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Degree Apprenticeships, Foundation Degrees and Workforce Development in the United Kingdom: A Bibliometric Review and Research Agenda

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Abstract

Technical and vocational education and training (TVET) has received considerable attention in recent decades as successive governments in the United Kingdom (UK) have sought to encourage more cost-effective training and minimize perceived skills shortages. Since the turn of the millennium, two degree-level TVET qualifications have arisen in the UK to support workforce development and instil those higher level cognitive and technical skills that are required by industry: foundation degrees and degree apprenticeships. This bibliometric review analyses the current state of research that has examined such TVET programmes, focusing more particularly on issues linked to workforce development and business-related TVET subjects in the UK. Through quantitative bibliometric analysis, a nascent dataset of 34 peer-review research articles focusing on this topic area was generated from the Elsevier Scopus database. Bibliographic data were then analysed to identify key authors, current foci of existing research and long-term publication patterns to provide a framework to map current knowledge structures and patterns within this area. The paper contributes to TVET literature by positioning the study within existing scholarly discourse and objectively identifying those areas where research is lacking, as a guide for future studies. Given the relatively nascent state of existing publications, five potential avenues for future research were identified, with particular scope to expand future research agendas in business-related TVET areas from human resource development and workforce development perspectives.

Keywords

technical and vocational education and training • foundation degrees • degree apprenticeships • workforce development • higher education • bibliometric analysis

Introduction

Technical and vocational education and training (TVET) is a form of learning that is intended to facilitate the development of those skills and forms of knowledge that are relevant to a particular occupational area (UNESCO-UNEVOC, no date). TVET typically involves elements of lifelong learning, combining the development of work-based knowledge with forms of occupational training and professional development, but leading more particularly to accredited academic qualifications (Majid et al., 2024). Research suggests that TVET programmes have brought benefits in facilitating the development of individuals, regions, and nations on a global scale (Majid et al., 2024). In particular, TVET is visible in numerous occupational fields including health, technology, management, and education (Majid et al., 2024). TVET is often used therefore as a broad umbrella term for various forms of education and training that are directly linked to developing individuals for a practically-orientated career relating to a particular trade, vocation, or occupation (TVET Journal, 2021). Given this intrinsic link to issues of workforce development, TVET is also a key area of consideration for academics and practitioners operating within human resource development (HRD) disciplines.

Within the United Kingdom (UK), there have been various attempts to vocationalize degree and sub-degree programmes within the higher education (HE) sector. Although some would describe TVET as non-academic (TVET Journal, 2021), trends towards the introduction of more vocational (sub-) degree programmes have seen accompanying attempts to blend work-based skills development with academic rigour. Initially, the UK market was dominated by higher national qualifications in the form of higher national diplomas (HND) and higher national certificates (HNC) (HEFCE, 2009). These qualifications were superseded, in part, by foundation degrees, which were then also largely superseded by

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degree apprenticeships as successive governments sought to establish more effective TVET qualifications to provide opportunities for skills development and maintain a strong work focus in learning and training. Such qualifications usually require a combination of classroom based (off-the-job) learning alongside more 'hands on' (on-the-job) training, allowing both knowledge and skills development (TVET Journal, 2021). All three forms of TVET qualifications – HNDs/HNCs, foundation degrees, and degree apprenticeships – remain in existence today within the UK. Indeed, the UK Government has recently announced their intention to set new targets to encourage at least 10% of young people – those within the age range from school and/or college leavers up to 25 years old – to be undertaking technical courses or apprenticeships at either degree level or just below degree level by 2040 (Jeffreys, 2025). Such targets reinforce the perceived importance attached to TVET qualifications by the UK government, as part of their ongoing education policy development within the UK HE sector.

Given the ever-changing context and landscape of HE provision, it is an opportune moment to examine the current state of research relating to TVET programmes within the UK. The aims of this paper are to focus on the two predominant types of TVET qualifications that are offered within the UK HE context: foundation degrees and degree apprenticeships. These TVET programmes share multiple features, with both typically being offered in the form of non-prescribed HE, that is, delivered by a further education college or private training provider, but also requiring a university to act as the recognized awarding body. As outlined in the following research questions, this investigation focuses specifically on business-related foundation degrees and degree apprenticeships within the UK context:

RQ1: What is the current status of peer-review research focusing on business-related vocational degrees (foundation degrees and degree apprenticeships) and workforce development within the UK?

RQ2: Who are the most prominent authors engaging in research on business-related vocational degrees (foundation degrees and degree apprenticeships) and workforce development within the UK and what has been their impact?

RQ3: What areas for future research on business-related vocational degrees (foundation degrees and degree apprenticeships) may be required, moving forwards?

In addressing these three research questions, this paper contributes to TVET literature by tracking research patterns to objectively identify trends, influence, and knowledge structures relating to foundation degrees, degree apprenticeships, and issues of workforce development in business-related disciplines within the UK. These findings then provide a basis to propose future research directions and agendas that might help to support future workforce development and training opportunities as an important HRD activity. In doing so, there may be scope for future HRD research to contribute further to organizational and economic success within and across various industry settings within the UK context and beyond. In responding to these research questions, the paper is therefore organized as follows. First, following a review of the TVET literature, the data collection and bibliometric methodologies deployed in the study are presented. Next, the results and discussion from the bibliometric analysis are presented. The paper then moves towards conclusions with proposed directions for future research, implications for future HRD practice, and, finally, the limitations to the study. The following section therefore outlines context to the study prior to the presentation of the bibliometric analysis.

Literature Review

For the past quarter of a century, successive UK governments have placed significant focus on raising national skill levels, with the intention to make 'UK PLC' more competitive on the international stage by increasing the number of individuals experiencing HE and developing higher level technical skills (Bravenboer & Crawford-Lee, 2020). More recently, Billett (2018) noted that a UNESCO-UNEVOC International Centre for TVET report also emphasized the need to raise the profile of TVET programmes, given potential overlaps with the United Nations Sustainable Development Goals (SDGs), particularly SDG 4 and the provision of Quality Education. Bhattarai (2020) argues that effective TVET can continue to play a role in improving the future potential prosperity of individual countries, regions, and industries within them on a global scale. Individual governments should therefore see TVET as a fundamental part of their industrial strategy, which regularly emphasizes the raising of national productivity levels and addressing key skills shortages (Fayyaleh & Fogarty, 2024). Within the current global economic climate, the development of such higher-level technical skills through effective TVET programmes may be a potential route to addressing underpinning economic and productivity issues.

Foundation Degrees and Degree Apprenticeships in the UK

Following the 1992 Further and Higher Education Act and subsequent changes in the further education and HE sectors – coupled with the drive from the 1997 Labour Government to have 50% of those aged 18-30 going into HE (Matthews, 2024) – there has been a concentrated effort from successive

UK governments to vocationalize HE programmes. A recurring theme has been the need to produce a highly skilled workforce, even though most individuals choose not to go to university, whilst also offering affordable choices. The creation of foundation degrees in 2001 was seen as a means of delivering "the specialist knowledge which employers require … also underpinned by rigorous and broad-based academic learning" (DfES, 2006). It was assumed that foundation degrees would be developed collaboratively through partnerships between higher education institutions (HEIs) and further education colleges (FECs), and that significant elements of work-based learning would be embedded within the resultant programmes. In addition, there was the assumption that delivery would be primarily undertaken by FECs, making such programmes more cost effective and affordable (HEFCE, 2008). The intention was that foundation degrees would be undertaken part-time, with students studying alongside accompanying work commitments, and with work-based learning embedded as an integral part of the qualification (HM Treasury, 2006). Jones (2006) raised concern, however, as to whether there was actually a subsequent widening of participation with non-traditional university attendees joining these new programmes, or whether provision was merely expanded with some traditional entrants then redirected onto these courses.

While foundation degrees were deemed a success, with many FECs and HEIs still delivering them today, there remained challenges in how to involve and encourage employers to invest in skills development. In 2015, degree apprenticeships were therefore introduced. Unlike foundation degrees, the new degree apprenticeship programmes were employer and employer-group led (Bravenboer & Crawford-Lee, 2020). Apprenticeship standards were developed within occupational areas, with apprenticeships accredited by the relevant employer body (Higgs, 2022). Degree apprenticeships were funded predominantly through an apprenticeship levy, which was essentially introduced as a tax on employers, thus encouraging employers to then use and draw upon their contribution to the levy (Crawford-Lee, 2020). Welbourn et al. (2019) point to the Augar Report of 2019 in the UK that viewed degree apprenticeships as fundamental to increasing engagement in lifelong learning, whilst also providing flexibility of provision. At the same time, they recognize the importance of employer involvement in embedding and supporting their apprentices through the process. Rowe et al. (2017) likewise identified various challenges in managing and supporting apprentices in the workplace. Alongside the need to ensure access to appropriate roles and information to be able to complete academic assignments and meet requisite standards, involvement in the apprenticeship framework also required a commitment from the employer to provide 20% of their work time to allow the employee to undertake training and development, including attendance at sessions run by the HE provider. Nawaz and Edifor (2024) argue that degree apprenticeship programmes can therefore offer an important potential platform to identify and develop talent within an organization, either from recruiting new individuals to apprenticeship positions, or in providing development opportunities for existing employees.

Through offering a degree level qualification alongside employment, degree apprenticeships have become well-established within UK HE in the past decade. They have become strategically important for government industrial strategy, skills development, and workforce development (Bravenboer & Crawford-Lee, 2020). By offering opportunities to develop a higher-level knowledge base and work-integrated skills through a combination of university-level study and accompanying workplace learning (Crawford-Lee, 2020), degree apprenticeships are intended to epitomize the strengths of both environments. This can lead to potential benefits for all three stakeholders: apprentice, employer, and university (Higgs, 2022). There do however remain challenges and tensions, at times, in terms of ensuring that such programmes are fit for purpose and that effective linkage is established across the academic-practice divide between the needs of the employer on the one hand and underpinning academic rigour in delivery from the perspective of the awarding institution (Higgs, 2022).

Workforce Development

The concept of workforce development encompasses a broad range of national and international programmes that are aimed at preparing individuals for the workplace (Jacobs & Hawley, 2009). The principles of workforce development initially gained prominence in a report by Harrison et al. (1995) that distinguished between the notions of skills supply and employer demand, posing the question as to how businesses can and should collaborate with academic institutions to recruit and develop future labour forces. Drawing upon their work, early definitions described the concept of workforce development as a series of activities that held the potential to prepare individuals for the world of work whilst also providing opportunities for ongoing training and support. Grubb (1999) described workforce development as a system that could prepare people to work in a particular occupation or job through the provision of relevant vocational information, content, and knowledge, as well as through the development of key underpinning academic skillsets. Harrison and Weiss (1998, cited in Jacobs & Hawley, 2009) built upon their own previous discussions to suggest that workforce development should operate as a system that can bring together various ongoing components of training and support. This should include, they argued, initial workplace recruitment and induction processes, placement and mentoring opportunities, and continued 'on-the-job' support and guidance.

Since the early 2000s, various stakeholders have sought to expand upon the intended remit of the term workforce development. The UK Cabinet Office introduced numerous policy initiatives in 2001 that acknowledged workforce development primarily to enhance an individual's ability to participate effectively in the workforce (Performance and Innovation Unit, 2001). This report emphasized the need to boost productivity, promote social inclusion, and to prepare the workforce for future economic challenges. This included the need to foster new skillsets among employees, including a need for adaptability, information and communication technology (ICT) proficiency, communication, customer service, and addressing technical skill shortages. Other studies have cautioned that the development of such high performing practices, whilst benefiting organizations, can hinder employee wellbeing (e.g. Lloyd & Payne, 2004). Hall and Lansbury (2006) argued that UK workforce development initiatives focused too much on enhancing skill supply and refining the mechanisms through which skills requirements are communicated to training and education providers, without necessarily understanding how such skills are utilized in the workplace. Yet despite such criticisms, Hall and Lansbury (2006) noted that more than 400 centres of vocational excellence had been created in the UK to facilitate continued skill-building initiatives for the benefit of individuals, organizations, industries and the economy.

Meanwhile, others have also sought to link the concept of workforce development to potential social and cultural benefits. Giloth (2000) argued that workforce development goes beyond traditional job training to involve active employer engagement, the development of strong community partnerships, opportunities for career advancement, provision of integrated support services, industry-specific education and training, alongside creation of collaborative networks that link these components together. As such, the concept of workforce development requires the integration of employee education and training alongside involvement in local communities and service provision (Giloth, 2000), thereby providing a framework to connect human skills and knowledge to economic, societal, and community development. Jacobs and Hawley (2009) similarly propose that workforce development should focus on outcomes, but more particularly on enabling the creation of sustainable livelihoods for individuals and attaining high-performance goals for organizations within the context of a broader societal-focused framework. They emphasize that workforce development can take place across the public and private sectors – both profit and non-profit organizations – with a focus required not only on skill acquisition, but also embedding broader social and cultural development.

Meeting the Needs of Workforce Development

Welbourn et al. (2019) emphasize the connection between programmes such as degree apprenticeships and the concept of workforce development. In particular, they note the shift required in the mindset of universities to actively identify workforce development strategies that align with changing government policy and initiatives. Quew-Jones (2022) likewise notes that expectations are placed upon employers, universities, and government to collaborate with degree apprenticeships, particularly given the dual role that is experienced by a student/apprentice via connections to both their employer and their university. Quew-Jones (2022) recognizes the need to ensure that opportunities are available for an individual apprentice to develop the requisite knowledge, skills, and behaviours (KSBs) to attain both the degree qualification and the apprenticeship. For such reasons, Konstantinou and Miller (2020) note the importance of integrating core elements of the academic programme linked to teaching and learning with more authentic forms of assessment that are based around the apprentice, their job role, and their organization. In many instances, changes to university systems are required to facilitate such opportunities, as traditional forms of delivery are not always aligned to business requirements, meaning that flexibility can be required in delivery modes and models (Welbourn et al., 2019). A similar mindset-shift is however often also required from employers, with Leek (2020) noting the challenges that were involved in embedding the Police Constable Degree Apprenticeship within the culture of many UK police forces following the launch of this scheme in 2018, as one example of such trends.

Methods and Procedures

This paper is based upon procedures that are grounded in quantitative methods of bibliometric analysis. Such research methods are becoming increasingly popular in business and management disciplines (Donthu et al., 2021). Academic databases such as Elsevier's Scopus have streamlined the process of obtaining and managing extensive bibliometric datasets (Donthu et al., 2021; Van Eck & Waltman, 2010). These datasets typically contain author details, titles, abstracts, keywords, publication sources, and citation metrics. There is also increasing accessibility to bibliometric analysis software such as VOS Viewer, which facilitate the construction and visualization of bibliometric networks (Van Eck & Waltman, 2010). Through such approaches, quantitative bibliometric reviews can enhance objectivity in article analysis and aim to mitigate bias through extensive searches of published studies (Zupic & Cater, 2015).

Bibliometric reviews represent a specialized form of systematic literature analysis, employing a range of methodologies

to examine social and structural connections between components such as authors, countries, institutions, and topics through statistical evaluation of extensive bibliographic datasets (Block & Fisch, 2020; Donthu et al., 2021). These reviews typically centre on citation and co-citation analyses to map scholarly influence and interaction (Block & Fisch, 2020; Donthu et al., 2021). The core objectives of bibliometric reviews therefore revolve around analysis of two key measures: (1) the volume of articles to assess research productivity; and (2) citation frequency, which reflects influence and scholarly impact. By systematically analysing academic literature and accompanying citation patterns and metrics, researchers can gain insights into the breadth and depth of existing studies, identifying author networks, knowledge gaps, thematic clusters, and disciplinary silos for further exploration (Block & Fisch, 2020). The adoption of such bibliometric analysis techniques can therefore enhance objectivity in analysing and classifying publications within a specific research domain (Coombes & Nicholson, 2013).

Donthu et al.'s (2021) bibliometric analysis procedure and best practice guidelines were adopted to underpin the research strategy within this study. These guidelines consist of four sequential steps that are intended to provide an underpinning structure to data generation and analysis. Implementation of this framework can also contribute to greater transparency and rigour in the research process (Donthu et al., 2021). Step 1 in this process is for researchers to "define the aims and scope of the bibliometric study" (Donthu et al., 2021, p. 291). The aims and scope of the study were outlined in the three research questions in the introduction to this paper. The stated focus to investigate current knowledge structures, patterns, and key authors within existing peer-review academic literature relating to business-focused foundation degree and degree apprenticeship programmes was outlined, alongside the intention to identify potential areas for future research.

Step 2 of the bibliometric analysis guidelines is the requirement to "choose the techniques for bibliometric analysis" (Donthu et al., 2021, p. 292). Citation analysis is a longstanding and widely used analytical technique to examine the intellectual structure of identified research fields (Garfield, 1972). Citations represent academic acknowledgments between articles and are a signifier of formal conceptual links between the citing and cited works (Smith, 1981). This statistical method and analytical technique can focus on individual articles, authors, or both (Osareh, 1996). The underlying assumption of citation analysis is that authors cite and reference influential works, which means that citations can operate as proxies to better understand and examine a particular research paper's impact (Acedo & Casillas, 2005). The total number of citations for an article, author, or journal therefore serves as an indicator of its significance within a particular research domain (Culnan, 1986). Through implementation of such statistical approaches, citation analysis has become an established method for assessing scholarly impact and ranking academic contributions.

Having identified relevant analytical techniques, Step 3 of the guidelines requires that researchers then "collect the data for bibliometric analysis" (Donthu et al., 2021, p. 293). This typically involves a thorough search of one or more academic databases to identify and gather studies that are relevant to the identified research topic, with clear search criteria established to determine those studies that will be included in the review. As noted in Table 1, an initial search was undertaken across the period from 1980 to 2024 inclusive using the Elsevier Scopus academic database. These parameters were set to explore the timeframes within which relevant research had been conducted, as shorter 'snapshots' of five years or less can be inadequate to facilitate effective bibliometric analysis (Van Raan, 1996). The initial search string was devised to return articles that focused primarily on either foundation degrees or degree apprenticeships within the UK, whilst also acknowledging potential crossover to the areas of vocational degrees and drawing a link to issues of work and/or skills-based development. This initial search returned 395 documents, which consisted of journal articles, conference papers and editorial material published in various languages. Given the intention to focus upon business-related disciplines, this initial search was then refined by restricting the findings initially to the Scopus subject area of Social Sciences, returning 197 journal articles. This search was then further refined to the subset category of Business, Management, and Accounting. In line with common practice within many bibliometric analyses to focus the investigation on peer-review research (Cock et al., 2025;

Table 1. Summary of Search Terms to Generate a Bibliometric Dataset from the Elsevier Scopus Academic Database

	Criteria	Filters	Documents Returned
Stage 1	Keyword search	"vocational degree*" OR "foundation degree*" OR "degree apprentice*" AND "work*" OR "Skill*"	395
	Restriction	Article title, abstract, keywords	
	Year	1980 to 2024	
Stage 2	Subject area	Social Sciences	197
Stage 3	Subject area	Business, Management, Accounting	35
	Language	English	
	Document type	Journal articles	
Stage 4	Manual Screening	Removal of any remaining duplicate/irrelevant articles to produce the final dataset	34

Coombes & Nicholson, 2013; Johnston, 2025), parameters were also set to include only journal articles and to focus on items published in English, which subsequently returned only 35 journal articles. Following manual screening to remove any duplicate or irrelevant results, the final generated dataset contained 34 peer review journal articles, published within 14 different academic journals across the period between 2001 to 2024. No relevant articles were identified prior to 2001.

Results and Discussion

The final stage in Donthu et al.'s (2021, p.293) guidelines are to "run the bibliometric analysis and report the findings". The results and discussion that emerge from this analysis are therefore now presented in the two following sub-sections of this paper.

Distribution of Journal Articles

Across the 24-year period encapsulated within this dataset, the publication of 34 articles is equivalent to an average of only 1.4 journal articles per year. Figure 1 illustrates the distribution of those 34 journal articles relating to foundation degrees, degree apprenticeship, vocational programmes and workforce development that were published in business and management journals between 2001 and 2024. From the graph, it is evident that the number of articles remained rather limited in early years following the introduction of the programmes and only started to increase from around 2007 onwards. Since then, the number of articles published has increased, as corroborated by the trend line within the graph. Whilst this evidences some increasing interest in workforce development research on relevant business-related TVET programmes, the current state of research within this area still appears to remain somewhat nascent and underdeveloped.

Table 2 summarizes the distribution of journal articles from within the dataset across the 14 intra-disciplinary peer-review business and management journals that have published these items. *Education and Training* (23.5%: *n*=8), the *Journal of Work-Applied Management* (20.6%: *n*=7) and the *Journal of Education and Work* (11.8%: *n*=4) clearly lead the table. Between them, these three academic journals account for 55.9% (*n*=19) of the overall number of articles that have been published in this area. There is a clear connection in the aims and scope of these three journals and several others listed in Table 2 between teaching and education on the one hand and work-based learning and/or employment-related matters on the other. Apart from *Human Resource Management International Digest* (2.9%: *n*=1), most of these journals do not

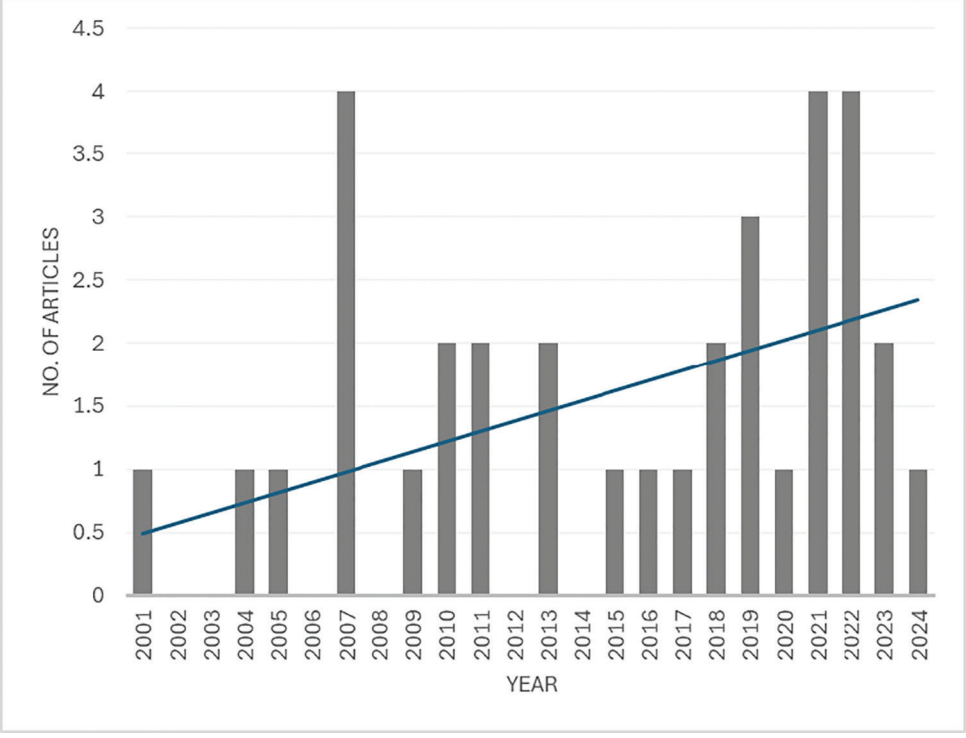

Figure 1. Distribution of Journal Articles Published Between 2001 and 2024.

Table 2. Journals publishing TVET articles between 2001 and 2024

Rank	Journal	No. of articles	Weight (%)
1	Education and Training	8	23.5
2	Journal of Work-Applied Management	7	20.6
3	Journal of Education and Work	4	11.8
4	Action Learning: Research and Practice	3	8.8
5=	Industry and Higher Education	2	5.9
5=	Journal of Workplace Learning	2	5.9
7=	Human Resource Management International Digest	1	2.9
7=	Event Management	1	2.9
7=	International Journal of Manpower	1	2.9
7=	Journal of Vocational Behavior	1	2.9
7=	Labour Economics	1	2.9
7=	Management in Education	1	2.9
7=	Tertiary Education and Management	1	2.9
7=	Worldwide Hospitality and Tourism Themes	1	2.9
	Totals	34	100

necessarily operate from a direct and explicit HRD or human resource management (HRM) focus. Many nonetheless can often align with HRD-related topics such as workforce development, although *Labour Economics* (2.9%: *n*=1), *Event Management* (2.9%: *n*=1) and *Worldwide Hospitality and Tourism Themes* (2.9%: *n*=1) are perhaps notable outliers in this respect.

Prominent Articles, Authors and Key Topics

The most prominent authors to have published TVET research in business-related disciplines and their impact based on accompanying number of citations are identified in Table 3. There are a total of 430 citations across the dataset, equating to an average of 12.6 citations per article. It is however evident that research impact varies considerably across different articles, with a few highly cited papers driving much of the discourse. Bravenboer and Lester's work from 2016, which seeks to integrate discussion of the need within degree apprenticeship programmes to recognise the overlap between professional competence and academic learning, is the most cited article (*n*=50) in the dataset. The next most cited article from Rowe et al. (*n*=39) published in 2017 examines the challenges that workplaces can experience as part of the underpinning work-study nexus that is involved in degree apprenticeship programmes. One of the 'older' articles in the dataset – but one that has received multiple citations (*n*=38) since initial publication – is the work of Bowers-Brown and Harvey from 2004, which discusses issues of employability and the expanding numbers of available graduates entering the job market around a similar time that foundation degrees had been introduced. Beyond the work of Bowers-Brown and Harvey, there is further concentration of citations across earlier publications within the dataset, such as those items published by Lamo et al. in 2011 (*n*=24), Edmond et al. in 2007 (*n*=19), Falk and Seim in 2001 (*n*=13), Benefer in 2007 (*n*=11) and Reeve et al. in 2007 (*n*=11). This suggests that some foundational research papers continue to shape academic conversations in this area. However, more recent articles – such as those by Mason in 2020 (*n*=30), Smith et al. in 2021 (*n*=18), Konstantinou and Miller in 2021 (*n*=17), Pepper et al. in 2022 (*n*=17), Miller and Konstantinou in 2022 (*n*=16) and Quew-Jones and Rowe in 2022 (*n*=15) – also show an emerging interest in workforce-development-based research within the context of degree apprenticeships.

In addition to citation counts, Table 3 indicates a rich and interconnected landscape of work-based learning and workforce development research, HE and employability-focused research within the context of UK TVET business-related degree-level programmes. Several authors appear multiple times within Table 3, suggesting ongoing contributions to work-based learning and workforce development research. Rowe is particularly prominent, appearing in three papers that examine apprenticeships, employer engagement, and workplace skills. Konstantinou and Miller both contribute two shared papers to discussions about bridging workplace learning via formal education. Further examination of thematic connections across the research foci that underpin the publications in Table 3 reveals a strong interplay between concepts such as work-based learning, employability, apprenticeships, and university-industry collaboration. Such themes emerge across multiple studies, thereby shaping ongoing discourse around the intersections and shared nexus of HE and workforce development.

Further consideration of this dual role is encapsulated within several interrelated emergent themes within the dataset. Firstly, several studies explore the processes through which HE can better prepare students for employment through use of work-based learning models. Notably, Bravenboer and Lester's article in 2016 sets a foundation to recognize both professional competence and academic learning. This links directly to the study from Miller and Konstantinou in 2022 on embedding employability skills through reflective assessments. Similarly, Little sought to question in their article from 2011 what the concept of employability means for employees, reinforcing the need to more adequately embed the practical application of academic qualifications. Indeed, the challenge of integrating apprenticeships within HE and workplace training is a second interrelated recurrent theme. In their article from 2017, Rowe et al. explore the managerial difficulties of overseeing degree apprentices, which was further complemented by the work of Quew-Jones and Rowe in 2022 who advocated for stronger mentorship opportunities and

Table 3. Highest Cited Author(S) Publishing Technical and Vocational Education and Training Research Between 2001 and 2024

Author(s)	Year	Article Title	Journal	Research Foci	Citations
Bravenboer D.; Lester S.	2016	Towards an integrated approach to the recognition of professional competence and academic learning	*Education and Training*	Competence; Curriculum development; Higher and degree apprenticeships; Professions; Qualifications; Work-based learning.	50
Rowe L.; Moss D.; Moore N.; Perrin D.	2017	The challenges of managing degree apprentices in the workplace: A manager's perspective	*Journal of Work-Applied Management*	Apprentice performance; Chartered Manager Degree Apprenticeship; Management; Mentoring; Millennials; Work-based learning.	39
Bowers-Brown T.; Harvey L.	2004	Are there too many graduates in the UK?: A literature review and an analysis of graduate employability	*Industry and Higher Education*	Foundation degrees; Graduate employability; Higher education; Vocational training; Widening participation.	38
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*	Apprenticeships; Continuing Education and Training; Further Education; Higher Education; Vocational Education and Training.	30
Lamo A.; Messina J.; Wasmer E.	2011	Are specific skills an obstacle to labour market adjustment?	*Labour Economics*	Search and matching; Skill specificity; Transition; Vocational training.	24
Edmond N.; Hillier Y.; Price M.	2007	Between a rock and a hard place: The role of HE and foundation degrees in workforce development	*Education and Training*	Degrees; Employee development; Higher education; United Kingdom; Workplace learning.	19
Smith S.; Taylor-Smith E.; Fabian K.; Zarb M.; Paterson J.; Barr M.; Berg T.	2021	A multi-institutional exploration of the social mobility potential of degree apprenticeships	*Journal of Education and Work*	Degree apprenticeship; Graduate apprenticeship; Social mobility.	18
Konstantinou I.; Miller E.	2021	Self-managed and work-based learning: Problematising the workplace–classroom skills gap	*Journal of Work-Applied Management*	Degree apprenticeship; Higher education; Problem-based learning; Skills development; Skills gap; Work-based learning.	17
Pepper I.; Brown I.; Stubbs P.	2022	A degree of recognition across policing: Embedding a degree apprenticeship encompassing work-based research	*Journal of Work-Applied Management*	Degree apprenticeship; Evidence-based policing; Higher education; Police constable; Work-based.	17
Rawlinson S.; Dewhurst P.	2013	How can effective university-industry partnerships be developed?	*Worldwide Hospitality and Tourism Themes*	Active learning; Employability; Employees; Employers; Experiential learning; Learning; Real world learning; United Kingdom.	17
Miller E.; Konstantinou I.	2022	Using reflective, authentic assessments to embed employability skills in higher education	*Journal of Work-Applied Management*	Authentic assessment; COVID-19; Employability; Higher education; Reflection; Skills development; Work-integrated learning.	16
Quew-Jones R. J.; Rowe L.	2022	Enhancing the degree apprenticeship curriculum through work-based manager and mentor intervention	*Journal of Work-Applied Management*	Higher level and degree apprenticeships; Negotiated learning; Toolkit; Work-based learning; Work-based manager mentor.	15
Falk M.; Seim K.	2001	Workers' skill level and information technology: A censored regression model	*International Journal of Manpower*	Germany; Information technology; Labour; Service industries; Skills.	13
Benefer R.	2007	Engaging with employers in work-based learning: A foundation degree in applied technology	*Education and Training*	Degrees; Employee development; Employers; United Kingdom; Workplace learning.	11
Reeve F.; Gallacher J.; Ingram R.	2007	A comparative study of work-based learning within higher nationals in Scotland and foundation degrees in England: Contrast, complexity, continuity	*Journal of Education and Work*	Foundation Degrees; Higher education; Higher National Certificates and Diplomas; Work-based learning; Work-related learning.	11
Rowe L.	2019	Educating for the modern world: A report review	*Journal of Work-Applied Management*	Degree apprenticeships; Lifelong learning; Reflective practice; Resilience; Skills; Work-based Learning.	11
Jones B. Q.; Brook C.	2019	Account of practice: Using action learning to develop and educate undergraduate management degree apprentices	*Action Learning: Research and Practice*	Action learning; Chartered manager standards; Degree apprenticeships; Work-based learning.	9

(*Continued*)

Table 3. Continued

Author(s)	Year	Article Title	Journal	Research Foci	Citations
Little B. M.	2011	Employability for the workers – what does this mean?	*Education and Training*	Higher education; Part time students; Skills; United Kingdom; Workplace learning.	9
Quew-Jones R.	2022	Enhancing apprenticeships within the higher education curriculum – an action learning and action research study	*Action Learning: Research and Practice*	Action learning; Action research; Degree apprenticeships; Problem-solving; University providers; Work-based learning.	8
Greenbank P.	2009	Foundation degree students and their educational decision-making	*Education and Training*	Decision-making; Degrees; Rationalization; Social class; Students.	8
Thouin É.; Dupéré V.; Denault A.-S.	2023	Paid employment in adolescence and rapid integration into a career-related job in early adulthood among vulnerable youth: The identity connection	*Journal of Vocational Behavior*	Adolescent employment; Career development; Identity formation; Social disadvantage; Vocational education.	8
Griffiths R.; Probert J.; Cropley B.	2018	The flipped university: Exploring student progression in football coaching and development	*Education and Training*	Coach education; Employability; Flipped university; Football.	7
Sealy W.	2018	Vocationalising event management degrees	*Event Management*	Event management; Experiential learning; Live event assessments; Vocational degrees.	7
Dismore H.; Hicks H.; Lintern M.	2010	The destinations of foundation degree graduates in the southwest of England	*Journal of Education and Work*	Employability; Foundation degree; Progression; Skills; Widening participation.	7
Rhodes J.; Brook C.	2021	Reflective journaling and WhatsApping as part of a management degree apprentice's action learning practice	*Action Learning: Research and Practice*	Action learning; Degree apprentices; Reflective journaling; WhatsApp groups.	5
Welbourn J.; Devins D.; Reynolds M.	2019	Degree apprenticeships: Reflecting on university–employer partnership practice to improve workforce development in the United Kingdom	*Industry and Higher Education*	Apprenticeships; Degree apprenticeships; Institutional dynamics; Workforce development.	5
Talbot J.	2007	Delivering distance education for modern government: The F4Gov programme	*Education and Training*	Civil Service; E-learning; Employers; Learners; Programme evaluation and review technique; Work-based learning.	4
Taylor-Smith E.; Smith S.; Fabian K.; Bratton A.	2023	Apprentices' perspectives of the tripartite collaboration at the heart of degree apprenticeships: A longitudinal study	*Journal of Workplace Learning*	Degree apprenticeship; Mentor; Tripartite collaboration; Work-based learning.	3
Smith P.; Poppitt N.; Scott J.	2013	A critical account of practice within an innovative Foundation degree in UK higher education	*Education and Training*	Academic staff; Business education; Business studies; Curricula; Foundation degrees; Government policy; Storytelling; UK government policy; United Kingdom; Universities; Work-based learning.	2
Pollitt D.	2010	Norbert Dentressangle delivers managers of tomorrow: Foundation-degree students impress course leader	*Human Resource Management International Digest*	Career development; Logistics; Management development; Universities.	1
Thurgate C.	2021	Making sense of the individual experience of those who undertake new role development in the workplace	*Journal of Workplace Learning*	Learning culture; Reflective learning; Self-esteem; Workplace learning.	1
Gerhardt T.; Montgomery J.	2024	Improving the articulation of skills towards proving "value for money"	*Journal of Work-Applied Management*	Action research; Degree apprenticeships; Skills; Value for money.	0
Etherington M.	2015	Secondary school art: A case for increased senior management support	*Management in Education*	Art and design education; Art-based careers; Drawing; Marginalised subject areas; School leadership; Secondary art education.	0
Little B.	2005	Policies towards work-focused higher education are they meeting employers' needs?	*Tertiary Education and Management*	Unavailable via Scopus.	0
Total					430

intervention within apprenticeship programmes. Pepper et al. extended this discussion in 2022 by embedding work-based research within the context of police degree apprenticeships and highlighting the importance and implications of sector-specific thinking within such processes. A third additional recurring theme within this context is the need for university and industry collaboration. For example, Rawlinson and Dewhurst examined in 2013 how partnerships between universities and industries could be strengthened. Writing in 2019, Welbourn et al. similarly discussed potential issues of best practice when seeking to ensure employer collaboration within degree apprenticeships. These connections again suggest a broader trend in which researchers seek to bridge academic learning within and alongside industry expectations, with a view to ensuring that graduates are workforce ready.

Linked to the previous points, there are two further interrelated subset themes that emerge from consideration of the dataset in Table 3. There are a few papers that examine the perceived skills gap and mismatch in labour markets, questioning whether HE adequately prepares graduates for real-world challenges. For example, Lamo et al. discuss in their article from 2011 whether specific skillsets hinder labour market adaptation, while Falk and Seim had examined in 2001 how information technology skills related to opportunities for workforce progression. Such conversations precede more recent discussion in Mason's article from 2020, who continued to evaluate where the balance should lie between vocational, academic, and continuing training and education. Finally, a potentially related subset of studies delves into the role of action learning as a tool that might potentially help to bridge the perceived gap and mismatch between education and work-based skills. Writing in 2019, Jones and Brook utilized action learning in undergraduate degree apprenticeships, whilst Rhodes and Brook assessed the potential of reflective journaling practices within degree apprenticeships in their article from 2021. Quew-Jones likewise sought to examine the potential to enhance higher level degree apprenticeships through action learning methodologies in their study from 2022.

Future Research Agendas

Two main programmes of TVET-based delivery have emerged within the UK context over the last two decades that have sought to address and bridge the academic-practice divide and contribute to ongoing forms of workforce development, namely foundation degrees and degree apprenticeships. The purpose of this paper was to focus, more particularly, on business-related foundation degrees and degree apprenticeship programmes within the UK HE context to examine the state of existing research in this area. As indicated within the results and discussion stemming from the preceding bibliometric analysis, there are examples of research that have started to examine degree level TVET and the benefits that such programmes might potentially bring to organizations, particularly in seeking to develop a more highly skilled workforce with higher-level technical and cognitive skills in the UK. Much of this research has examined issues linked to the student/apprentice experience, the challenges of running such programmes and the need to develop more effective industry-university collaborative working partnerships. Yet there remains, overall, a relative lack of research in this area, particularly research that seeks to examine the interconnected issues of workforce development and skills priorities within industrial strategies. As such, there remains scope for academics, researchers, and practitioners to examine and analyse in greater detail current workforce development initiatives relating to TVET programmes in business-related disciplines. Such issues are fundamental to advancing knowledge and understanding of the potential role of HRD in supporting such initiatives. Given recent UK government announcements to set targets on the number of younger people who are involved in technical courses and apprenticeships (Jeffreys, 2025), there may be further scope and necessity in coming years for continued expansion of research that seeks to advance current knowledge of approaches to TVET programmes within the context of workforce development. In moving towards conclusions, this paper therefore outlines the following proposed agendas for future research, based on five interrelated thematic areas.

Longitudinal Studies

Most existing research has focused on individual cases at set points in time, with the literature base appearing devoid of studies that have collected data over a more extended period. Future studies conducted using longitudinal methods of data collection would provide the opportunity to better understand and appreciate the impact of TVET programmes and higher-level qualifications on issues of workforce development in the medium and longer terms. Such research might be undertaken via qualitative, quantitative, or mixed methods approaches. The development of longitudinal research in this area has the potential to provide a more adequate evidence-base to inform future policy and practice at course level, university level and governmental level. Each of the following proposed research areas outlined below might involve research undertaken through longitudinal forms of data collection. Given the relative lack of TVET-focused research at HE level within business-related disciplines, there also remains scope however for continued development and expansion of cross-sectional research in each of the following areas.

Collaborations and Partnerships

The key premise of both the foundation degree and the degree apprenticeship is centred on provider-employer partnership. Whilst some research has started to examine such relationships and processes, the current dataset remains somewhat nascent, with further research required to explore effective partnerships in the delivery of both TVET qualifications. There remains scope to examine how such partnerships are currently used and/or might potentially be better leveraged to ensure successful outcomes for students/apprentices, and what this might potentially mean for all key stakeholders in seeking to facilitate successful future workforce development opportunities.

Higher-Level Skills Development

The underpinning intended purpose of vocational degree qualifications is to develop and instil higher-level skills on both cognitive and technical levels. Whilst degree apprenticeships are aligned to pre-defined apprenticeship standards with the intention to better embed an employer perspective, most such standards are developed by large employers and based upon their anticipated requirements. For more generalized qualifications, such standards can often be more sector-specific and not necessarily relevant therefore to an individual organization. Whether such standards are 'fit for practice' in small organizations, or in those instances where firms operate within more niche environments, requires further investigation, particularly as bespoke offers from providers may not be available to tailor directly to an organization, dependent upon the size of the business and intended number of apprentices. Whilst there is acknowledgement within existing research of the need to facilitate higher-level skills development, there appears to be little to no research at present that examines such issues from the standpoint of functionality from different employer-focused perspectives across different organization types within the context of business-related TVET programmes.

Assessment and Competency

While HEIs have become better at delivering more vocational and practice-based curricula, this can pose challenges, at times, in accompanying issues linked for example to assessment processes, particularly as there remains a continued overreliance on more traditional methods of assessment. There were examples in the preceding bibliometric analysis of a few authors that had started to examine issues linked to authentic assessment and experiential or reflective-practice forms of assessment (see Table 3). However, research in such areas as it relates to higher-level TVET subjects in business-related disciplines remains, as yet, underdeveloped. There remains scope for researchers to examine issues linked to competence-based assessment, which holds potential value in helping students/apprentices to develop those skills and behaviours that are required to undertake the work-based aspects of their job and/or role effectively.

Workplace Integration and the Duality of the Student-Apprentice Role

Developing a greater understanding of the inherent duality of the role of the student/apprentice and the integration of their workplace into their studies, both in learning and assessment, is a further area for ongoing research development. Notionally, individuals undertaking either a foundation degree or a degree apprenticeship hold a dual identity. When studying, they are a student. When in work, they are an employee. This situation may be more discreet for foundation degree programmes, as many such students are not sponsored by their employer and so may not be afforded any time for their studies. Given the relative lack of existing research focusing on these twin roles, there remains scope to develop a more detailed and critical understanding of the complexity of this duality for the student/apprentice experience as well as the challenges that are involved for employers and HEIs in supporting students/apprentices on this journey.

Implications for HRD Practice

Alongside the need for further expansion of academic research linked to business-related TVET programmes within the UK HE context, it is also important to consider issues linked to HRD practice. A central feature of HRD practice is the development of people. In the modern knowledge economy, workforce training needs have tended to manifest in the development of higher-level cognitive skills through degree (or sub-degree) level qualifications. As noted within the preceding research findings, there is evidence that some researchers have sought to examine the importance of higher levels skills and cognition development for organizations and the modern workplace. While universities are well versed in developing academic graduates, the need to also upskill members of the workforce through degree level studies to better support the aims and meet the requirements of business is an aspect of HE provision that requires ongoing continued development. As noted within the preceding bibliometric analysis, there remains scope for continued research on the effectiveness of such provision. However, in terms of implications for practice, it can also be argued that organizations, business, and HRD practitioners must look to continued engagement, interaction, and lobbying with TVET providers with a view to supporting the ongoing development of a more industry-ready workforce for the modern workplace. Such interactions may help to

support the continued development of TVET programmes that are 'fit for purpose' and relevant to workforce needs, both now and into the future. As such, from a more practice-orientated perspective, academic-skills-based integrated training needs to become more embedded at the heart of workforce development and practice for both organizations and HRD practitioners. Within this context, there is potential for HRD practitioners to seek to support employees in developing the knowledge, skills, and behaviours that are required within their particular working context.

Limitations to the Study

As with any bibliometric review, it is important to acknowledge that there are limitations with the methodologies that are involved in such research designs. Firstly, the creation of an underpinning dataset is based upon several assumptions and constraints in bibliometric research design. Given that academic databases such as Scopus are continuously updated with new published articles and ongoing author citations, the dataset in this study is based upon those data that were contained within Scopus at the point that the dataset was generated (Cock et al., 2025; Mathew et al., 2025). The precise composition of the dataset is likewise based upon the search terms, strings, and formulations that were adopted. The search strings used within this study are outlined step-by-step within the methods section to facilitate greater transparency and replicability, notwithstanding potential updates to the database, as noted in the preceding sentence. Linked to this point, it should be noted that TVET research has been published within other academic disciplines and potentially within other interdisciplinary journals that were not incorporated within the generated dataset. It is possible that the use of alternative search terms, filters, and criteria within Scopus could have impacted those items that were returned from within the database and therefore subsequent results and findings (Cock et al., 2025; Mathew et al., 2025). In doing so, this would however also arguably have altered the underpinning focus, structure, and parameters of the study. Whilst the limitations of this study are therefore acknowledged, it is also suggested that the findings and proposed research agendas presented in this paper hold value for researchers and practitioners who are interested in understanding the current state of research and key authors that have examined higher-level TVET programmes in business-related disciplines within the UK context and within the related context of issues linked to workforce development. There remains notable scope for researchers and practitioners – particularly for those operating from HRD focused disciplines – to engage in future research within this area of study that, at present, remains somewhat nascent.

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