic motives, as well as moderate self-perceived abilities.

> Sure, and then I sort of grew into it here during my time at university. So, at the beginning I read the module description [of the pedagogical courses of project EduTech-Net OWL] and thought to myself, "okay, that sounds interesting. But I didn't think that's what was behind it. And then I started, um and during that time my interest in the subject and the didactic direction in general grew. (IP07_LE_SK, pos. 33)

As it can be interpreted from the example above, this type of student often enters the project and therefore teacher education mainly because of the positively perceived organizational conditions. In the narrative parts, this type of student often describes that they just wanted to get an idea, what the extra pedagogical courses would entail, but they have mostly not yet decided whether they actually want to become a vocational teacher. This may seem negative at first but also poses a chance: through easier pathways and allowing students to get in touch with VET more easily, more future teacher students may be addressed. The role of social influence and utility values appears to be minor to moderate, with positive implications.

> Yes, of course, it definitely made me want to continue. [...] And, um, yes, when you get positive feedback, positive feedback that it's well received, of course, that encourages you to continue anyway. (IP07, pos. 47)

Like the pedagogical and subject-specific interest, social influences are only mentioned during the guideline-based part of the interview and not in the narrative parts. Generally, this last type of student is characterised by an uncertainty when it comes to choosing teaching as a career. Nevertheless, all three types of students developed an interest in a teaching career during their time at vocational school or even earlier. Intrinsically motivated students appear to demonstrate greater certainty about their desire to become teachers after completing their Bachelor of Engineering.

5   Discussion

The results show three different types of students who choose to participate in extra pedagogical courses during their Bachelor of Engineering degree and therefore showing an affinity to choosing a career in teaching. With respect to existing literature, the highly intrinsically motivated type can be identified as the most favourable type of student, followed by type three. The second type, which is mostly extrinsically motivated, can be identified as less favourable regarding later well-being and job satisfaction. Regarding recruitment potential for possible future students, it seems that engineering students with the affinity to a career in teaching tend to develop this tendency during their own vocational education (or even earlier).
Regarding the limitations of the present research, the small sample size needs to be considered. Due to the small number of students participating in the project, only seven students (who are all male) could be recruited to participate in the conducted interviews. Because of this, the generalizability of the results is questionable. Nevertheless, it seems reasonable that three different types of students are characterised. as they differ clearly in their motives of why they chose to take on extra pedagogical courses and to pursue or consider a career in teaching. Notwithstanding this, the results show promising implications. On the one hand, the vocational schools themselves seem to be of high value when it comes to recruiting new vocational teacher students. Although vocational systems vary across Europe it seems probable that this implication is also transferable to other countries, as people who themselves have come into contact

with the vocational education system in their respective country may show a higher affinity to become a vocational teacher than people with no contact to the vocational education system. On the other hand, it seems interesting that altruistic and intrinsic motives seem to have a high influence on the decision of taking part in the project at hand (even the highly extrinsically motivated type of student shows high altruistic motives). Especially for altruistic motives, social desirability needs to be considered. In order to attract new teachers in the future, image campaigns should focus on these parts more than on extrinsic values like salary or vacation times. Further research is needed to validate the results presented with different target groups and larger sample sizes. Longitudinal research design could enhance the understanding of the stability of career choice motives and how pronounced their influence is on staying in teacher education. Additionally, these longitudinal studies could enhance the understanding on how career choice motives develop over time and why teacher students who already show an affinity towards teaching during their own VET experiences do not enter vocational teacher education right away but often enter later through projects like the one presented in the paper at hand.

References

Alvariñas-Villaverde, M., Domínguez-Alonso, J., Pumares-Lavandeira, L., & Portela-Pino, I. (2022). Initial motivations for choosing teaching as a career. *Frontiers in Psychology*, *13*, 842557. https://doi.org/10.3389/fpsyg.2022.842557

Bakar, A. R., Mohamed, S., Suhid, A., & Hamzah, R. (2014). So you want to be a teacher: What are your reasons? *International Education Studies*, *7*(11). https://doi.org/10.5539/ies.v7n11p155

Bauer, J., Drechsel, B., Retelsdorf, J., Kauper, T., Rösler, L., Prenzel, M., & Möller, J. (2010). Panel zum Lehramtsstudium – PaLea: Entwicklungsverläufe zukünftiger Lehrkräfte im Kontext der Reform der Lehrerbildung. *Beiträge Zur Hochschulforschung*, *32*, 34–55.

Berger, J.-L., & D'Ascoli, Y. (2012). Becoming a VET teacher as a second career: investigating the determinants of career choice and their relation to perceptions about prior occupation. *Asia-Pacific Journal of Teacher Education*, *40*(3), 317–341. https://doi.org/10.1080/1359866X.2012.700046

Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology / Psychologie Canadienne*, *49*(3), 182–185. https://doi.org/10.1037/a0012801

Driesel-Lange, K., Morgenstern, I., & Keune, M. (2017). Wer wird Lehrer/in am Berufskolleg? Die Unterstützung von Professionalisierungsprozessen angehender Lehrpersonen für die Berufsbildung. *Die Berufsbildende Schule*, *69*, 220–223.

Eccles, J. S. (1983). Expectancies, values and academic choice: Origins and changes. In J. T. Spence (Ed.), *Achievement and achievement motivations* (pp. 87–134). W.H. Freeman.

Eccles, J. S., O'Neill, S. A., & Wigfield, A. (2005). Ability self-perceptions and subjective task values in adolescents and children. In K. A. Moore & L. H. Lippman (Eds.), *The search institute series on developmentally attentive community and society: Vol. 3. What do children need to flourish? Conceptualizing and measuring indicators of positive development* (Vol. 3, pp. 237–249). Springer Science+Business Media. https://doi.org/10.1007/0-387-23823-9_15

European Commission. (2021). *Teachers in Europe: Careers, development and well-being: Eurydice report*. Publications Office of the European Union. https://doi.org/10.2797/997402

Fray, L., & Gore, J. (2018). Why people choose teaching: A scoping review of empirical studies, 2007–2016. *Teaching and Teacher Education*, *75*, 153–163. https://doi.org/10.1016/j.tate.2018.06.009

Gottfredson, L. S. (1981). Circumscription and compromise: A developmental theory of occupational aspirations. *Journal of Counselling Psychology*, *28*(6), 545–579. https://doi.org/10.1037/0022-0167.28.6.545

Heinz, M. (2015). Why choose teaching? An international review of empirical studies exploring student teachers' career motivations and levels of commitment to teaching. *Educational Research and Evaluation*, *21*(3), 258–297. https://doi.org/10.1080/13803611.2015.1018278

Holland, J. L. (1997). Making vocational choices: A theory of vocational personalities and work environments (3rd ed.). Psychological Assessment Resources.

Jonas-Ahrend, G., Vernholz, M., & Temmen, K. (2023). Teaching technologies: Continuous interplay between educational and industrial advances. In C. J. Craig, J. Mena, & R. Kane (Eds.), *Teacher education in the wake of COVID-19: Isatt 40th anniversary yearbook* (pp. 175–191). Emerald Publishing Limited. https://doi.org/10.1108/s1479-368720230000041019

Jungert, T., Alm, F., & Thornberg, R. (2014). Motives for becoming a teacher and their relations to academic engagement and dropout among student teachers. *Journal of Education for Teaching*, *40*(2), 173–185.

https://doi.org/10.1080/02607476.2013.869971

Klemm, K., & Bertelsmann Stiftung. (2018). *Dringend gesucht: Berufsschullehrer.* https://doi.org/10.11586/2018042

KMK. (2022). *Einstellung von Lehrkräften 2021.* https://www.kmk.org/filead-min/Dateien/pdf/Statis-tik/EVL_2016.pdf.

König, J., & Rothland, M. (2012). Motivations for choosing teaching as a career: effects on general pedagogical knowledge during initial teacher education. *Asia-Pacific Journal of Teacher Education*, *40*(3), 289–315. https://doi.org/10.1080/1359866X.2012.700045

Kristmansson, P., & Fjellström, M. (2022). Motivations to have a Second Career as a Teacher in Vocational Education and Training. *Vocations and Learning*, *15*(3), 407–425. https://doi.org/10.1007/s12186-022-09294-8

Kuckartz, U. (2018). *Qualitative Inhaltsanalyse: Methoden, Praxis, Computerunterstützung* (4., überarbeitete Auflage). Beltz Verlagsgruppe.

Mičiulienė, R., & Kovalčikienė, K. (2023). Motivation to become a vocational teacher as a second career: A mixed method study. *Vocations and Learning*, *16*(3), 395–419. https://doi.org/10.1007/s12186-023-09321-2

OECD. (2021). *Teachers and leaders in vocational education and training*. OECD. https://doi.org/10.1787/59d4fbb1-en

Pohlmann, B., & Möller, J. (2010). Fragebogen zur Erfassung der Motivation für die Wahl des Lehramtsstudiums (FEMOLA) *Zeitschrift Für Pädagogische Psychologie*, *24*(1), 73–84. https://doi.org/10.1024/1010-0652/a000005

Porsch, R., & Reintjes, C. (2023). Teacher shortages in Germany. In P. Hohaus & J.-F. Heeren (Eds.), *The Future of Teacher Education* (pp. 339–363). BRILL. https://doi.org/10.1163/9789004678545_014

Reeves, T. D., & Lowenhaupt, R. J. (2016). Teachers as leaders: Pre-service teachers' aspirations and motivations. *Teaching and Teacher Education*, *57*, 176–187. https://doi.org/10.1016/j.tate.2016.03.011

Retelsdorf, J., & Möller, J. (2012). Grundschule oder Gymnasium? Zur Motivation ein Lehramt zu studieren. *Zeitschrift Für Pädagogische Psychologie*, *26*(1), 5–17. https://doi.org/10.1024/1010-0652/a000056

Richardson, P., & Watt, H. (2014). Why people choose teaching as a career: An expectancy-value approach to understanding teacher motivation. In P. Richardson, S. A. Karabenick, & H. Watt (Eds.), *Teacher Motivation* (pp. 3-19). Routledge.

Schütze, F. (2016). Biography analysis on the empirical base of autobiographical narratives. In F. Schütze (Ed.), *Sozialwissenschaftliche Prozessanalyse* (pp. 75–116). Verlag Barbara Budrich. https://doi.org/10.2307/j.ctvdf09cn.7

Stellmacher, A. (2023). *Berufswahlmotive von Studierenden des beruflichen Lehramts.* https://doi.org/10.20378/irb-90061

Stellmacher, A., & Ohlemann, S. (2021). Erfassung von Berufswahlmotiven im beruflichen Lehramt durch FE-MOLA. *Zeitschrift Für Berufs- Und Wirtschaftspädagogik*, *117*(2), 212–230. https://doi.org/10.25162/zbw-2021-0010

Stellmacher, A., & Paetsch, J. (2023). Profile der Berufswahlmotivation von Studierenden des beruflichen Lehr-amts und deren Zusammenhänge mit berufsbezogenem Selbstkonzept und Berufswahlsicherheit. *Zeitschrift Für Erziehungswissenschaft*, *26*(4), 847–873. https://doi.org/10.1007/s11618-023-01170-y

Watt, H., & Richardson, P. (2007). Motivational factors influencing teaching as a career choice: development and validation of the FIT-Choice scale. *The Journal of Experimental Education*, *75*(3), 167–202. https://doi.org/10.3200/JEXE.75.3.167-202

Watt, H., Richardson, P., Klusmann, U., Kunter, M., Beyer, B., Trautwein, U., & Baumert, J. (2012). Motivations for choosing teaching as a career: An international comparison using the FIT-Choice scale. *Teaching and Teacher Education*, *28*(6), 791–805. https://doi.org/10.1016/j.tate.2012.03.003

Wigfield, A., & Eccles, J. S. (2000). Expectancy-Value theory of achievement motivation. *Contemporary Educational Psychology*, *25*(1), 68–81. https://doi.org/10.1006/ceps.1999.1015

Biographical Notes

Mats Vernholz finished his Master of Education in the area of didactics of technology at Paderborn University in 2020. He previously completed his bachelor's studies in mechanical engineering. His main research interests focus on pre-service teachers in the field of didactics of technology. Currently, he is working on his Ph.D., focusing on pre-service teachers' academic self-concepts and their formation along their course of study.

Katrin Temmen received her Diploma in Electrical Engineering in 1993 and Ph.D. in Electrical Engineering in 1998 from the University of Dortmund. Since 2010, she has been a professor and head of the department of the Didactics of Technology in the Department of Electrical

Engineering in Paderborn. Her research interests include education in vocational schools and the didactics of further education in the field of engineering.

Gender-Atypical Vocational Training: The Pioneers are Dropping Out

Wagner, Pia

pia.wagner@bibb.de, Federal Institute for Vocational Education and Training (BIBB)

Dorau, Ralf

dorau@bibb.de, Federal Institute for Vocational Education and Training (BIBB)

Fournier, Lisa

lisa.fournier@bibb.de, Federal Institute for Vocational Education and Training (BIBB)

Abstract

Context: Gender segregation in vocational education and training (VET) persists within the labour market, perpetuating inequalities, as female-dominated occupations typically have lower income levels, reduced occupational prestige, and limited career opportunities. Gender-atypical educational choices could help counteract this issue but often result in higher occupational attrition.

Approach: We use a mixed-methods approach that incorporates NEPS data along with qualitative interviews. The interviews centre on men in care and women in STEM and trade occupations. The theoretical framework encompasses institutional, social, and personal factors in analysing career entry, development, and exit.

Findings: Men with gender-atypical VET are more likely to pursue further training and transition into new occupations. In care occupations, unfavourable working conditions, limited career opportunities, and low prestige are the primary reasons men leave the field. Women with gender-atypical VET are at a greater risk of being in precarious employment compared to men in the same sector. However, unlike men, they do not transition to new occupations as frequently. In STEM and trade occupations, women often face structural barriers regarding work arrangements as well as discrimination.

Conclusions: Our findings reveal gender-specific patterns in labour market entry and career development for people with gender-atypical VET, highlighting ongoing structural challenges that sustain gender inequality. While our results indicate a lack of initiative on the part of employers, they also point to some connections with the persistence of the traditional division of labour between men and women.

Keywords

occupational and educational gender segregation, labour market integration, employment trajectories, occupational dropouts

1 Introduction

In Germany, as in many other countries, educational choices and the labour market are highly segregated by gender (Achatz, 2018; Busch-Heizmann, 2015; Hamjediers & Peters,

2023; Kroll, 2021). This reproduces inequality, as occupations that are traditionally female dominated are usually characterised by lower income levels, reduced professional prestige and limited career development opportunities (Boll et al., 2016; Egge, 2009; Hünefeld & Dötsch, 2023; Patrick et al., 2024; Schwiter et al., 2014). Consequently, occupational gender segregation contributes to income differences, unequal employment prospects and career opportunities between men and women (Eige, 2018; Estévez-Abe, 2011; Heininger & Imdorf, 2018; Patrick et al., 2024).

A gender-atypical educational choice has the potential to reduce gender-specific inequalities. However, this only applies if the educational choice leads to a career in that field. Existing research show that people formally trained in professions where their gender is numerically underrepresented, tend to have a worse experience in the labour market, including more difficulty finding a related job, lower retention rates and fewer career development opportunities (Hamjediers & Peters, 2023; Jacobs, 1989; Madsen et al., 2023; Smyth, 2005).

To gain insights into why gender-atypical educational choices are often followed by difficult transitions into the labour market, our study examines the further employment trajectories of men and women with a gender-atypical vocational education and training (VET). Our focus is on the career entry phase of people with gender-atypical VET and the reasons why men and women leave their occupations during their careers.

2 Research Question and Theory

Our study deals with the "leaky pipeline" (Solga & Pfahl, 2009) or "revolving door" (Jacobs, 1989) phenomenon, which indicates that "segregation is not only a consequence of gendered inflows but [is] also maintained by disproportionate gendered outflows out of gender atypical positions" (Hamjediers & Peters, 2023, p. 2). Breaking down gendered occupational structures by influencing gendered educational choices is therefore not enough (Busch-Heizmann, 2015; Kroll, 2021; Rohrbach-Schmidt & Uhly 2015). Though, there are only a few studies on the career entry and further employment history of people with a gender-atypical education. Furthermore, the few studies that do exist focus on academic careers, while there is little research on the employment trajectories of people with atypical training (Ihsen et al., 2017; Imdorf et al., 2015; Jeanrenaud, 2020). Our two main research questions are:

- How does the labour market entry of men and women with gender-atypical vocational training compare with the labour market entry of people with gender-typical or gender-neutral vocational training?
- What are the reasons for men and women leaving their gender-atypical occupation in the course of their employment trajectory?
-

While the first research question focuses on the entry phase of a career, a sensitive, intensive and influential period, the second question examines the longer employment history, reflecting career choice as an ongoing, multifaceted process that increasingly leads to non-linear training and employment trajectories (Ohlemann et al., 2019; Savickas, 2012). Our particular focus is on gender, examining how a person's gender and the gender-specific characteristics of an occupation influence career entry and the reasons for career change. As we see training and employment trajectories not only as a personal decision, but also as a complex outcome shaped by an array of personal, social and institutional factors, we lean on three different theoretical strands when analysing the career entry phase and the causes of a career change.

The first theoretical approach is based on an institutional argument and describes structural barriers, that have developed along the traditional gendered division of labour and are still prevalent in disparities in working and employment conditions (e.g. in terms of part-time, flexible

and remote working opportunities, income levels, job security and career development opportunities) in female- and male-dominated occupations (Betzelt & Bothfeld, 2021; Busch, 2013). The different working and employment conditions of an occupation create barriers (either real or assumed by decision-makers) to career entry and development for the gender not typically represented in that occupation.

Another theoretical strand we lean on is the "doing gender" (West & Zimmermann, 1987) approach. This interactional approach deals with biased competence and performance expectations towards occupational majorities or minorities, which are based on the prejudices of superiors, colleagues or clients, but also on the differentiation and self-preservation strategies of the dominant gender. These gender stereotypes lead to exclusion and discrimination of the minority gender in the workplace (e.g. exclusion from decision-making, discrimination in the allocation of tasks and career development opportunities, difficulties in customer service, lack of recognition and reward). We also include sexist comments and offensive behaviour that create a hostile work environment for the minority gender in this approach.

Existing institutional barriers and gender stereotypes may be reasons for turning away from an originally learned occupation. However, these decisions are not exclusively determined by external factors but should also be understood as a process in which individuals can make decisions about the circumstances they face in line with their ideas about their professional future. We therefore include as a third theoretical strand the "cooling-out" approach (Matthies, 2021; Matthies & Rehbein, 2020), which considers the fit between prevailing occupational conditions and the individuals' own values and aspirations (Hardering, 2015) at specific points in their personal and professional lives. Using this approach, turning away from an originally learned gender-atypical occupation can be understood as a form of individual (crisis) intervention, in which a person recognises and processes a mismatch between their own professional orientations and the conditions of the occupation (Matthies, 2021).

3   Method

To answer our two research questions, we use a mixed-method approach, combining quantitative and qualitative data analysis. While we use the National Educational Panel Study (NEPS) for the quantitative data analysis focusing on the first research question, we collect data ourselves from biographical-narrative interviews and interviews with various experts to answer the second research question. The combination of quantitative and qualitative research methods opens up the analytical view of the research topic and is less concerned with the validation of the respective findings (Johnson et al., 2007). However, the analyses are carried out in parallel, so that the results of each analysis are also used to inform the other analysis and to compare and check them. Our current data and analysis is limited to a binary concept of gender.

3.1 Quantitative Analysis

The aim of the quantitative analysis is to identify differences in the utilisation of vocational training for people with gender-atypical, gender-typical or gender-neutral VET. Using the National Education Panel (NEPS) dataset, we track the educational and occupational history of 4,000 respondents, currently around 25 years old, who completed their vocational training some years ago. Of these, around 300 graduates complete a gender-atypical VET programme. We look at their integration into the labour market and their likelihood of occupational change. We compare outcomes across VET programmes with different gender distributions (gender-atypical, gender-typical and gender-neutral). When analysing gender-atypical occupations, it is essential to examine both women in male-dominated fields and men in female-dominated fields in order to fully understand the implications of the occupational minority status of one gender.

Operationalising gender segregated occupations requires a careful choice of threshold, as the literatur suggests different cut-offs: From 60% (Murphy & Oesch, 2015) to 80% (Granato & Dorau, 2004), with policy-oriented definitions typically using over 70% (Federal Anti-Discrimination Agency). In our analysis, we use a threshold of 75% as it optimally balances statistical power (while maintaining a sufficiently large number of cases) with conceptual clarity about occupational segregation. This intermediate threshold proves particularly valuable in capturing the gradient nature of gender penalties in moderately segregated sectors, as confirmed by our sensitivity analyses to alternative cut-offs. All models allow for occupational clustering and explicitly document sufficiently large subgroup sizes to ensure comprehensible interpretation of these methodological choices.

3.2 3.2 Qualitative Analysis

The qualitative analysis (07/24 - ongoing), which explores the reasons why men and women leave their gender-atypical occupation over the course of their careers, is based on 13 biographical-narrative interviews with female career changers from predominantly male-dominated STEM and trade occupations, eight biographical-narrative interviews with male career changers from female-dominated care occupations, and 16 interviews with experts on the gender-specific characteristics of occupations and the possible causes and consequences of career change. Due to difficulties in recruiting women who had completed vocational training in a male-dominated STEM or trade occupation, but left that occupation during their career, our sample includes female career changers who do not fit this description exactly. This means that in addition to seven women who fit the criteria, we also interviewed four women with an academic degree in a STEM subject and two female career changers who initially trained in a trade occupation that is not defined as male-dominated, but where men were over-represented in the particular workforce and in the relevant sector. The inclusion of female career changers with an academic background in STEM in the sample allows us to compare the experiences of vocationally and academically qualified women in a male-dominated field, and to develop ideas about the differences and similarities between them. Our sample of female career changers includes women in their mid-30s to late 50s, nine of whom have at least one child. Our sample of male career changers includes men in their early 20s to mid-50s, four of whom have at least one child. With the exception of one woman, all respondents had achieved the highest level of schooling that would have given them access to higher education.

4   Preliminary Results

As we have not yet completed our research, we present preliminary results from both, the quantitative and the qualitative analysis.

4.1 Analysis of the National Education Panel

The analysis of the NEPS data addresses the first research question and examines the labour market entry of men and women with gender-atypical VET. It compares women in male-dominated occupations with men in the same fields, and men in female-dominated occupations with women in the same fields. The initial results show significant gender patterns: According to the data, women in male-dominated occupations (e.g. mechanical and plant engineering, logistics and food production) are less integrated into the labour market, which is reflected in their lower earning potential compared to their male counterparts. As a result, they are more likely to be in precarious employment (low paid or, to a much lesser extent, temporary). On the other hand, men in female-dominated occupations (e.g. education and care) show no significant differences in labour market integration compared to women in these fields. However, men with gender-atypical VET are more likely than women to undertake further academic or

vocational training and also more likely to move to a new job in an occupation that no longer corresponds to their initial training. Women are less likely to make such transitions, even though they face greater challenges in securing stable employment within their occupation. Further analysis is needed to clarify whether women in male-dominated fields have lower earnings than men in the same specific occupations (e.g. mechanical engineering, logistics) or whether they are more likely to be employed in lower-paid occupations within male-dominated fields (e.g. food production vs. plant engineering). In general, our initial findings suggest that gender-atypical VET leads to different outcomes for men and women.

With regard to the different thresholds discussed above, the NEPS data show that the effects of different thresholds are not consistent across genders. While the number of women in male-dominated occupations remains relatively stable across thresholds, the number of men in female-dominated occupations increases considerably when the female share threshold is lowered from 80% to 70%. This asymmetry in the quantitative distribution of men and women in atypical occupations and the different patterns of integration underline the importance of gender analysis in research on occupational segregation.

4.2 Analysis of the Biographical-Narrative and Expert Interviews

In relation to the second research question, preliminary analysis of the interview data from male career changers suggests that men's decision to leave the care sector is largely a result of feeling alienated from their occupation, due to unfavourable working conditions (mainly understaffing and related problems as well as shift work) in the sector, coupled with few opportunities for professional development and low professional prestige. The decision to change careers can therefore be understood as a form of individual intervention or, in terms of the theoretical approach considered in this study, as a "cooling out" from the learned occupation, in which the men recognise the mismatch between their own professional orientations, personal goals and values, and the conditions of the care sector. The experts also mention the lack of opportunities for professional development and the low occupational prestige as reasons why men feel alienated or "cooled off" by their occupation. In line with their external perspective, they discuss these occupational characteristics mainly from an institutional point of view. They argue that these characteristics of the care profession are largely due to the fact that care work has historically been a female occupation. It has traditionally been seen as a transition or complement to women's private caring responsibilities, rather than as a long-term career. This has resulted in employment characteristics that men (and increasingly women) now find unattractive and incompatible with their career aspirations. Like the men, experts also highlight unfavourable working conditions in the care sector, particularly staff shortages, as the primary reason influencing men's decision to leave the occupation. While unfavourable working conditions affect women in the care sector in a similar way, some experts believe that the sector's tradition as a female occupation makes it easier for women to reconcile their work with their private family commitments, and that they weigh this against the unfavourable working conditions, not least because they are often not working full-time. Both the men and the experts interviewed point out that salaries in the care sector have developed well in recent years and that income levels are not a relevant reason for men to leave their occupation. The same can be said for stereotyping and discrimination in the work context, as male respondents only reported these situations when specifically asked. They did not raise the issue in the past and mostly do not do so now. In addition, men report incidents of stereotyping as isolated incidents, many of which they remember positively, for example when they were seen to bring calm to a team of female carers, when they were looked after by their female colleagues, or when patients were pleased to have a male carer. The experts also believe that stereotyping or discrimination against men in caring roles is not common. They suggest that the more isolated incidents occur mainly in the carer-patient relationship, while they also believe that a more gender-diverse care team is

generally viewed positively by patients. Except for one man, all male respondents moved into higher prestige occupations after leaving care work, following an additional episode of academic education. This is related to the fact that the men interviewed felt alienated from their trained occupation due to the limited opportunities for professional development and the low prestige of the occupation.

In contrast to men, women's exit from an originally learned (gender-atypical) occupation seems to be influenced more by external factors rather than by a feeling of alienation from the occupation. In particular, the structural conditions of male-dominated occupations (limited part-time, flexible and remote working opportunities – especially in the manufacturing and craft sectors) often make it difficult for women to reconcile work and private caring responsibilities, preventing them from continuing in the occupation or developing their careers after becoming mothers. In line with the women's experiences, the experts see these institutionalised settings of male-dominated occupations as a major cause of women leaving these occupations. According to the experts, the consequences of institutionalised male-dominated occupational structures are also reflected in the fact that there is often a lack of work clothes, toilets and changing rooms for women, not to mention procedures for returning to work after parental leave. Most of the women in our sample reported situations in which they experienced (degrading) stereotyping and discrimination at work (e.g. doubts about their professional competence and motivation, assumed desire to have children, sexist comments and assumption of a different professional role). However, most of them did not reflect on these situations until some time after they had left the occupation, so that these experiences played a lesser role in their (conscious) decision to leave the occupation. Whereas in the past they may have accepted situations of stereotyping and discrimination, seeing them as normal in the particular work environment and that women simply have to adapt and perhaps toughen up, most women now see these situations as problematic and expect themselves to react differently. The experts in our sample believe that situations of stereotyping and discrimination (similar to those described by the women) are very common for women in male-dominated occupations and that this situation leads many women to leave these occupations at some point. The experts also point to closed career paths for women and to unjustified pay gaps between women and men in the same occupation, which they attribute to the exclusion of women from informal networks and to workplace prejudices against women and mothers. However, blocked career paths and unfair pay only play a role for respondents with an academic education in our sample. These women are also more negatively affected by a career change than female respondents with vocational training, as they tend to move into lower-paid jobs as somewhat unskilled workers. For the women with vocational training, the career change tends to be one of occupational upgrading, following an additional episode of vocational or tertiary academic education. Other differences between the women interviewed are that the academically trained women reported struggling with the meaning of their actual work, questioning the incompatibility of occupational structures with more flexible working arrangements, and criticising the competitive working atmosphere in male-dominated contexts. Consequently, these women seem to have experienced a "cool out" from their learned occupation. On the other hand, the women with vocational training continue to describe their learned, male-dominated occupation and the prevailing working atmosphere as predominantly positive and often see the incompatibility of occupational structures with private responsibilities as a consequence of occupational requirements that are difficult to change.

5   Conclusion and Outlook

Our study provides valuable insights into the challenges faced by individuals with gender-atypical VET, particularly during their labour market entry and subsequent employment trajectories. Initial findings reveal gender-specific patterns: The qualitative analysis shows that for

men, unfavourable working conditions in the care sector, coupled with few opportunities for professional development and low professional prestige, are the main reasons for leaving the occupation. As a result, they are more likely to move into more prestigious occupations after additional academic training. The quantitative analysis shows that men with gender-atypical VET are more likely to undertake further academic and vocational training than both women in similar fields and men in gender-typical and gender-neutral occupations. In addition, men are more likely to move into new occupations that do not correspond to their initial training. Based on the interviews, we see that women experience more structural barriers as well as stereotyping and discrimination. The outcome of the career change seems to be different for the women interviewed, leading more often to an occupational upgrading for those with a vocational education, but to a downgrading for those with an academic education. The quantitative analysis shows that women with gender-atypical VET have greater difficulties in securing stable employment and are more likely to be in precarious employment than men. However, unlike men, they do not seem to leave their occupation more often.

These gender patterns point to some persistent structural challenges that perpetuate gender inequality in the labour market (e.g. worse working and employment conditions in female occupations, discrimination against women in the context of work and limited (time-)flexible working arrangements in male-dominated occupations). While these initial findings indicate a lack of movement on the part of employers, they also suggest some links with the persistence of traditional gender roles, with men in the role of family breadwinner and women more in the role of private carer. This persistence of gender roles in society is, as some of the experts pointed out, at least partly perpetuated by the social system, which does not provide enough care facilities for children or the elderly, while financially supporting a family model in which one partner does not work full time. Regarding discrimination against women in the workplace, some experts referred to existing legislation (e.g. the General Equal Treatment Act or the obligation for employers to set up complaint bodies) aimed at improving (inter alia) women's working and employment conditions. However, they also point out that these rules are often not a lived reality in companies and that there are challenges in the implementation of some of these rules. Further qualitative analysis of the workplace cultures described in the interviews and contextualisation of the institutional barriers identified, particularly in relation to the development of the occupations concerned, the social system and the development of labour market participation of men and women, is needed to explore these influences.

In future quantitative analyses we aim to clarify whether the gender pay gap in male-dominated fields is sector-specific or due to occupational effects. Further analysis will also look at income levels and occupational integration, examining whether outcomes differ depending on whether women and men remain in their gender-atypical training occupations or move into gender-typical or gender-neutral occupations. This will provide deeper insights into the long-term economic and occupational consequences of remaining in or leaving gender-atypical occupations and help to identify strategies to improve the retention and career development of individuals in these fields. While our models account for educational stratification by school leaving qualifications and occupational characteristics, we plan to extend our analysis to include parental socio-economic status and migrant background (where available) to capture a more intersectional perspective.

Our study aims to identify gender-specific challenges, while recognising its limitation to a binary gender concept, and provide insights that can inform policy development and sector and company specific initiatives to support the transition, career development and retention of individuals in gender-atypical occupations. Based on our initial findings, to support the retention of women in male-dominated sectors, more efforts are needed to increase part-time, flexible and remote working opportunities, as well as work cultures where (in)direct discrimination against women is not accepted. Men, on the other hand, could be motivated to stay in the care

sector by improving working conditions and providing clear pathways for further professional training and associated career development opportunities. Although formulated from a gender perspective, it goes without saying that each of these improvements would benefit all workers, regardless of gender.

While this study focuses on Germany, the findings have broader relevance for other countries facing similar challenges of occupational gender segregation. Gender segregation in VET and the labour market is a global issue, and many countries are grappling with how to break down occupational gender barriers and promote equality in traditionally male- or female-dominated fields. By examining the German context, this study contributes to a broader understanding of the mechanisms driving persistent gender segregation and offers insights that can inform policy and practice in other countries.

References

Achatz, J. (2018). Berufliche Geschlechtersegregation [Occupational gender segregation]. In M. Abraham, & T. Hinz (Eds.), *Arbeitsmarktsoziologie Probleme, Theorien, empirische Befunde* (pp. 389-453). Springer VS. https://doi.org/10.1007/978-3-658-02256-3_11

Bächmann, A.-C., Kleinert, C., & Schels, B. (2024). Anhaltende berufliche Geschlechtersegregation. [Persistent occupational gender segregation.] In Ost wie West arbeiten Frauen und Männer häufig in unterschiedlichen Berufen. *IAB-Kurzbericht, 3|2024*. IAB Institut für Arbeitsmarkt- und Berufsforschung. https://doku.iab.de/kurzber/2024/kb2024-03.pdf

Betzelt, S., & Bothfeld, S. (2021). Die Krankenpflege im deutschen Genderregime: Woran scheitert die berufliche Gleichstellung? [Nursing in the German gender regime: Why does professional equality fail?] In S. Scherger, R. Abramowski, I. Dingeldey, A. Hokema, & A. Schäfer (Eds.), *Geschlechterungleichheiten in Arbeit, Wohlfahrtsstaat und Familie. Festschrift für Karin Gottschall* (pp. 249-278). Campus Verlag. https://doi.org/10.12907/978-3-593-44802-2

Boll, C., Jahn, M., Lagemann, A., & Puckelwald, J. (2016). Dauerhaft ungleich - berufsspezifische Lebenserwerbseinkommen von Frauen und Männern in Deutschland. [Unequal over a lifetime - the gender pay gap in Germany.] *HWWI Policy Paper, 98*. Hamburgisches WeltWirtschaftsInstitut. http://hdl.handle.net/10419/149395

Busch-Heinzmann, A. (2015). Frauenberufe, Männerberufe und die „Drehtür" – Ausmaß und Implikationen für West- und Ostdeutschland. [The "revolving door" phenomenon in female- and male-dominated occupations - extent and implications for West and East Germany.] *WSI-Mitteilungen, 8/2015*, 571-582.

Busch, A. (2013). *Die berufliche Geschlechtersegregation in Deutschland Ursachen, Reproduktion, Folgen.* [Occupational gender segregation in Germany: causes, reproduction, consequences.] Dissertation. Springer VS. https://link.springer.com/book/10.1007/978-3-658-01707-1

Bußmann, S. (2015). Fachkräfteengpässe in Unternehmen: Geschlechterunterschiede in Engpassberufen. [Gender differences in occupations with skill shortages.] *KOFA-Studie 2/2015*. Institut der deutschen Wirtschaft Köln e.V.. http://hdl.handle.net/10419/172077

Egge (2009). Gender segregation in the labour market root causes, implications and policy responses in the EU. European Commission's Expert Group on Gender and Employment. https://doi.org/10.2767/1063

Eige (2018). Study and work in the EU: set apart by gender review of the implementation of the Beijing platform for action in the EU member states. European Institute for Gender Equality. https://eige.europa.eu/publications-resources/publications/study-and-work-eu-set-apart-gender-report

Estévez-Abe, M. (2011). Gender bias of education systems. *Femina Politica, 2|2011*, 33-45. https://www.budrich-journals.de/index.php/feminapolitica/article/viewFile/11773/10240

Granato, M., & Dorau, R. (2004): Junge Fachkräfte an der zweiten Schwelle. [The labour market entry of young professionals.] *Ibv, 25*, 34-49. https://doku.iab.de/ibv/2004/ibv2504_34.pdf

Hakim, C. (1993): Segregated and integrated occupations: A new approach to analysing social change. *European Sociological Review, 9*(3), 289-314. https://www.jstor.org/stable/522705

Hamjediers, M., & Peters, E. (2023). Gender compositions of occupations and firms jointly shape switches from gender-atypical towards more gender-typical positions. *European Societies 26*(4), 1170-1194. https://doi.org/10.1080/14616696.2023.2290254

Hardering, F. (2015). Meaningful work: Sinnvolle Arbeit zwischen Subjektivität, Arbeitsgestaltung und gesellschaftlichem Nutzen. *Österreichische Zeitschrift für Soziologie, 40*(4), 391–410. https://doi.org/10.1007/s11614-015-0181-7

Heininger, M., & Imdorf, C. (2018). The role of vocational education in the transmission of gender segregation from education to employment: Switzerland and Bulgaria compared. *Journal for Labour Market Research,*

52(15), 1-21. https://labourmarketresearch.springeropen.com/articles/10.1186/s12651-018-0248-6

Hünefeld, L., & Dötsch, M. (2023). Berufliche Geschlechtersegregation. Die Arbeits- und Gesundheitssituation von Frauen und Männern in geschlechtersegregierten und -integrierten Berufen. [The work and health situation of women and men in gender-segregated and gender-neural occupations.] *baua: Fokus.* Bundesanstalt für Arbeitsschutz und Arbeitsmedizin. https://doi.org/10.21934/baua:fokus20230324

Ihsen, S., Mellies, S., Jeanrenaud, Y., Wentzel, W., Kubes, T., Reutter, M., & Diegmann, L. (2017). *Weiblichen Nachwuchs für MINT-Berufsfelder gewinnen. Bestandsaufnahme und Optimierungspotenziale, 3* [Attracting young women to STEM careers.]. Lit Verlag (TUM Gender- und Diversity-Studies). ISBN: 978-3-643-13797-5

Imdorf, C., Hegna, K., Eberhard, V., & Doray, P. (2015). Educational systems and gender segregation in education – a three-country comparison of Germany, Norway & Canada. In C. Imdorf, K. Hegna, & L. Reisel (Eds.), *Gender Segregation in Vocational Education* (pp. 83-122). Emerald Insight. https://doi.org/10.1108/S0195-631020150000031004

Jacobs, J. (1989). Revolving doors. Sex segregation and women's careers. Stanford University Press.

Jeanrenaud, Y. (2020). MINT. Warum nicht? [MINT. Why not?] Zur Unterrepräsentation von Frauen in MINT, speziell IKT, deren Ursachen, Wirksamkeit bestehender Maßnahmen und Handlungsempfehlungen Expertise für den Dritten Gleichstellungsbericht der Bundesregierung. Geschäftsstelle Dritter Gleichstellungsbericht der Bundesregierung; Institut für Sozialarbeit und Sozialpädagogik e.V.. http://dx.doi.org/10.25595/2384

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of mixed methods research, 1*(2), 112-133. https://doi.org/10.1177/1558689806298224

Kroll, S. (2021). Allein unter Männern, allein unter Frauen. Geschlechtsspezifische Entwicklungen in dualen Männer- und Frauenberufen und Unterschiede im Ausbildungsverlauf. [Trends in gender-typical VET occupations and differences in training pathways.] *BWP, 4*(20), 16-20. https://www.bwp-zeitschrift.de/dienst/publikationen/de/17519

Madsen, A. Å., Brekke, I., & Fekjær, S. B. (2023). Women's attrition from male-dominated workplaces in Norway: the importance of numerical minority status, motherhood and class. *Work, Employment and Society, 37*(2), 333-351. https://journals.sagepub.com/doi/10.1177/09500170211004247

Matthies, H. (2021). Cooling out in der Arbeitswelt: Berufswechsel als Folge eines Mismatch von Habitus und Feld. [Cooling out: career change as a consequence of a mismatch of habitus and field.] *Berliner Journal für Soziologie, 31*, 415-443. https://link.springer.com/article/10.1007/s11609-021-00453-7

Matthies, H., & Rehbein, S. (2020). Inkongruenz. Ausstieg aus der Wissenschaft als Folge eines Mismatch zwischen Feld und Habitus. [Incongruence. Leaving science as a result of a mismatch between field and habitus.] *Die Hochschule: Journal für Wissenschaft und Bildung, 29*(1), 87-97. https://doi.org/10.25656/01:23805

Murphy, E. & Oesch, D. (2015). The feminisation of occupations and change in wages: a panel analyses of Britain, Germany and Switzerland. *SOEPpapers on Multidisciplinary Panel Data Research, 731/2015.* https://www.jstor.org/stable/24754309

Ohlemann, S.; Driesel-Lange, K.; Weyland, U., & Ittel, A. (2019). Individualised career education as a means to equal opportunity – a research approach. In Združenie pre kariérové poradenstvo a rozvoj kariéry [Association for Career Guidance and Career Development] (Eds.), *Conference Proceedings from the 2019 Conference of the International Association for Educational and Vocational Guidance (IAEVG)* (pp. 310-325). www.iaevgconference2019.sk

Patrick, C., Stephens, H., & Weinstein, A. (2024). Born to care (or not): how gender role attitudes affect occupational sorting. *Labour, 38*, 203–229. https://doi.org/10.1111/labr.12261

Rohrbach-Schmidt, D., & Uhly, A. (2015). Determinanten vorzeitiger Lösungen von Ausbildungsverträgen und berufliche Segmentierung im dualen System. [Determinants of premature contract termination and occupational segmentation in the VET system.] Eine Mehrebenenanalyse auf Basis der Berufsbildungsstatistik. *Kölner Zeitschrift für Soziologie, 67*, 105-135. https://link.springer.com/article/10.1007/s11577-014-0297-y

Savickas, M. L. (2012). Life design: a paradigm for career intervention in the 21st century. *Journal of Counseling and Development, 90*(1), 13-19. https://doi.org/10.1111/j.1556-6676.2012.00002.x

Schwiter, K., Hubka-Brunner, S., Wehner, N., Huber, E., Kanji, S., Maihofer, A., & Bergmann, M. M. (214). Warum sind Pflegefachmänner und Elektrikerinnen nach wie vor selten? [Why are male nurses and female electricians still rare?] Geschlechtersegregation in Ausbildungs- und Berufsverläufen junger Erwachsener in der Schweiz. *Swiss Journal of Sociology, 40*(3), 401-428. https://doi.org/10.5167/uzh-101134

Smyth, E. (2005). Gender differentiation and early labour market integration across Europe. *European Societies, 7*(3), 451-479. https://doi.org/10.1080/14616690500194084

Solga, H., & Pfahl, L. (2009). Doing Gender im technisch-naturwissenschaftlichen Bereich. [Doing Gender in STEM.] *Discussion Paper SP I, 2009-502*. Wissenschaftszentrum Berlin für Sozialforschung. https://bibliothek.wzb.eu/pdf/2009/i09-502.pdf

Federal Anti-Discrimination Agency (Antidiskriminierungsstelle des Bundes) (online). Frauenberufe, segregierte

Berufe. [Female-dominated and segregated occupations.] https://www.antidiskriminier-ungsstelle.de/SharedDocs/Glossar_Entgeltgleichheit/DE/13_Frauenberufe.html?nn=304718

West, C., & Zimmerman, D. H. (1987). Doing gender. *Gender and Society, 1*(2), 125-151. https://doi.org/10.1177/0891243287001002002

Biographical Notes

Pia Wagner has been a research fellow at the BIBB since 2020 and works in the Department 1.2 "Qualifications, occupational integration and employment". Pia's research interests are participatory approaches to organisational change and gender differences in the labour market.

Dr Ralf Dorau has been a research fellow at the BIBB since 2003 and works in the Department 1.2 "Qualifications, occupational integration and employment". Ralf's research focuses on labour market transitions following VET and career development analyses.

Lisa Fournier has been a research fellow at the BIBB since 2023. She works in the "Vocational Orientation Programme" and is part of the project "Utilisation perspectives of gender-atypical vocational training".

Emotional Management in Health and Social Care Apprentices in Switzerland: A Latent Profile Analysis

Wenger, Matilde

matilde.wenger@sfuvet.swiss, Swiss Federal University for Vocational Education and Training SFUVET, Research & Development Division

Favre, Yoann

yoann.favre@sfuvet.swiss, Swiss Federal University for Vocational Education and Training SFUVET, Research & Development Division

Abbou, Rayana

rayana.abbou@sfuvet.swiss, Swiss Federal University for Vocational Education and Training SFUVET, Research & Development Division

Fiori, Marina

marina.fiori@sfuvet.swiss, Swiss Federal University for Vocational Education and Training SFUVET, Research & Development Division

Abstract

Context: In Switzerland, a significant proportion of young people pursue initial vocational education and training (IVET), with health care assistant and social care worker among the most popular professions. These occupations require strong socio-emotional competences, such as emotional intelligence, empathy, emotion reactivity and emotion regulation, to ensure quality care and prevent burnout. However, research on the presence and impact of these competences in apprentices remains scarce.

Approach: This study examines how health and social care apprentices manage emotions and how their 'emotional profiles' relate to learning outcomes such as professional commitment, motivation, burnout, and life satisfaction. A survey of 374 Swiss apprentices was conducted, followed by latent profile analysis (LPA) to identify emotional profiles.

Findings: The analyses revealed four profiles: Emotional Inhibition, Emotional Overflow, Emotional Control, and Strategic Hypersensitivity. Findings indicate that apprentices with better emotion regulation (Emotional Control, Strategic Hypersensitivity) show higher professional commitment, autonomous motivation, and life satisfaction, whereas those with poor regulation (Emotional Overflow, Emotional Inhibition) report higher burnout and weaker career engagement.

Conclusions: Accordingly, the study highlights the importance of integrating socio-emotional competence training into IVET programs to enhance apprentices' well-being and professional viability.

Keywords

1 Theoretical Framework

The majority of Swiss young people undertake initial vocational education and training (IVET) after compulsory education (FSO, 2024). Within this prominent system, there have been and continue to be major developments, notably regarding the emergence of new initial training courses. Indeed, among the almost 250 professions offered in Swiss VET, there are frequent changes, whether in terms of training content or the emergence/disappearance of professions. This training system is directly intertwined with the economic world and, as a result, largely meets its needs. This applies to two professions added to the list of VET occupations about twenty years ago: health care assistant and social care worker.

1.1 Health and Social Sector in VET

Professions in the fields of health and social care play a crucial role in meeting labor market demands for workers with upper secondary-level training. As a result, a significant number of individuals are motivated to pursue these IVET courses as a pathway to entering these essential sectors. For several years now, the two professions have ranked 2nd and 4th respectively among the most widely learned professions by young Swiss people (gsf.bern, 2024). Health care assistants support patients in hospitals, nursing homes, and clinics, providing medical care, health monitoring, and assistance with daily routines to maintain independence. Social care workers aid children, people with disabilities, and the elderly in building life skills, promoting social integration, and fostering autonomy. It is therefore important for professionals working in these fields to be able to rely on optimal emotional management, notably to protect themselves from burnout, but also to guarantee a quality relationship with their patients (Faguy, 2012; Ingram, 2012). This is all the truer for apprentices training for careers in the health and social care sector, as they are learning a profession that they could potentially pursue for the rest of their working lives. Therefore, the need for effective emotional management is fundamental from the IVET onwards.

1.2 Socio-emotional Competences in VET

Socio-emotional competences are crucial in vocational education and training, as they significantly influence apprentices' personal and professional development. Key concepts such as emotional intelligence, empathy, emotional reactivity, and emotional regulation might therefore be considered when examining apprentices' experience.

First, emotional intelligence (EI) involves recognizing, understanding, and managing one's own emotions, as well as perceiving and influencing others' emotions. Two main models of EI have emerged. Mayer and Salovey (1997) define EI as a cognitive ability involving four key skills: perceiving, using, understanding, and managing emotions. In contrast, Petrides and Furnham (2001) view EI as a personality trait encompassing emotional and behavioral dispositions, assessed through self-report measures and linked to subjective outcomes like life satisfaction and resilience. In care and support professions, EI is essential for managing emotions in high-stress environments, influencing professionals' ability to respond to beneficiaries' emotional needs while regulating their own (Dugue et al., 2021). Higher EI is associated with better conflict management, lower work stress, and reduced burnout risk (Schutte et al., 2007). Moreover, a study on health and social care apprentices found EI to be the strongest predictor of final exams' performance (Tremonte et al., 2024).

Empathy is a multidimensional concept crucial for human interactions, defined as the ability to understand and share others' emotions (Davis, 1980). It consists of two main dimensions: cognitive and affective. The cognitive aspect involves perspective-taking and understanding others' emotional states, essential for decoding intentions and needs, especially in complex professional settings. The affective dimension refers to emotional responses triggered by others' emotions, such as compassion or distress when witnessing suffering. In care professions, the combination of these dimensions fosters authentic relationships, effective conflict management, and greater beneficiary satisfaction (Saltzman, 2008).

Emotional reactivity and regulation are key to managing emotions, particularly in emotionally demanding professions. High reactivity can intensify stress but, when well-managed, supports adaptability and emotional intelligence (Fiori et al., 2023). In turn, regulation strategies (Gross, 1998) help individuals control their emotions – whether before (e.g., cognitive reappraisal) or after (e.g., suppression) they arise. Effective regulation fosters resilience, decision-making, and workplace relationships, while poor regulation increases burnout and job dissatisfaction (Gross & John, 2003). These concepts are also crucial in VET: for instance, apprentices in care-related fields must regulate emotions to maintain professionalism and build trust with patients or beneficiaries. Hence, strengthening emotional regulation in VET can improve apprentices' readiness for the emotional demands of their professions.

Integrating training in these socio-emotional competences within VET programs can lead to improved academic performance, better workplace readiness, and developed personal development for apprentices. By fostering these competences, VET institutions prepare apprentices to navigate the complex emotional landscapes of professional environments effectively. However, despite the central role of these concepts, particularly in the context of learning a profession, little research has so far focused on how socio-emotional competences are present in apprentices and their contribution to the successful development of this specific group.

1.3 Aim and Research Questions

Accordingly, the aim of our study was to investigate apprentices' emotional management and socio-emotional competences in the health and social care professions and the link between these competences and learning outcomes.

Two research questions guided our study: 1. How do health care assistants and social care workers differ and group together regarding their emotional management? 2. Which differences in learning outcomes (i.e., professional commitment, motivations for choosing apprenticeship, burnout, and satisfaction with life) can be observed when considering the different apprentices' profiles? And are there sociodemographic differences?

2 Methods

We surveyed health care assistants and social care workers (N=374) at the end of their apprenticeship in several vocational schools in French-speaking Switzerland (77% female; 60% health care assistants, 40% social care workers; average age of 22 years and 9 months).

Participants were recruited from health and social vocational schools, through the school directors. Participation was voluntary, and all respondents provided informed consent. They were assured of confidentiality and had the right to withdraw at any time. The results were anonymized and communicated to the directors of all participating schools, ensuring transparency and adherence to ethical research guidelines. Moreover, as we did not have direct access to the contact details of apprentices, we have asked the directors to kindly forward our results to the persons who may have taken part in the study. We integrated self-report measurement scales into an online questionnaire. Socio-emotional competences' scales were:

- *Emotional intelligence* as a personality trait (TEIQue-SF, 30 items; Mikolajczak et al., 2007; Petrides, 2009), with four subscales: well-being, self-control, emotionality, and sociability.
- *Empathy*, measured with the Interpersonal Reactivity Index (IRI, 28 items; Davis, 1980; Gilet et al., 2013) and including four subscales: emotional concern, perspective taking, fantasy, and personal distress.
- *Emotional reactivity*, assessed with the Perth Emotional Reactivity Scale (PERS-S, 18 items; Becerra et al., 2019) and including positive and negative reactivity in terms of activation, intensity, and duration.
- *Emotional regulation*, measured with the Cognitive Emotion Regulation Questionnaire (CERQ-S, 18 items; Garnefski et al., 2001) and including nine subscales: self-blame, acceptance, rumination, positive refocusing, refocus on planning, positive reappraisal, putting into perspective, catastrophizing, and blaming others; in turn divided into adaptive and maladaptive regulation strategies.

Outcomes measures to compare apprentices were:

- *Professional commitment*, which was assessed by the Utrecht Work Engagement Scale (UWES, 9 items; Schaufeli et al., 2006) and is comprised of vigor, dedication, and absorption.
- *Motivations for choosing the apprenticeship* (12 items; Berger, 2021), which can be autonomous, controlled or default.
- *Burnout, assessed with the Shirom-Melamed Burnout Measure (SMBM, 14 items; Sassi & Neveu, 2010) and has three subscales: physical fatigue, cognitive weariness, and emotional exhaustion.*
- *Satisfaction with life as apprentice*, measured by the adapted version of the Satisfaction With Life Scale (SWLS, 5 items; Alves et al., 2010; Diener et al.,1985).

Socio-demographic questions were also included in the questionnaire, which lasted approximately 30 minutes and could be completed on a voluntary basis, during a course at a vocational school. The data treatment was guaranteed confidential.

Statistically, we first carried out latent profile analyses (LPA), a person-centered approach that allows groups of individuals to be identified combined together based on their response patterns. Hence, the LPA enabled us to group apprentices according to their positioning regarding socio-emotional competences. We also carried out comparative analyses, namely ANOVAs and Chi-square tests.

3 Findings

In the LPA, after testing models ranging from one to five profiles, we identified the best solution in terms of fit indices with four apprentices' profiles (RQ1; see Figure 1), with the following features:

- **Emotional Inhibition:** Profile characterized by strong emotional suppression. Individuals here report low emotional intelligence, indicating limited skill in recognizing and managing their emotions. Empathy scores are generally low, signaling difficulty in relating to others' emotions. Both positive and negative emotional reactivity are low, suggesting a tendency to avoid emotional responses. They employ few regulation strategies, mainly blaming others, highlighting an inclination to externalize responsibility for negative emotions.

- **Emotional Overflow:** Individuals in this profile experience intense emotional reactions, especially negative ones, and struggle to manage them. With the lowest emotional intelligence scores, they find it difficult to recognize and regulate their emotions. They have low empathy, but high personal distress. Emotional reactivity is high for negative emotions and low for positive ones, leading to a predominantly negative emotional experience. They tend to rely on maladaptive emotional regulation strategies rather than positive approaches.
- **Emotional Control:** This profile features balanced emotional management. Individuals score highest in emotional intelligence, demonstrating strong recognition and regulation of their emotions. They show high empathy, low reactivity to negative emotions and high reactivity to positive ones. Their regulation strategies include positive approaches, avoiding maladaptive strategies.
- **Strategic Hypersensitivity:** This profile shows high emotional sensitivity balanced by developed regulation skills. Individual's scores indicate a relative low self-control. They are highly reactive to both positive and negative emotions and show strength and vulnerability in managing emotions. In short, these individuals are emotionally hyper-reactive but use positive regulation strategies to manage this sensitivity.

Figure 1

Apprentices' Profiles based on Socio-Emotional Competences
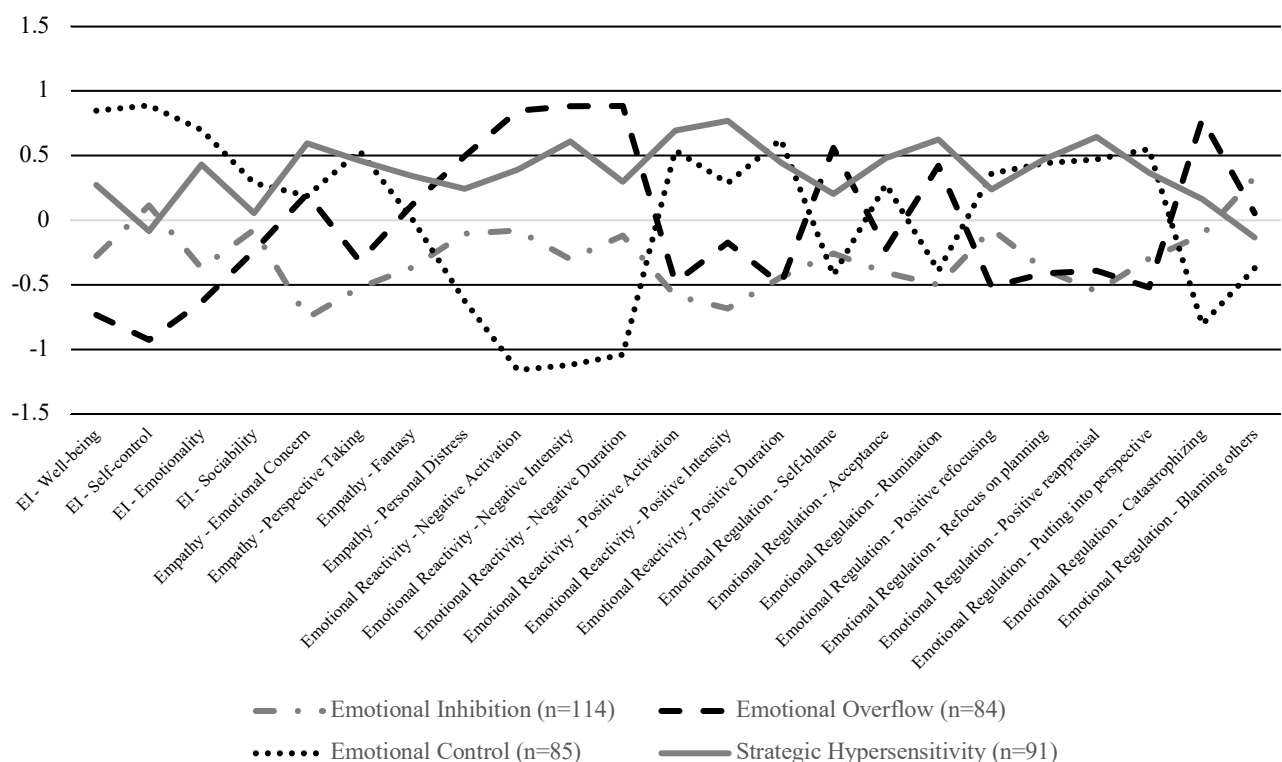
Regarding differences between apprentices' profiles (RQ2), the analyses revealed significant differences between the emotional profiles on several 'adaptation' outcomes. Professional commitment appears to be higher among individuals in Emotional Control and Strategic Hypersensitivity profiles, while those in Emotional Inhibition profile show less investment in their work. Consistently, autonomous motivations are more pronounced in profiles with better emo-

tional regulation, while motivation by default is more frequent in individuals in Emotional Inhibition and Emotional Overflow profiles. Controlled motivations, although overall less differentiated between the groups, are slightly higher in the Emotional Control profile.

In line with these results, the levels of professional burnout also vary according to the profiles, with a marked vulnerability for the Emotional Overflow profile, which displays high scores in physical fatigue, cognitive weariness, and emotional exhaustion. On the other hand, the Emotional Control profile presents the lowest levels of exhaustion, suggesting a better resilience in the face of work demands. These differences are also reflected in life satisfaction, with individuals in the Emotional Control and Strategic Hypersensitivity profiles reporting higher satisfaction than those in the Emotional Inhibition and Emotional Overflow profiles.

Finally, significant links were observed between the profiles and several sociodemographic characteristics. The Emotional Inhibition profile has a higher proportion of men, while the Emotional Overflow profile is mainly made up of women. In addition, the intention to continue in the profession after obtaining the federal diploma varies according to the profiles: individuals in the Emotional Inhibition profile are less inclined to stay in their professional field, while those in the Emotional Control and Strategic Hypersensitivity profiles express a stronger desire to pursue their career. These results suggest that emotion management influences not only the well-being and motivation of apprentices, but also their long-term commitment to their profession. No differences were observed between health care assistants and social care workers concerning representativeness in profiles.

4   Research Significance

These results open the debate on the effectiveness of an emotional suppression strategy in the health and social care professions. While we might expect greater adaptability to the job from individuals who inhibit their emotions (in comparison with those who express emotions too much), we find that this 'strategy' turns out to be just as maladaptive as emotional overflow. Conversely, apprentices with a form of so-called strategic hypersensitivity have learning outcomes that turn out to be just as effective as those with emotional control. Accordingly, our results show that the key to successful and effective learning in the health-social field seems to lie in optimal emotional management, even in the presence of hypersensitivity.

Given these findings, it is crucial for training programs to include modules specifically dedicated to developing socio-emotional competences. The latter are essential in health and social care professions, as they help current and future professionals manage daily emotional challenges more effectively and prevent burnout by strengthening their reflective capacities (Maheux et al., 2022). Moreover, our results show that the identified profiles reflect emotional dynamics that influence well-being, professional commitment, and the ability to handle emotionally demanding work. Unaddressed emotional needs may hinder apprentices' effectiveness and increase their risk of stress and burnout. Conversely, strong emotional regulation, as seen in the mastery and strategic hypersensitivity profiles, supports high-quality care and career sustainability. Notably, well-managed emotional reactivity can enhance adaptive functioning and well-being, reinforcing the idea that high sensitivity is a key aspect of emotional intelligence (Fiori et al., 2023).

References

Alves, S., Gosse, B., & Sprimont, P. A. (2010). Les apprentis de l'enseignement supérieur : de la satisfaction à l'engagement ? [Higher education apprentices: from satisfaction to commitment?]. *Management Avenir,* (3), 35-51. https://doi.org/10.3917/mav.033.0035

Becerra, R., Preece, D., Campitelli, G., & Scott-Pillow, G. (2019). The Perth Emotional Reactivity Scale (PERS): Validation of a short form. *Journal of Personality Assessment, 101*(6), 646–655.

Berger, J.-L. (2021). Motivation à apprendre, autorégulation motivationnelle et procrastination à l'adolescence. [Motivation to learn, motivational self-regulation and procrastination in adolescence]. *Revue française de*

pédagogie, 19-36. https://doi.org/10.4000/rfp.10033

Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology, 10,* 85.

Diener E., Emmons R. A., Larsen R. J., & Griffin S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessement, 49,* 71-76. https://doi.org/10.1207/s15327752jpa4901_13

Dugue, M., Sirost, O., & Dosseville, F. (2021). A literature review of emotional intelligence and nursing education. *Nurse Educcation in Practice, 54,* 103–124. https://doi.org/10.1016/j.nepr.2021.103124

Faguy, K. (2012). Emotional intelligence in health care. *Radiologic Technology, 83*(3), 237–253.

Fiori, M., Vesely-Maillefer, A. K., Nicolet-Dit-Félix, M., & Gillioz, C. (2023). With Great Sensitivity Comes Great Management: How Emotional Hypersensitivity Can Be the Superpower of Emotional Intelligence. *Journal of Intelligence*, *11*(10), 198. https://doi.org/10.3390/jintelligence11100198

FSO (2024). *Upper secondary level.* https://www.bfs.admin.ch/bfs/en/home/statistics/education-science/pupils-students/upper-secondary.html

Garnefski, N., Kraaij, V., & Spinhoven, P. (2001). Negative life events, cognitive emotion regulation and emotional problems. *Personality and Individual Differences, 30*(8), 1311-1327. https://doi.org/10.1016/S0191-8869(00)00113-6

Gilet, A. L., Mella, N., Studer, J., Grühn, D., & Labouvie-Vief, G. (2013). Assessing dispositional empathy in adults: A French validation of the Interpersonal Reactivity Index (IRI). *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, *45*(1), 42-48. https://doi.org/10.1037/a0030425

Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology, 2*(3), 271–299. https://doi.org/10.1037/1089-2680.2.3.271

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*(2), 348–362. https://doi.org/10.1037/0022-3514.85.2.348

gsf.bern (2024). *Baromètre des transitions 2024. [Transitions barometer].* https://cockpit.gfsbern.ch/fr/cockpit/barotransitions-2024-aout/

Ingram, R. (2012). Locating emotional intelligence at the heart of social work practice. *British Journal of Social Work, 43*(5), 987–1004. https://doi.org/10.1093/bjsw/bcs029

Maheux, J., Ethier, C., & Trépanier, E. (2022). La régulation émotionnelle et la mentalisation chez les professionnels en relation d'aide : Compétences émotionnelles et interpersonnelles au coeur de la pratique. [Emotional regulation and mentalisation among professionals in helping relationships: Emotional and interpersonal skills at the heart of the practice]. *Service social, 68*(1), 67. https://doi.org/10.7202/1089870ar

Mayer, J. D., & Salovey, P. (1997). *Emotional development and emotional intelligence.* Nova Iorque: Basics Books.

Mikolajczak, M., Luminet, O., Leroy, C., & Roy, E. (2007). Psychometric Properties of the Trait Emotional Intelligence Questionnaire: Factor Structure, Reliability, Construct, and Incremental Validity in a French-Speaking Population. *Journal of Personality Assessment, 88*(3), 338-353. https://doi.org/10.1080/00223890701333431

Petrides, K. V. (2009). Psychometric Properties of the Trait Emotional Intelligence Questionnaire (TEIQue). In J. D. A. Parker, D. H. Saklofske, & C. Stough (Éds.), *Assessing Emotional Intelligence* (p. 85-101). Springer US. https://doi.org/10.1007/978-0-387-88370-0_5

Petrides, K. V., & Furnham, A. (2001). Trait emotional intelligence: Psychometric investigation with reference to established trait taxonomies. *European Journal of Personality, 15*(6), 425–448. https://doi.org/10.1002/per.416

Saltzman, C. (2008). Empathy in patient care–antecedents, development, measurement, and outcomes. *Psychodynamic Practice, 14*(3), 342-345. https://doi.org/10.1080/14753630802196430

Sassi, N., & Neveu, J. P. (2010). Traduction et validation d'une nouvelle mesure d'épuisement professionnel: Le shirom-melamed burnout measure. [Translation and validation of a new measure of professional burnout: The shirom-melamed burnout measure]. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, *42*(3), 177-184. https://doi.org/10.1037/a0017700

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: a cross-national study. *Educational and psychological measurement*, *66*(4), 701-716. https://doi.org/10.1177%2F0013164405282471

Schutte, N. S., Malouff, J. M., Thorsteinsson, E. B., Bhullar, N., & Rooke, S. E. (2007). A meta-analytic investigation of the relationship between emotional intelligence and health. *Personality and Individual Differences, 42*(6), 921–933. https://doi.org/10.1016/j.paid.2006.09.003

Tremonte-Freydefont, L., Wenger, M., & Fiori, M. (2024). Emotional Intelligence and Success in Initial Vocational Education and Training: A Study among Healthcare Assistants and Social Care Workers. *International Journal for Research in Vocational Education and Training, 11*(2), 146-170. https://doi.org/10.13152/IJRVET.11.2.1

Biographical Notes

Dr Matilde Wenger is senior researcher at the SFUVET. Her topics of interest are emotion management, burn-out and job satisfaction in VET teachers and apprentices; dual VET quality; dual apprentices' role stress; in-company trainers' challenges and needs. Her research areas are based on social psychology, educational sciences and sociology. She favours mixed methods and works with both quantitative and qualitative approaches.

Yoann Favre is a Junior Researcher at the SFUVET. His research interests include emotional management, sustainability, and migration. He is currently pursuing a doctoral thesis on the role of emotions and emotional intelligence in promoting pro-environmental behavior among dual VET apprentices, employing a mixed-method longitudinal approach.

Rayana Abbou is a research intern at the SFUVET. She is currently pursuing her master's degree in social and intercultural psychology at the University of Lausanne. Her topics of interest are group dynamics, self-concept, and social identity.

Dr Marina Fiori is Head of the research field Learning Processes and Support at SFUVET, where she is leading projects on the role of socio-emotional competencies in vocational school-teachers and students, and on talent development in dual apprenticeship. Trained as an industrial and organizational psychologist, she obtained a PhD in Social and Personality Psychology at the University of Illinois at Chicago (UIC).

Inclusive-Digital Education at Vocational Schools: An Empirical Analysis of Success Factors and Challenges Based on a Synthesis of Three Studies on Teachers and School Concepts

Wüthrich, René

rene.wuethrich@ehb.swiss, Swiss Federal University for Vocational Education and Training (SFUVET)

Abstract

Context: The article "Inclusive-digital education at vocational schools: An empirical analysis of success factors and challenges based on a synthesis of three studies on teachers and school concepts" deals with the link between inclusion and digitalization in vocational education in Switzerland. Against the background of an increasingly digitalized working world and the social demand for more participation, inclusive-digital education is becoming more important. Although inclusion is anchored in education policy and digital technologies are increasingly being used in vocational schools, there is a lack of empirical research at the interface of these two areas – especially with regard to teacher training.

Approach: The article is based on three sub-studies that take different perspectives on inclusive digital education and provide a first exploratory insight into the subject area. Study 1 examines an intervention program with 22 prospective teachers at the Swiss Federal University for Vocational Education and Training SFUVET. In this context, lesson plans were analyzed according to criteria of inclusive-digital education, and their self-efficacy was assessed using before-and-after surveys and group discussions. Study 2 develops and validates a questionnaire on expertise and teaching in inclusive-digital education with a first sample (n= 146). A second sample (n= 121) is used to investigate whether self-efficacy in expertise in inclusive digital education influences teaching implementation and to what extent age plays a role. Study 3 examines the extent to which pedagogical blended learning concepts at Swiss vocational schools (N = 21) take aspects of inclusive-digital education into account.

Findings: The results show that students consider inclusive-digital education to be important, but it is not yet being implemented systematically. Self-efficacy in subject knowledge and self-efficacy in inclusive-digital teaching correlate with each other, whereby age influences the assessment of self-efficacy in teaching. Efforts to implement inclusive-digital education can be seen in pedagogical blended learning concepts, but they are only thought of together in a piecemeal way.

Conclusions: The studies make it clear that clear structural guidelines, targeted support services and the strengthening of teachers' self-efficacy are conducive to successful inclusive-digital education and should be systematically taken into account in the training of prospective teachers.

Keywords

universal design for learning, inclusive-digital education, vocational training, teacher training

1 Initial situation

By ratifying the UN Convention on the Rights of Persons with Disabilities in 2014, Switzerland committed itself to ensuring equal access to education for people with disabilities and to removing existing barriers (Swiss Confederation, 2014). Article 24 explicitly emphasizes the right to inclusive education. Digital technologies offer a wide range of possibilities to support an inclusive education system. In vocational education and training, digitalization plays a central role, particularly in the context of the 2030 Vocational Education and Training Initiative, which describes it as a future-oriented megatrend and an opportunity for lifelong learning (SBFI, 2017). In this context, inclusion and digitality are considered to be central cross-cutting issues in VET. In view of the digitalization of the world of work and the increasing importance of inclusion and participation, the integration of these aspects into VET is particularly relevant. The term "participation" is becoming the focus here and calls for a broad understanding of inclusion. Inclusion encompasses both a narrow approach that focuses on people with disabilities and a broad understanding that takes into account the individual needs of all learners (Rützel, 2014). In VET, a broad understanding of inclusion seems to be the most expedient. Taking everyone into account results in increased complexity in the classroom and requires a change of perspective among school stakeholders (Hackbarth & Martens, 2018). Despite the recognition of inclusion in VET and explicitly at VET schools, corresponding measures are only implemented in teaching in isolated cases (Schellenberg et al., 2021; Wüthrich, 2023) and are rarely anchored in school concepts (Wüthrich, 2023). In this paper, VET refers to both VET and PET. In Switzerland, the former includes initial vocational education and training, while the latter offers advanced study programs at the tertiary level (SBFI, 2024). The inclusive-digital education approach is new and somewhat unclear, which is reflected in the different terms used (e.g. ICT for inclusion, digital-inclusive education, inclusive media education). This paper is based on the understanding of the European Agency for Special Needs and Inclusive Education (2022) and its international terminology. Studies focus predominantly on compulsory schooling, while VET in relation to inclusion and digitalization has been neglected so far (Sonnenschein, 2023). In this context, it seems useful to first analyze the VET system with a focus on inclusion and participation, to highlight the role of digital technologies in VET, and finally to develop an understanding of inclusive-digital education.

1.1 Inclusive Vocational Training System and Digital technologies

In the area of vocational education and training, the "VET 2030" initiative describes digitalization as a key competence and megatrend for the learning of the future. It is seen as an opportunity for lifelong learning (SBFI, 2017) and is in line with Goal 4 of the 2030 Agenda for Sustainable Development (EDA, 2020). At the same time, digitalization increases the demands on learners, which can be problematic in terms of inclusive education and can lead to exclusion risks (Wüthrich, 2025a). Since the pandemic at the latest, digitalization has been a central topic in vocational schools and digital technologies are firmly anchored in teaching. In many cantons, the "Bring Your Own Device" (BYOD) model has been introduced, whereby students bring laptops with them at the start of their vocational training in order to strengthen their media and ICT skills as key qualifications of the information society. Implementation varies greatly depending on the framework conditions such as infrastructure and concepts at the vocational schools (SBFI, 2021). An analysis of blended learning concepts at ten vocational schools shows different concepts ranging from the integration of digital technologies and the promotion of self-regulated learning to cooperation between learning locations (Weber et al.,

2024). However, no specific approaches for inclusive teaching have been identified. Nevertheless, the use of digital technologies in basic vocational education offers great potential to meet the requirements of inclusion, whereby the role of teachers is central. Assistive technologies have hardly been used in lesson design to date (Rauseo et al., 2021; Schellenberg et al., 2021). With regard to the use of digital technologies in the classroom, it can also be noted that teachers face major challenges in integrating digital technologies, especially in the career entry phase (Rauseo et al., 2021; SBFI, 2021). The self-efficacy of teachers therefore also plays a decisive role in the implementation of digital technologies and inclusive didactics (Wächter & Gorges, 2022; SBFI, 2021). The study by Wüthrich (2025a) on the self-efficacy of teachers regarding inclusive-digital education indicates that they have a positive attitude towards the approach.

1.2 Inclusive-Digital Education as a Common Approach

The cross-cutting topics of inclusion and digital technologies are presented separately, showing characteristics of a common understanding of the term, in order to use the strengths of both topics synergistically. Inclusion is a central topic, particularly in vocational education and training, and is described in the context of a broad understanding of inclusion. At the normative level, a wide range of support measures are described, while at the teaching level, these are only partially implemented in the form of inclusive didactic approaches. Digital technologies offer potential for inclusion, such as language learning apps, a wide range of learning approaches and opportunities for personalized learning (Wüthrich, 2025a). There is also potential in increasing accessibility by reading texts aloud, enlarging them or optimizing them linguistically with the help of appropriate tools, or transforming linguistically demanding technical texts into a podcast with an AI tool and discussing ambiguities in a chatbot (e.g. NotebookLM). A review of the current empirical research on inclusive digital teaching design in Germany (Mertens et al., 2022) concludes that didactic principles are barely recognizable in VET. This finding also applies to the situation in Switzerland. The European Agency for Special Needs and Inclusive Education (european-agency) has developed visions of inclusive digital education that aim to embed the interplay of inclusion and digital technologies to overcome barriers and promote participation at all levels of the education system (2022):

1. Includes all levels of the education system – starting with the individual (learners and teachers), the organization (schools) and the regional or national level.
2. Considers inclusion, exclusion, digitalization and the digital divide as interconnected, interdependent, overarching thematic areas.
3. Is anchored in the structures of the education system in order to create resilient education systems that offer fair educational opportunities to all learners.
4. Is based on a digital transformation that goes far beyond the mere application of digital technologies in education and teaching.

It is therefore not "only" about implementing inclusive didactics with digital technologies, but rather about using them "in a constantly reflective and balanced way" so as not to create additional learning barriers and risks of exclusion (Mertens et al., 2022). Teachers are thus faced with the task of "selecting digital learning content and designing inclusive learning environments that meet the preferences, competencies, or abilities of individual learners" (european-agency, 2022). This article focuses on the role of teachers and vocational schools.

2 Problem Definition and Research Question

The study explores the role of inclusive-digital education in vocational education and training. The focus is on the perspective of students at the SFUVET and the pedagogical concepts

of vocational schools in relation to blended learning. At the micro level, it has been shown that teachers in the early stages of their careers face challenges in the classroom (Keller-Schneider, 2020), which presumably also applies to inclusive-digital education. It is therefore interesting to see how students at SFUVET in the three language regions deal with inclusive-digital education and how they can be supported in the classroom. Study 1 describes an intervention program with students. The aim of study 2 is to use a newly developed questionnaire to examine whether self-efficacy in subject knowledge in inclusive-digital education influences its implementation in the classroom and to what extent age plays a role. At the macro level of vocational schools, it is unclear whether and which measures are taken and how this is reflected in the pedagogical concepts. Study 3 analyzes the pedagogical concepts of vocational schools. This leads to the following research question:

What success factors and challenges influence the implementation of inclusive-digital education at vocational schools from the perspective of students and in the context of different pedagogical concepts for blended learning?

3 Study Design

The paper consists of three studies that examine the research question from different perspectives, thus enabling an assessment of the current situation. The studies refer to the micro-level in the classroom with students and to the meso-level in the context of school blended learning concepts.

Study 1 presents an intervention program with SFUVET students (N=22) who received input on quality criteria for inclusive-digital education during a module (CAST, 2024; Bosse, 2019) and then created a lesson plan. The intervention program includes a 30-minute input by the lecturers on six study days with a transfer task in their own teaching. The lesson planning was analyzed inductively and deductively with regard to the quality criteria using qualitative content analysis according to Mayring (2022). The students were asked about their self-efficacy in subject knowledge and the integration of inclusive-digital education in the classroom in a pre- and post-survey. For this purpose, a questionnaire based on the instruments DigKomp.2.2de. (Krempkow, 2022), SWIT (Doll & Meyer, 2021) and SACIE-R/TEIP (Feyerer et al., 2016) was used. The instrument comprises five scales with five items each. Two items proved to be redundant in terms of content after the pretest, so that the instrument ultimately comprises 23 items. Finally, a group discussion was conducted based on Kühn and Koschel (2018). The study is designed to be multi-perspective and combines quantitative and qualitative data collection and analysis methods in a mixed-methods approach.

Study 2 focuses on prospective teachers and the validation of a self-efficacy questionnaire in inclusive digital education. The validation was carried out on two independent samples (sample 1: n = 146, sample 2: n = 121). The evaluation strategy was to first identify scales using exploratory factor analysis in SPSS 30 (principal component analysis [PCA], varimax rotation [KMO]) with the first sample and then to check the model quality using confirmatory factor analysis (in Mplus 8) with the second sample. Subsequently, descriptive statistics, correlation analyses, t-tests and a linear regression analysis were carried out.

Study 3 is based on educational concepts for blended learning developed by vocational schools in the three language regions (German-speaking Switzerland = 17, French-speaking Switzerland = 3, Italian-speaking Switzerland = 1). The concepts were analyzed in terms of their relevance to inclusive digital education. Universal Design for Learning (UDL) is often used as a basis in the literature, which is also considered useful in this article (see chapter 1.2). The data was evaluated using Mayring's (2022) structured qualitative content analysis with the MAXQDA analysis software (Verbi Software, 2021). The categories were formed both inductively and deductively. The deductive categories follow the nine options for learning from UDL

(see Table 1), the concepts themselves, and the category ICT support, which proved to be significant in the study by Wüthrich (2025b).

4 Results

The results of study 1 showed that the students were able to integrate numerous quality criteria, which they had learned in the inputs, into their lesson planning. The pre- and post-questionnaires show that the students' self-efficacy did not change significantly ($p > 0.05$ for all scales). The group discussion suggests that, while measures for inclusive-digital education are considered important in principle, they are not a top priority in the early career phase. Rather, the focus is on criteria for good teaching. Against this background, the implementation of inclusive-digital education is described as challenging, which on the one hand relates to methodological and didactic aspects, and on the other hand to the sometimes challenging situation at vocational schools with regard to the applied digitization strategy (keyword BYOD): Digitization is promoted at vocational schools, although there is often a lack of support and clear guidelines for teachers. One consequence of this is the sharpening of quality criteria that take into account the special nature of basic vocational training and higher technical colleges (Wüthrich, in print). This concerns the digitization strategy in vocational schools, but also the consideration of blended learning in higher technical colleges.

The results of study 2 on the validation of a questionnaire on self-efficacy indicated a four-factor solution with a sample ($n = 146$) in an initial exploratory factor analysis (EFA). Some items were removed due to cross-loading, leaving 14 items. A new EFA with the remaining items confirmed the suitability of the data for the analysis (KMO = .930; Bartlett test: $\chi^2(105) = 1355.902$, $p < .001$). A principal component analysis with varimax rotation yielded two factors with eigenvalues greater than 1.0, which together explain 67.44 % of the total variance. The high explanatory power of the two factors indicates a reliable measurement of self-efficacy (Fig. 1). The communality of the items is between 0.547 and 0.837, indicating a stable factor structure. The high reliability confirms the internal consistency of the two scales (expertise in inclusive-digital education: $\alpha = .88$, hereinafter referred to as SwF and inclusive-digital teaching: $\alpha = .93$, hereinafter referred to as SwU). In the next step, the two scales were examined using a confirmatory factor analysis (CFA) with the second sample ($n = 121$). The model fit was not optimal, which is why four items were removed due to their high residual variances and reduced covariances. In addition, some items showed high covariances with other items, indicating redundancy and a lack of differentiation between the items. The model fit was good after adjustment $c^2/df (34) = 1.43$, $p = .0485$, CFI = 0.982, TLI = 0.976, RMSEA = 0.060, 90% CI = [0.005, 0.095], $p(RMSEA \leq 0.05) = 0.312$, SRMR = 0.034. The structural equation model is shown in Figure 1. The results of the CFA confirm the structure of the questionnaire. The fit indices show a good model fit, which confirms the validity of the two scales "inclusive-digital teaching" (SwU) (M = 4.34, SD = 0.91) and "Subject Knowledge in inclusive-digital education" (SwF) (M = 4.02, SD = 1.06).

Figure 1
Structural Equation Model of The Confirmatory Factor Analysis
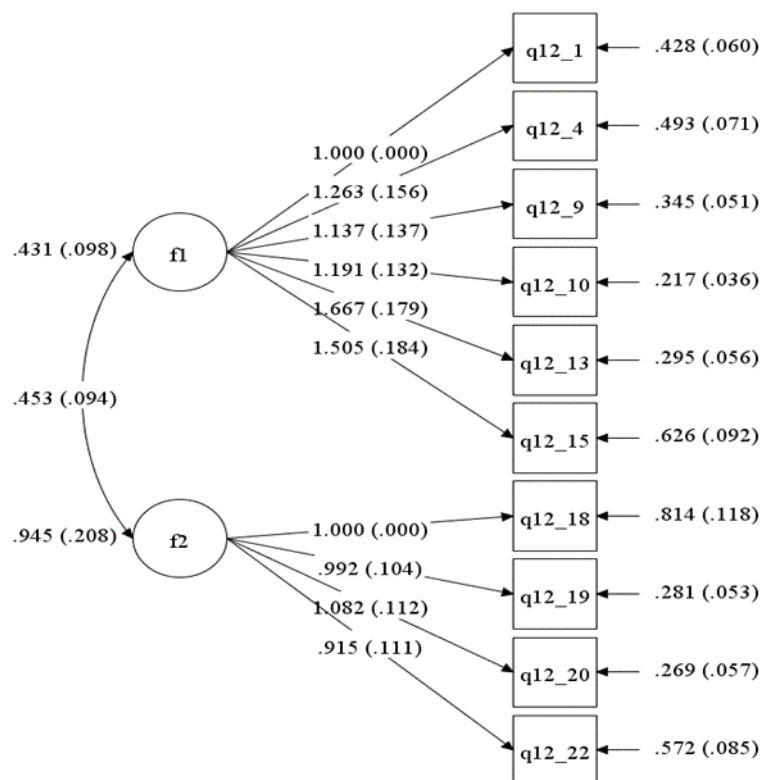
Note. Partial sample (N= 121), f1= scale inclusive-digital teaching SwU (6 items), f2= scale expertise in inclusive-digital education SwF (4 items)

In the context of study 2, the question of the extent to which prospective teachers assess their self-efficacy in relation to their subject knowledge of inclusive digital teaching and its integration into teaching and what role age plays was also of interest. Students at SFUVET are on average 38.6 years old when they start their studies and 42.7 years old when they graduate (internal data SFUVET). The median age of the students in the sample (n= 121) is 40.88 years. With regard to the research questions, two age groups were formed, which were distributed across a similar sample size of students below the median (< 40 years) with n= 64 and students above the median (> 40 years). The younger students show both in the SwF (< 40 years, M= 4.5, SD= 0.4/ > 40 years, M= 4.04, SD= 0.97) and in SwU (< 40 years, M= 5.12, SD= 0.63/ > 40 years, M= 4.54, SD= 0.72).

To examine the relationships, a Pearson correlation analysis was conducted between the SwF and SwU scales. In the age group under 40 years of age, there was a significant positive correlation ($r = 0.673$, $p < 0.001$) between SwF and SwU. According to Cohen (1988), correlation coefficients of $r = 0.1$ to $r = 0.3$ are considered small to moderate, $r = 0.3$ to $r = 0.5$ moderate to high, and $r = 0.5$ or higher high. In the age group of those over 40 years of age, a significant positive correlation ($r = 0.672$, $p < 0.001$) was also found between SwF and SwU. These results confirm the assumption that higher SwF is associated with higher SwU. Overall, there is a significant positive correlation between SwF and SwU in both age groups, under and over 40 years of age.

Afterwards, t-tests were used to determine whether there were significant differences between the two age groups. Students (> 40 years) rated their SwF slightly higher (M = 4.05, SD

= 0.98, n = 53) than those under 40 years (M = 3.97, SD = 1.11, n = 64), but there is no statistically significant difference between the groups, $t(115) = -0.40$, $p = .688$. Thus, age is not related to SwF. Significant differences were found for SwU. Students aged 40 and up rate SwU higher (M = 4.55, SD = 0.72, n = 53) than those under 40 (M = 4.19, SD = 0.98, n = 64), $t(115) = -2.18$, $p = .031$. The effect size according to Cohen (1988) is $d = -0.41$ and thus corresponds to a medium effect, which shows a connection between the SwU and the students (> 40 years).

Finally, a regression analysis was conducted to examine the influence of age on the SwU. The results showed a significant negative effect (B = -0.395, $p = 0.014$), indicating that younger students tend to rate their SwU lower than older students. The model explains only 5% of the variance ($R^2 = 0.050$), indicating the influence of other factors.

Study 3 comprises a total of 13 categories, three of which are inductive and ten deductive, identified on the basis of UDL (2024 and Wüthrich (2025b) (see Table 1). The concepts are diverse, ranging in length from three to 35 pages. The concepts focused on digitalization with an emphasis on BYOD and blended learning (21 out of 21 concepts). Inclusion was not mentioned by name; anchor example Concept_1: "Learners with special needs...", but was mentioned in additional concepts on remedial teaching (3/21). Against this background, it is clear that inclusion is not anchored in the concepts and is not taken into account.

The concepts refer to all nine UDL options, which is evident in the form of learning location cooperation (8/21) for the Option for Perception, digital teaching materials (6/21) for the Option for Language & Symbols, and the requirement for media diversity (10/21). In the Option for Building Knowledge, this refers to prior knowledge (9/21). Design Options for Interaction are described with learning platforms (12/21) and artificial intelligence (AI) (2/21). Design Options for Expression & Communication are evident in the requirement for learning coaching (15/21) and internally differentiated teaching (6/21). Design Options for Strategy Development are visible in the acquisition of learning strategies (7/21). The link to vocational training is evident in the focus on action competence (19/21) and self-directed learning (17/21) in Design Options for Welcoming Interests & Identities. Collaboration plays an important role in the concepts and is reflected in the emphasis on collaboration (9/21) and cooperation (11/21) in Options for Sustaining Effort & Persistence. Reflective competence is found in the majority of the concepts, albeit with different perspectives (15/21), which focus on values or one's own actions and can be assigned to the Design Options for Emotional. The study by Wüthrich (2025b) showed that support from the ICT department at the BFS is sometimes lacking. Some vocational schools are aware of the challenges posed by digital technologies and offer extensive support measures; anchor example Concept_8: "To support the pedagogical implementation of e-learning, particularly methodological/didactic issues, the school trains two pedagogical ICT supporters. They accompany and supervise teachers on a mandate basis." Some vocational schools do not offer any support to learners.

The role of teachers is described as requiring sufficient digital skills and regular further training. Some of this training is voluntary (16/21) and some is mandatory (5/20). Digital assessment was identified as an inductive category that was addressed in the majority of concepts (18/21). However, there is no mention of how digital assessment can be achieved in practice while ensuring equal opportunities and accessibility. Instead, possible tools are suggested (5/21). In summary, the question arises as to how inclusion is understood and perceived as a task in vocational schools. While the school concepts address a wide range of measures for digitalization, this is hardly the case with regard to inclusion in the context of this study. This suggests that vocational schools have untapped potential in this area and that inclusion is not being used synergistically with digital technologies and anchored in the sense of inclusive-digital education. There is also a tendency toward assistive technologies, but their potential is not being fully exploited, such as digital teaching aids, digital testing, or AI.

Table 1

Inductive and Deductive Quality Criteria For Inclusive-Digital Education

Number	Category (inductively and deductively organized, reference to literature)
1	Concepts at vocational schools (inductiv)
2	Design Options for Perception (UDL 1) (deductiv, CAST, 2024)
3	Design Options for Language & Symbols (UDL 2) (deductiv, CAST, 2024)
4	Design Options for Building Knowledge (UDL 3) (deductiv, CAST, 2024)
5	Design Options for Interaction (UDL 4) (deductiv, CAST, 2024)
6	Design Options for Expression & Communication (UDL 5) (deductiv, CAST, 2024)
7	Design Options for Strategy Development (UDL 6) (deductiv, CAST, 2024)
8	Design Options for Welcoming Interests & Identities (UDL 7) (deductiv, CAST, 2024)
9	Options for Sustaining Effort & Persistence (UDL 8) (deductiv, CAST, 2024)
	Design Options for Emotional Capacity (UDL 9) (deductiv, CAST, 2024)
11	ICT-Support (deductive, Wüthrich, 2025b)
12	role of the teacher (inductiv)
13	Digital testing (inductiv)

5 Synthesis

The study examines the success factors and challenges influencing the implementation of inclusive-digital education in vocational schools from the perspective of prospective teachers and in the context of blended learning concepts. The positive attitude of students toward inclusive-digital education emerges as a key success factor. This attitude depends less on age or technical affinity and is significantly influenced by personal relevance.

Vocational schools have so far only taken selective measures in the area of inclusive-digital education. A theory-based and practical implementation in line with the recommendations of the European Agency (2022) can be helpful in this regard. This is particularly relevant as the practical implementation of teaching within the intervention program proved challenging and inclusive-digital education is not a top priority from the students' perspective. In the early stages of a career, the focus tends to be on the quality of teaching in the traditional sense.

Although the concept of Universal Design for Learning (UDL) offers a helpful structure, its complexity can sometimes be overwhelming for students and teachers. Nevertheless, UDL can be easily adapted to basic vocational education, especially with regard to promoting professional skills. With its nine options, UDL offers a structured framework for targeted implementation. In the future, vocational schools should think about inclusion and digital technologies in an integrative and synergistic way. It is important to provide targeted support for teachers, for example through mentoring programs (Wüthrich, 2025b), training courses for multipliers (Schulz, 2021), or internal school contact points, which were considered helpful by the students in this study. The strong ICT support mentioned in the concepts is also a possible approach. The extent to which teachers design their lessons based on subject-specific or general didactic quality criteria (Baumert et al., 2023; Obermeier et al., 2022) and the role that UDL plays in this should be investigated (Böttinger & Schulz, 2023; Wüthrich, 2025b). In teacher

training, it seems sensible to anchor content on inclusive digital education more firmly – ideally across several modules. The development of corresponding university modules for secondary education can serve as a goal here (Gut et al., 2024). In view of social developments, inclusive-digital education is expected to become increasingly important. However, it cannot be achieved at the classroom level alone, but must be understood as part of sustainable school development (European Agency, 2022a; Obermeier et al., 2022; Schulz, 2021). The use of assistive technologies shows potential in this regard: digital teaching materials, digital exams, and the use of AI could significantly increase participation, but have hardly been used to date. A stronger focus on UDL could also provide valuable impetus in this area.

References

Baumert, B; Küthe, E; Schaller, M; & Rau, F. (2023). „Qualitätsmerkmale für einen Digital-Inklusiven Unterricht: Am Beispiel Einer Lernumgebung für Den Religionsunterricht in Der Grundschule". MedienPädagogik: Zeitschrift für Theorie und Praxis der Medienbildung 20 (Jahrbuch Medienpädagogik) (pp. 551-80). https://doi.org/10.21240/mpaed/jb20/2023.09.21.X.

Bosse, I. (2019). Schulische Teilhabe durch Medien und assistive Technologien. G. Quenzel, K. Hurrelmann (Eds.), Handbuch Bildungsarmut (pp. 827-852). Springer VS. https://doi.org/10.1007/978-3-658-19573-1_33

Booth, T. & Ainscow, M. (2019). Index für Inklusion. Ein Leitfaden für Schulentwicklung (2. Auflage). Beltz.

Böttinger, T. & Schulz, L. (2023). Teilhabe an digital-inklusiven Bildungsprozessen. Das Universal Design for Learning diklusiv als methodisch-didaktischer Unterrichtsrahmen. QfI - Qualifizierung für Inklusion, 5(2). https://doi.org/10.21248/qfi.122

CAST, Center for Applied Special Technology. (2024). Universal Design for Learning Guidelines, Version 3.0. https://udlguidelines.cast.org/static/udlg3-graphicorganizer-digital-numbers-a11y-german.pdf

Doll, J. & Meyer, D. (2021). SWIT. Selbstwirksamkeit von Lehrerinnen und Lehrern im Hinblick auf die unterrichtliche Integration digitaler Technologie [Verfahrensdokumentation und Fragebogen]. Leibniz-Institut für Psychologie (ZPID) (Eds.), Open Test Archive. ZPID. https://doi.org/10.23668/psycharchives.4872

EDA, Eidgenössisches Departement für auswärtige Angelegenheiten. (2020). Ziel 4: Inklusive, gleichberechtigte und hochwertige Bildung gewährleisten und Möglichkeiten lebenslangen Lernens für alle fördern. https://www.eda.admin.ch/agenda2030/de/home/agenda-2030/die-17-ziele-fuer-eine-nachhaltige-entwicklung/ziel-4-inklusive-gleichberechtigte-und-hochwertige-bildung.html

European-Agency, European Agency for Special Needs and Inclusive Education. (2022). Inklusive digitale Bildung – Kurzdossier. https://www.european-agency.org/sites/default/files/IDE-PolicyBrief-DE.pdf

Feyerer, E., Reibnegger, H., Hecht, P., Niedermair, C., Soukup-Altrichter, C. & Plaimauer, C., Prammer-Semmler, E., Moser, I. & Bruch, I. (2016). SACIE-R/TEIP. Skala für Einstellungen, Haltungen und Bedenken zu Inklusiver Pädagogik / Skala zu Lehrer/innenwirksamkeit in Inklusiver Pädagogik [Verfahrensdokumentation und Fragebogen]. Leibniz-Institut für Psychologie (ZPID) (Eds.), Open Test Archive. ZPID.

Gut, J., Kunz, A., & Zobrist, B. (2024). Sonder- und Heilpädagogik in der Ausbildung für Lehrpersonen auf der Sekundarstufe I: Angebote an den Pädagogischen Hochschulen der deutschsprachigen Schweiz. Schweizerische Zeitschrift für Heilpädagogik, 30(05), (pp. 15–20). https://doi.org/10.57161/z2024-05-03

Hackbarth, A. & Martens, M. (2018). Inklusiver (Fach-)Unterricht: Befunde - Konzeptionen -Herausforderungen. T. Sturm & M. Wagner-Willi (Eds.), Handbuch schulische Inklusion (pp. 191–206). Verlag Barbara Budrich.

Keller-Schneider, M. (2020). Entwicklungsaufgaben im Berufseinstieg von Lehrpersonen. Bearbeitung beruflicher Herausforderungen im Zusammenhang mit Kontext- und Persönlichkeitsmerkmalen sowie in berufsphasendifferenten Vergleichen. Pädagogische Psychologie und Entwicklungspsychologie, Bd. 100, (2. Aufl.). Waxmann. https://doi.org/10.1007/978-3-658-24734-8_59-1

Kühn, T & Koschel, K-V. (2018). Gruppendiskussionen. Ein Praxis-Handbuch (2. Auflage). Springer.

Mayring, P. (2022). Qualitative Inhaltsanalyse. Grundlagen und Techniken (12. Auflage) Weinheim: Beltz.

Mertens, C; Quenzer-Alfred, C; Kamin, A-M; Homrighausen, T; Niermeier, T, & Mays, D. (2022). Empirischer Forschungsstand zu digitalen Medien im Schulunterricht in inklusiven und sonderpädagogischen Kontexten. Eine systematische Übersichtsarbeit - Empirische Sonderpädagogik 14(1), (pp. 26-46). 10.25656/01:25529

Obermeier, C; Hill, D, Hartung, J; Profft, J, Vieregg, N. (2022). Handreichung - Inklusiv-digitale Schul- und Unterrichtsentwicklung - Wie gelingt das? https://digi-ebf.de/system/files/2022-07/Handreichung_Inklusiv-digitale%20Schul-und%20Unterrichtsentwicklung_Wie%20gelingt%20das.pdf

Rützel, J. (2014). Inklusion als Herausforderung für die beruflichen Schulen. HiBiFo – Haushalt in Bildung & Forschung, 3(1), (pp. 61-74).

Rauseo, M., Antonietti, C., Amenduni, F., Dobricki, M., & Cattaneo, A. (2021). Digitale Kompetenzen von Be-

rufsfachschullehrkräften Übersicht über die im Sommer 2020 durchgeführte Umfrage. Lugano: Eidgenössisches Hochschulinstitut für Berufsbildung EHB. https://www.ehb.swiss/sites/default/files/digitale-kompetenzen-von-berufsfachschullehrkraeften.pdf

SBFI, Staatssekretariat für Bildung, Forschung und Innovation. (2021). Digitalisierung in der Bildung. Educa. https://www.sbfi.admin.ch/dam/sbfi/de/dokumente/webshop/2021/digi-bildung.pdf.download.pdf/digitalisierung_in_der_bildung_d.pdf

SBFI, Staatssekretariat für Bildung, Forschung und Innovation. (2017). Berufsbildung 2030 Vision und strategische Leitlinien. Hintergrundbericht zum Leitbild. https://berufsbildung2030.ch/images/pdf_de_en/rapport_d.pdf

Scharnhorst, U. & Kammermann, M. (2018). Wie inklusiv ist die Berufsbildung? Auslegeordnung zur zweijährigen Grundbildung. Panorama, 2/2007, (pp.14–15).

Schellenberg, C., Pfiffner, M., Krauss, A., De Martin, M., & Georgi-Tscherry, P. (2021). EIL - Enhanced Inclusive Learning. Nachteilsausgleich und andere unterstützende Massnahmen auf Sekundarstufe II: Schlussbericht. Hochschule für Soziale Arbeit Luzern & Interkantonale Hochschule für Heilpädagogik. https://www.hfh.ch/media/1862/download?attachment

Schulz, L. (2021). Diklusive Schulentwicklung: Erfahrungen und Erkenntnisse der digital-Inklusiven Multiplikatorinnen- und Multiplikatorenausbildung in Schleswig-Holstein. MedienPädagogik: Zeitschrift für Theorie und Praxis der Medienbildung 41 (Inklusiv-mediale Bildung): (pp. 32-54). https://doi.org/10.21240/mpaed/41/2021.02.03.X.

Schweizerische Eidgenossenschaft (2002). Bundesgesetz über die Berufsbildung vom 13. Dezember 2002 (Stand am 1. April 2022). https://www.fedlex.admin.ch/eli/cc/2003/674/de

Sonnenschein, N. (2023). „Inklusive Medienbildung in Beruflichen (Bildungs-)Kontexten: Konzeptionelle Ansätze Und Perspektiven für Ihre Weiterentwicklung". MedienPädagogik: Zeitschrift für Theorie und Praxis der Medienbildung 20 (Jahrbuch Medienpädagogik): (pp. 151-68). https://doi.org/10.21240/mpaed/jb20/2023.09.06.X

Verbi Software. (2021). MAXQDA 2022 [computer software]. VERBI Software.

Wächter, T., Gorges, J. (2023). Wie kommt Inklusion in die Schulen? Einstellung zur Inklusion als Prädiktor der inklusionsbezogenen Fortbildungsmotivation von Lehrkräften. Zeitschrift für Erziehungswissenschaft 26, (pp. 31–54). https://doi.org/10.1007/s11618-022-01129-5

Weber-Bürki, R., Rapold, C. & Ruoss, T. (2024). Schlussbericht Tour de Suisse Blended Learning. Eidgenössische Hochschule für Berufsbildung EHB.

Wüthrich, R. (2023). Didaktisches Handeln von Berufsfachschullehrpersonen in heterogenen Lerngruppen und die Rolle gesetzlicher Vorgaben – eine explorative Untersuchung zur Inklusion in der zweijährigen beruflichen Grundbildung. Universität Zürich. https://doi.org/10.5167/uzh-234851

Wüthrich, R. (2024). (Un)genutztes Potenzial – Unterstützungsmaßnahmen zur Erhöhung von Inklusion an Berufsfachschulen. bwp@ Berufs- und Wirtschaftspädagogik – online 46, (pp. 1-17). https://www.bwpat.de/ausgabe46/wuethrich_bwpat46.pdf

Wüthrich, R. (2025a). Inklusiv-digitale Bildung: Zukunftsperspektiven für die Berufsbildung?. Transfer. Transfer. Berufsbildung in Forschung und Praxis 10(15). https://transfer.vet/inklusiv-digitale-bildung-zukunftsperspektiven-fuer-die-berufsbildung/

Wüthrich, R. (2025b). Inklusiv-digitale Bildung im Studium zur Lehrkraft für Berufskunde im Hauptberuf: Analyse eines Interventionsprogramms. QfI - Qualifizierung für Inklusion. https://doi.org/10.21248/qfi.177

Biographical Notes

Dr René Wüthrich, lecturer at the Swiss Federal University for Vocational Education and Training SFUVET. His area of interest lies in the cross-cutting topics of inclusion and digitalization with the approach of inclusive-digital education and the UDL guidelines.

Dynamic Vocational Guidance: Integrating Deep Reinforcement Learning with Item-Response Theory

Yuan, Wenrui
w.yuan@utwente.nl, University of Twente

Steinrücke, Johannes
j.steinrucke@utwente.nl, University of Twente

Abstract

Context: This study addresses vocational guidance by integrating traditional psychometrics with machine learning (ML) techniques.
Method: We propose an integrated deep reinforcement learning (DRL) and item-response theory (IRT) framework that dynamically updates student latent traits via mixed-format questionnaire responses and refines career recommendations using a deep Q-network.
Findings: Simulation experiments on synthetic data indicate that moderate reward scaling yields an optimal balance between model performance and training stability.
Conclusions: Results highlight the potential of automating career guidance using our DRL-IRT integration.

Keywords

vocational guidance, reinforcement learning, item-response theory

1 Introduction

With the global labour market expanding rapidly, vocational education and training (VET) faces serious challenges in aligning curricula with both shifting workforce demands and diverse individual needs (Cedefop, 2019). Despite their critical role in connecting education and employment, most career guidance approaches require extensive manual processing, coupled with experts' intervention. Early vocational guidance relied on counsellors manually matching aptitudes to occupational requirements (Parsons, 1909). Holland's RIASEC codes (1959) later formalized this process by categorizing careers into six personality-based types: *Realistic, Investigative, Artistic, Social, Enterprising, Conventional*. Computer-assisted career guidance (CACG) systems like System of Interactive Guidance Information (SIGI) and DISCOVER were introduced in the 1970s to automate the questionnaire process by mapping individual values, skills and interests to career options (Katz, 1973; Rayman & Harris-Bowlsbey, 1977). Recent practices have also highlighted the use of CACG to align various educational information and interests with available positions (González-Eras & Aguilar, 2019; Nguyen et al., 2018).

Standardized taxonomies like O*NET[1] and ESCO (European Skills, Competences, Qualifications and Occupations) (Smedt et al., 2015) further support the career guidance system by offering accurate descriptions for occupations and skills. Despite their successes in practices, skill-assessment based vocational guidance raises concerns in validity and biases (Fujishiro & Koessler, 2020; Sireci et al., 2024).

On the other hand, recent advances in artificial intelligence (AI) have sparked interests in studying career guidance with machine learning (ML) methods. Most ML approaches concern immediate job matching (Freire & de Castro, 2021), which relies heavily on semantic information or social connections. Zhang et al., (2014) highlights the use of collaborative filtering methods (CF) to infers user ratings for a list of job positions based on historical behaviours from other similar users or ratings they gave to similar jobs. Content-based approaches match user skill profiles with job requirements (Chenni et al., 2015; Freire & de Castro, 2021). There are also other works, including a hybrid approach that actively switch between different recommendation schemes through calculated weights (Ochirbat et al., 2018) or visualized recommendation through both semantic information and social relations (Bostandjiev et al., 2013; Diaby et al., 2014; Malherbe et al., 2014), highlighting the use of multi-modal data in job recommendations. Recent advances in large language models (LLMs) give rise to chatbot based career counselling (Nair et al., 2022) and prediction-based matching (Athey et al., 2024). However, both traditional approaches and ML matching methods face three key limitations in practices:

- *Adaptability*: Traditional practices rely heavily on manual assessments of individual profiles, making it difficult to tailor career advice for students with varying competencies.
- *Continuity*: Traditional practices treat career counselling as discrete events rather than continuous development support. ML methods prioritize immediate job matches based on historical data rather than exploration for skill development.
- *Data Limitation*: ML based methods suffer from data scarcity and prone to biases. It can also lead to questionable job matches when historical employment data fail to predict future labour market.

Reinforcement learning (RL), on the other hand, can addresses these limitations by sequentially adjust matching results based on dynamically changing user profile. We therefore proposed a deep reinforcement learning (DRL) based recommendation framework that transforms vocational choice decision-making into an adaptive process. Formally, the problem is formulated as to generate personalized recommendation for career fields or VET programs using questionnaire responses. Our approach employs item-response theory (IRT) models to parse response data and model students' vocational interests, skills, and competency profiles. And then sequentially improve the recommendation with DRL algorithms. Our main contributions are:

- The use of vocational interest questionnaire responses for career recommendation.
- Personalized recommendation based on dynamic student profiles.
- Capacity to develop a long-term career decision-making support.

Due to the exploratory nature of this work, we did not collect any real response data nor test with empirical results. Validation and result interpretation are based on synthetic dataset generated with respect to modelling and practical assumptions

---

[1]   https://www.onetonline.org/

The paper is structured as follows: we start with our detailed implementation for the DRL-IRT integration; a numerical experiment on a synthetic dataset to validate the model will then follow, with results interpretation and discussions on the practical implications and future development.

2   Methodology

Our framework features the use of questionnaire responses and static career-specific features to make vocational recommendations. We treat each question-asking as a discrete event in a single timestep, meaning that the recommendations will be processed by the proposed model after a response is made by the student. Then for each question being responded, we dynamically update student profiles using (1) latent traits estimates via IRT response model and (2) the recommendation policy via DRL.

Reinforcement learning

RL is a feedback-driven approach that enables an agent to learn optimal decision-making by interacting with an environment. It performs especially well on career path planning with specific objectives (Avlonitis et al., 2023; Guo et al., 2022; Kokkodis & Ipeirotis, 2021). Formally, RL problems can be modelled as a Markov Decision Process (MDP) defined by $\langle S, A, P, R, \gamma \rangle$, where:

- S is the set of states (e.g., student's competency profile),
- A is the set of actions (e.g., recommending a specific job or educational program),
- $P(s_{t+1} \mid s_t, a_t) s_t$ to s_{t+1},
- $R(s_t, a_t)$ is the reward function
- $\gamma \in [0,1)$ is the discount factor that determines the impact of future rewards.

At each timestep t, the algorithm will observe a state s_t, select an action a_t, receives a reward $R(s_t, a_t)$ and be transitioned into a new state s_{t+1}. The objective is to maximize the expected cumulative discounted reward, given by:

$$V(s) = \max_{\pi} \quad E_{\pi}\left[\sum_{k=0}^{T} \gamma^k R(s_{t+k}, a_{t+k})\right]. \tag{1}$$

In the context of VET, RL agent will recommend a program, receives a reward based on the relevance to the student, and adjust its recommendation based on the reward in the next step.

Item-response theory

Item-Response Theory (IRT) is a paradigm to model a student's latent traits (e.g., vocational competencies or interests) through questionnaire responses. Formally, suppose each student j can be characterized by $\boldsymbol{\theta}_j \in \mathbb{R}^d$. Then, for any item i, $P(X_{ij} = 1 \mid \boldsymbol{\theta}_j)$ defines the probability of student j making response X_{ij}. example, the response model for dichotomous items (i.e., binary types of questions) is given by:

$$P(X_{ij} = 1 \mid \theta_j) = \frac{1}{1 + \exp[-a_i^T \theta_j + b_i]}, \tag{2}$$

where a_i and b_i are discrimination and difficulty parameters. IRT can be extended to estimate multi-dimensional latent traits to describe characteristics of multiple students.

In the context of VET, discrimination and difficulty can be represented as different aspects each item is assessing (e.g. interests, skills or competencies), allowing parameterizable profile characterization.

Model Overview

While traditional approaches rely on rule-based systems and questionnaires, modern ML approaches often lack continuous support and mainly focus on immediate job matches (Freire & de Castro, 2021). Our framework serves as an integration of two: it dynamically updates (1) competency estimates via IRT, and (2) the recommendation policy using deep reinforcement learning (DRL). Figure 1 provides a high-level overview of this integration: the user's responses feed into the MIRT model, which refines the user's latent traits, whereas the DRL agent, in turn, updates its recommendation strategy based on rewards derived from the user's progress and feedback.

Figure 1
Overview of DRL-IRT Integration
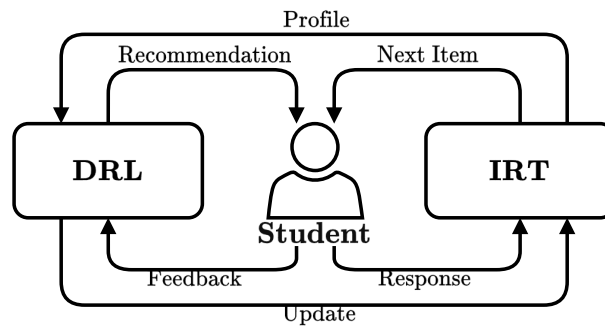
As shown in Figure 2, we designed an adaptive MIRT environment for student's traits estimation in a mixed format test setting due to the variety of question types. Formally, for each timestep t, the MIRT module updates an estimate θ_t based on the response, which, along with other features, will be represented as O_t. Suppose we have a pool of career choices J to recommend to students; and for each choice $j \in J$, we define We define F_j to be the feature of such choice. Let $S_t = \{O_t, F_{K_t}\}$, where K_t is a list of vocations to be recommended to the student, which is modified sequentially by an action a_t that can be adding, removing vocations or maintaining the list. At each time t, the algorithm will learn to select an action that maximizes the reward, defined by:

$$R(s_t, a_t) = w_1\big[\log P\left(O_t, F_{K_t}\right) - \log P\left(O_t, F_{K_{t-1}}\right)\big] + w_2 R_T , \tag{3}$$

where w_1, w_2 are scaling weights and $R_T \in [-1,1]$ measures the students' feedback to the recommendation generated by the algorithm. Specifically, we enforce that $R_T \neq 0$ if and only if $t = t'$, where t' are "dummy" questions to collect student's feedback for the recommendations, which comes often at the final phase (i.e., $t' = T$) of the questionnaire. Let $P\left(O_t, F_{K_t}\right) = P\left(y = 1 \mid O_t, F_{K_t}\right)$ be the probability that student will give positive rating to the recommendation K_t, based on their current profile O_t. Taking log-difference of likelihoods measures the deviation of the new list K_t from the old one K_{t-1}. We assign this as additional reward due to the sparse nature of students' feedback in the entire test-taking process. The intuition is simple: the agent should be awarded if recommendations are updating in the right direction and be penalized otherwise.

   Due to its sequential nature, the above constructions provide continuous profile assessment and real-time choice matching, which allows results rollout without completing full questionnaire, or improves previous recommendations by taking additional questions.

Figure 2
DRL-IRT Framework For Vocational Choice Recommendation
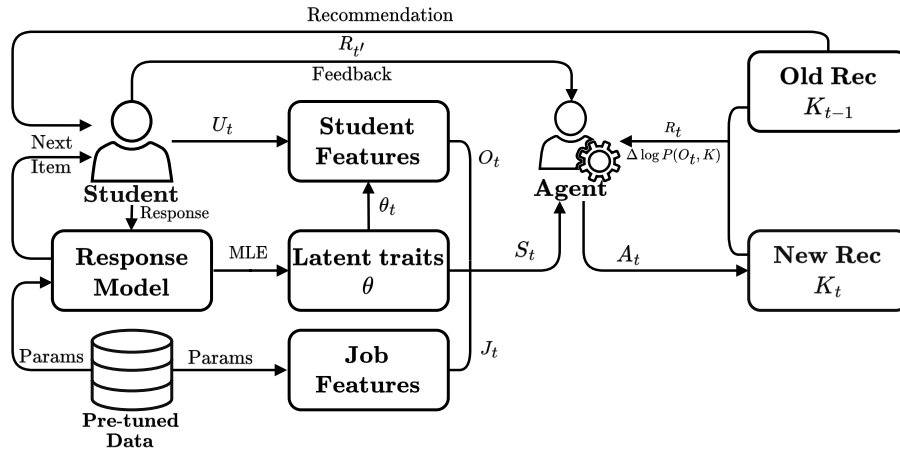
Experiments

To validate our model, we conducted an experiment in a simplified job recommendation scheme after each student answers a fixed number of questions, $T = 100$. For DRL agent training, we follow Mnih V. (2013) to construct a Deep Q-Network (DQN). Reward scaling factors are selected from $w_1 \in \{1,20,50,100\}$ for immediate rewards and from $w_2 \in \{1,3,5\}$ for the (terminal) feedback one to assess their impact on learning performance.

Dataset generation

   200 jobs and their features are generated through a clustering-based scheme. We assumed 6 centroids, which are the centre of group of points in the feature space, each sampled with uniform distribution. Then for each job, we sample a 2-dimensional feature from a distribution with one of the centroids. Formally, let $x_j \in \mathbb{R}^2$ denote the feature for job j, it follows that:

$$x_j \sim \sum_{k=1}^{K} \pi_k \, N(\mu_k, \Sigma) \tag{4}$$

   where K is the number of centroids, π_k are mixture weights and Σ is the covariance matrix controlling the spread. For the latent traits, we assume $\theta \sim N(0, I_2) \in \mathbb{R}^2$, which measures hard and soft skills regarding career competencies.

IRT item parameter setup

   We generated 200 items of three item types—binary (~30% of total items), Likert-scale (~50% of total items), and multiple-choice (~20% of total items). Items are randomly shuffled to avoid any sequential dependencies. Table 1 entails our response models and item parameter generation setup:

Table 1

Synthetic Generation With Specified Parameters Item

Item type	Model	Discrimination	Difficulty / Threshold
Binary	2PL[2]	$a_i \sim \text{Lognormal}(0,0.3)$	$b_i \sim N(0,1)$
Likert-scale	GPCM[3]	$a_i \sim \text{Lognormal}(0,0.3)$	$\text{sort}\left(b_{ij} \sim N(0,1)\right)$
Mult-choice	NRM[4]	$a_{ik} \sim \text{Lognormal}(0,0.3)$	$b_{ik} \sim N(0,1)$

Note. Setups are adapted from Embretson & Reise, (2000) and R.J. De Ayala, (2010).

2.1 Results

Figure 3 and 4 shows the model reward and loss over training episodes with different reward scaling factors, where we increase w_1 by each column and w_2 by each row. Several observations are made:

- On the top-left plot, rewards are unscaled (i.e., $w_1 = w_2 = 1$). The episodic reward shows only modest improvement over training, suggesting low incentives to training.
- Increasing w_1 helps establish the upward trend, suggesting its importance to short-term target: matching vocations most relevant to user profiles. Whereas w_2 respects the long-term target: a higher overall rating for the recommendation.
- At $w_1 = 50$, $w_2 = 3$, the model exhibits good balance between performance and stability for training.

Discussions

This work introduces a novel DRL-IRT framework that learns from questionnaire responses to generate adaptive career recommendations. Our experiment with reward scaling factors highlights the importance of moderate scaling for discernible and stable reward shaping. These findings suggest that rather than the common static profile matching, one-off-recommendation scheme, ML methods wield much more potentials in assessing questionnaire data for vocational advice. This integration is not limited to career recommendation systems but also proves the practicality of applying DRL and IRT to process psychometric data, which are traditionally confined to rather static and manual assessments.

Moreover, we believe this framework offers much broader applications to address other concerns in VET practices. For example, by redefining the reward function to focus on retention or reducing labour misalignment, our model can be designed to guide students to programs not only for skills that are high in demand, but also to their interests.

Despite these promising aspects, we acknowledge that our current work is preliminary, with validation limited to synthetic data. Future research is planned to focus on model validation with real datasets or explainable recommendation policies. Nevertheless, our work opens a new research venue towards a data-driven, personalized vocation and education systems.

References

Athey, S., Brunborg, H., Du, T., Kanodia, A., & Vafa, K. (2024). LABOR-LLM: Language-Based Occupational Representations with Large Language Models. *arXiv preprint arXiv:2406.17972.* https://doi.org/10.48550/arXiv.2406.17972

Avlonitis, S., Lavi, D., Mansoury, M., & Graus, D. (2023). Career path recommendations for long-term income maximization: A reinforcement learning approach. *arXiv preprint arXiv:2309.05391.*

---

[2] Parameter logistic model
[3] Generalized partial credit model
[4] Nominal response model

https://doi.org/10.48550/arXiv.2309.05391

Bostandjiev, S., O'Donovan, J., & Höllerer, T. (2013). LinkedVis: Exploring social and semantic career recommendations. *Proceedings of the 2013 International Conference on Intelligent User Interfaces*, 107–116. https://doi.org/10.1145/2449396.2449412

Chenni, O., Bouda, Y., Benachour, H., & Zakaria, C. (2015). A Content-Based Recommendation Approach Using Semantic User Profile in E-recruitment. In A.-H. Dediu, L. Magdalena, & C. Martín-Vide (Eds.), *Theory and Practice of Natural Computing* (pp. 23–32). Springer International Publishing. https://doi.org/10.1007/978-3-319-26841-5_2

Diaby, M., Viennet, E., & Launay, T. (2014). Exploration of methodologies to improve job recommender systems on social networks. *Social Network Analysis and Mining*, *4*(1), 227. https://doi.org/10.1007/s13278-014-0227-z

Embretson, S. E., & Reise, S. P. (2000). *Item response theory for psychologists* (pp. xi, 371). Lawrence Erlbaum Associates Publishers.

Freire, M. N., & de Castro, L. N. (2021). e-Recruitment recommender systems: A systematic review. *Knowledge and Information Systems*, *63*(1), 1–20. https://doi.org/10.1007/s10115-020-01522-8

Fujishiro, K., & Koessler, F. (2020). Comparing self-reported and O*NET-based assessments of job control as predictors of self-rated health for non-Hispanic whites and racial/ethnic minorities. *PLoS ONE, 15*(8), e0237026. https://doi.org/10.1371/journal.pone.0237026

González-Eras, A., & Aguilar, J. (2019). Determination of professional competencies using an alignment algorithm of academic profiles and job advertisements, based on competence thesauri and similarity measures. *International Journal of Artificial Intelligence in Education*, *29*(4), 536–567. https://doi.org/10.1007/s40593-019-00185-z

Guo, P., Xiao, K., Ye, Z., Zhu, H., & Zhu, W. (2022). Intelligent career planning via stochastic subsampling reinforcement learning. *Scientific Reports*, *12*(1), 8332. https://doi.org/10.1038/s41598-022-11872-8

Holland, J. L. (1959). A theory of vocational choice. *Journal of Counseling Psychology*, *6*(1), 35–45. https://doi.org/10.1037/h0040767

Katz, M. R. (1973). Career decision-making: A computer-based system of interactive guidance and information (SIGI). *Proceedings of the Invitational Conference on Testing Problems*, 43–69.

Kokkodis, M., & Ipeirotis, P. G. (2021). Demand-aware career path recommendations: A reinforcement learning approach. *Management Science*, *67*(7), 4362–4383. https://doi.org/10.1287/mnsc.2020.3727

Malherbe, E., Diaby, M., Cataldi, M., Viennet, E., & Aufaure, M.-A. (2014). Field selection for job categorization and recommendation to social network users. *2014 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2014)*, 588–595. https://doi.org/10.1109/ASONAM.2014.6921646

Nair, A., Padhy, I., Nikhil, J. K., Sindhura, S., Vandana, M. L., & Vijay Krishna, B. S. (2022). AI-based career counselling with chatbots. In J. S. Raj, Y. Shi, D. Pelusi, & V. E. Balas (Eds.), *Intelligent Sustainable Systems* (pp. 599–612). Springer Nature. https://doi.org/10.1007/978-981-19-2894-9_46

Nguyen, J., Sánchez-Hernández, G., Armisen, A., Agell, N., Rovira, X., & Angulo, C. (2018). A linguistic multi-criteria decision-aiding system to support university career services. *Applied Soft Computing*, *67*, 933–940. https://doi.org/10.1016/j.asoc.2017.06.052

Ochirbat, A., Shih, T. K., Chootong, C., Sommool, W., Gunarathne, W. K. T. M., Wang, H.-H., & Ma, Z.-H. (2018). Hybrid occupation recommendation for adolescents on interest, profile, and behavior. *Telematics and Informatics*, *35*(3), 534–550. https://doi.org/10.1016/j.tele.2017.02.002

Parsons, F. (1909). *Choosing a Vocation*. Houghton Mifflin.

Rayman, J. R., & Harris-Bowlsbey, J. (1977). DISCOVER: A model for a systematic career guidance program. *Vocational Guidance Quarterly*, *26*(1), 3–12. https://doi.org/10.1002/j.2164-585X.1977.tb01125.x

R.J. De Ayala. (2010). *The Theory and Practice of Item Response Theory.* (Vol. 75). The Guilford Press. https://doi.org/10.1007/s11336-010-9179-z

Sireci, S. G., Longe, B., Suárez-Álvarez, J., & Oliveri, M. E. (2024). Analyzing the dimensionality of O*NET cognitive ability ratings to inform assessment design. *Education Sciences*, *14*(11), Article 11. https://doi.org/10.3390/educsci14111202

Smedt, J., Vrang, M. le, & Papantoniou, A. (2015). ESCO: Towards a semantic web for the European labor market. In *Proceedings of the Linked Data on the Web Workshop (LDOW)*. Retrieved from https://www.semanticscholar.org/paper/ESCO%3A-Towards-a-Semantic-Web-for-the-European-Labor-Smedt-Vrang/d59682559cbd21795e6dc1cfbf9125855440aed3

Zhang, Y., Yang, C., & Niu, Z. (2014). A research of job recommendation system based on collaborative filtering. *2014 Seventh International Symposium on Computational Intelligence and Design*, *1*, 533–538. https://doi.org/10.1109/ISCID.2014.228

Cedefop (2019). The changing nature and role of vocational education and training in Europe: volume 7: VET from a lifelong learning perspective: continuing VET concepts, providers and participants in Europe 1995-

2015. Luxembourg: Publications Office. Cedefop research paper, No 74. https://data.eu-ropa.eu/doi/10.2801/357

Mnih, V., Kavukcuoglu, K., Silver, D., Graves, A., Antonoglou, I., Wierstra, D., & Riedmiller, M. (2013). Playing Atari with Deep Reinforcement Learning. *arXiv preprint arXiv:1312.5602.* http://arxiv.org/abs/1312.5602

Biographical Notes

Wenrui Yuan is a PhD candidate in the section Cognition, Data and Education at the University of Twente, specializing in applying machine learning to enhance vocational choice tests.

Dr Johannes Steinrücke is an Assistant Professor Data Science in the section Cognition, Data and Education at the University of Twente, specializing in computational psychometric and artificial intelligence in education.

Annex

Figure 3
Training Performance Measured By Episodic Reward Under Different Reward Scales (500 Training Episodes)

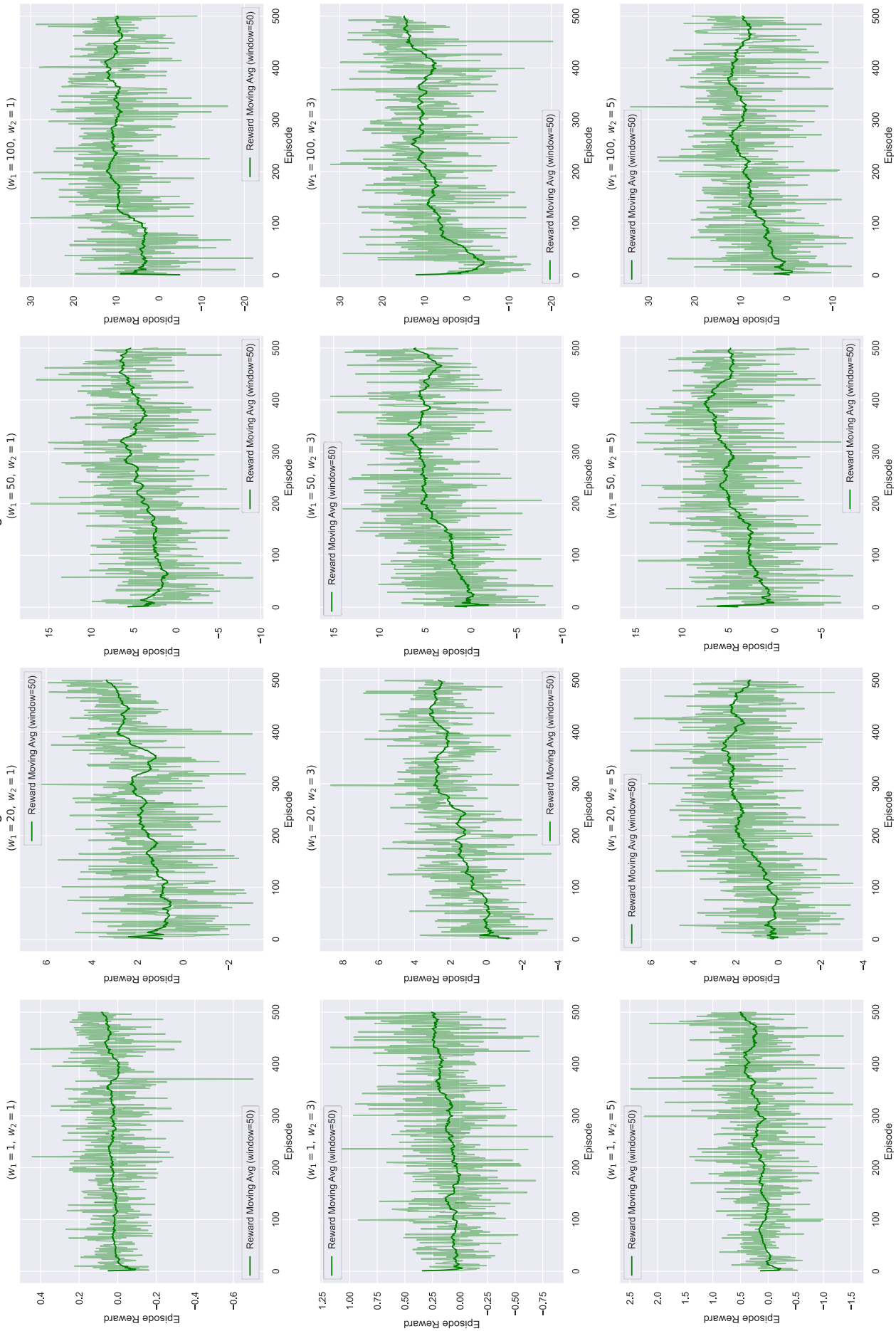Training Performance with Different Reward Scaling Factors

Figure 4

Training losses under different reward scales (500 training episodes)