Evaluation of employer-student co-creation activities to address the digital skills gap

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Candidate Declaration

I hereby declare that:

1. I have not been enrolled for another award of the University, or other academic or professional organisation, whilst undertaking my research.

2. None of the material contained in the thesis has been used in any other submission for an academic award.

3. I am aware of and understand the University's policy on plagiarism and certify that this thesis is my own work. The use of all published or other sources of material consulted have been properly and fully acknowledged.

4. The work undertaken towards the thesis has been conducted in accordance with the SHU Principles of Integrity in Research and the SHU Research Ethics Policy.

5. The word count of the thesis is 62,934.

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When I embarked on my Doctorate in Education in January 2018, the finish line seemed far in the distance but the road to it seemed relatively straight forward. I could not have imagined the level of uncertainty and disruption which went hand-in-hand with living, working and studying through a global pandemic. This disruption impacted on every aspect of life, including the way this study was conducted. That I was able to address this challenge – along with every other twist and turn that comes with being on a doctoral journey – is thanks to the support I have had during my studies.

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Abstract

The importance of graduate transition to the labour market is a key feature of both national Higher Education policy and local economic policy, as is the need for universities and businesses to work together to address labour market issues. This study considered this policy framework in the context of a digital skills gap in a city in the north of England as a foundation for an action research project. A co-creative approach was utilised to locate students and employers as key stakeholders to address the research question: *How can an evidence-based university-business intervention be tailored to engage students effectively in digital skills gap opportunities?* The study combined action research with a grounded theory framework to guide the analysis process to surface human stories rather than mechanistic themes. In addition, a dual paradigm view has included the utilisation of a social constructivist epistemological stance to put students at the centre and allow meaning within the fields of graduate attributes and digital skills to be constructed through interactions with students and employers. This is supported by a pragmatic focus on the real-world and problem-solving nature of action research. Originalities of the research include the identification of five components which form the Key Drivers Model to identify potential influences on student perceptions in relation to job opportunities and which could provide a means through which to further understand student perceptions at institutional level or within the sector and in different labour market contexts. The study has defined the notions of *future facing* and *future focused* as a key framework for employability development. It has also highlighted the value of undertaking further action research cycles utilising this methodology to allow comparison between data gathered during COVID and post-COVID, comparison across levels of study, longitudinal views of particular cohorts or discipline-specific action research.

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CHAPTER 1: INTRODUCTION

1.1 Study context

This action research study is broadly situated within the field of graduate employability and, more specifically, is concerned with student approaches to graduate job opportunities in the context of skills gaps, in this case a digital skills gap. The need to address this gap and the role for universities in this work is evidenced in local policy documents, which are discussed in Chapter 2, Section 2.3. The study, therefore, is set in the context of work by Leeds City Council and West Yorkshire Combined Authority to position and engage universities as crucial in addressing labour market skills gaps. More specifically, the study has arisen out of feedback from the digital and technology sector in Leeds, and from policy makers in the city and surrounding region, about the challenges of recruiting to vacancies within this sector. It is important to note that the skills gap relating to the digital and technology sector is just one example of a labour market issue and while it is the specific focus of this work, it could also be perceived as something of a placeholder that could, in another instance, point in time or set of circumstances, be replaced by a different labour market issue. In my role at a post-92 institution with a core focus on widening access and the employability agenda (and referred to throughout the project as 'the University'), I have interacted significantly with local employer feedback in relation to skills gaps relating to the digital and technology sector and local policy in relation to this and this interaction provided the inspiration and foundation for this study.

The study is formed around a core research question which asked: How can an evidence-based university-business intervention be tailored to engage students effectively in digital skills gap opportunities? The data gathered resulted in findings which, as is to be expected from an action research study, inform institutional thinking and approaches. However, they also have potential broader and sector-wide relevance and application, through the identification of five components which form a model to identify potential influences on student

perceptions in relation to job opportunities and can inform employability development in higher education (HE). The co-creative approach to the work could also be utilised in further studies or implementation of initiatives by any institution to further understand student thinking in relation to job opportunities.

1.2 Real-world problem

Leeds City Centre is at the heart of the broader Leeds City Region which covers all of West Yorkshire, parts of North Yorkshire and South Yorkshire. The city region is the largest regional economy outside of London, is a global leader in a number of sectors, including technology, healthcare and manufacturing (Invest Leeds City Region, n.d). It also has the largest cluster of higher education institutions outside of London, with nine universities in the region producing around 39,000 graduate each year (ibid). In terms of digital and technology industries, the city region is the top location in the UK for tech-start-ups outside of London and the South East. It has more than 8,600 digital and technology businesses which employ around 50,000 people. In 2022, technology start-ups and scale-ups raised investment totalling £288m in the first nine months of the year (up from £153m in 2021), resulting in a significant increase in job hiring (Crossland, 2022). However, there have been documented challenges in recruiting graduates to the digital and technology sector and a range of initiatives to address this (Allen, 2023). This real-world problem, therefore, provides a rich, specific and ring-fenced backdrop in which to situate research related to addressing skills gaps.

1.3 Focus on graduate outcomes

Reflecting on the work undertaken in relation to this action research project since its inception in 2018, the issue of the need for graduates who have the skills required by the digital and technology sector – or the capability and willingness to learn those skills – remains. It has been a constant theme within the business and public sector organisations that the institution I work for

interacts with – and the need for positive graduate outcomes at a particular level has been continually reinforced through government policy and discourse (Williamson, 2021; Donelan, 2022). Positive outcomes, in policy terms, are those which are seen as highly skilled and relate to work which falls into three groups in the Standard Occupation Classification (SOC) system which are used for the Graduate Outcomes survey:

- Managers, directors and senior officials
- Professional occupations
- Associate professional and technical occupations

(Universities UK, 2022)

The research recognises the two sides of the labour market equation in the context of HE, on one side the demand from employers for graduates and, on the other, the supply of graduates from higher education providers (HEPs). This study has been developed in the context of a particular 'demand' – the need for graduates in the digital and technology sector but it is acknowledged that it could frame other labour market sectors and issues. Using this specific sector focus, the study accepts this 'demand' as a real- world problem, particularly related to the labour market local to the institution where the research was carried out. It then seeks to consider a particular issue related to the supply of graduates - student thinking in relation to graduate job opportunities generally and in digital and technology specifically. The need to address local labour market issues and the direction of government policy is interacting with challenges emerging from the global COVID-19 pandemic and the cost-of-living crisis and the impact of these pressures on students and graduates (Guardian, 29/1/23 and Universities UK, 2023). Added to this are fundamentally changed working practices, initially because of global restrictions on distancing and 'stay at home' orders and, subsequently, because of more agile and flexible approaches to working practices and locations (Dale and Wall, n.d.). This shift in practice has been facilitated by the use of digital tools and platforms, resulting in an increased need for engagement, competence and innovation around

these tools and reinforcing labour market issues around skills in relation to digital tools and platforms and technology-driven innovations across every sector of the labour market (CIPD, 2021, and Noordende and Scarpetta, 2022).

1.4 Locating the research

The research is set in a context of what could be seen as a three-location framework which encompasses the approach of the University I work for, together with national and local policy and a particular labour market issue. This introduction outlines these three 'locations' for this research study and the ground it covers.

Firstly, the institution I work for includes credit-bearing placements in all undergraduate degrees and these are designed into each level of study in different ways (choice of placement or Professional Challenge Project at Level 4; 6-week block placement (or equivalent hours) at Level 5; work-based project at Level 6). The University has run all of its undergraduate degrees with compulsory embedded placements since the 1970s and currently works with a network of 3,000+ employers in order to provide those placements. Its approach, therefore, sits clearly in an enterprise educational ideology, with a strong focus on students as future workers, the usefulness of the curriculum, new technology and core skills (Bates, Lewis & Pickard, 2011).

This enterprise educational ideology is further informed by what is a vast field of literature around employability. At the core of the employability agenda are definitions of the concept (Hillage and Pollard, 1998; Harvey, 1999; Brown, Hesketh and Williams, 2003; Yorke, 2006) and skills and attributes which are seen to make graduates employable (Bhaerman and Spill, 1988; Harvey, 2000; Finch, Hamilton, Baldwin and Zehner, 2013; Artess, Hooley and Mellors-Bourne, 2017). There is then consideration of the process which students go through in order to acquire skills and attributes (Fugate, Kinicki and Ashforth,

2004; Barrie, 2007; Holmes, 2013), as well as consideration around identity, capital and career management (Holmes, 2015; Jackson, 2016; Jackson and Wilton, 2016; Tomlinson, 2017). The work at the University could be said to cut across all these areas of literature. The Professional Development and Placement modules it runs are, at their most basic level, to be about employability and work-readiness, focused on understanding the labour market, the skills and attributes required, and how to develop them and articulate them. Students are then able to utilise this learning in practical ways through the work-integrated learning opportunities within the curriculum as follows, (although it is acknowledged that the prevalence of the first two items varies between subject areas):

- Real-world assessments
- Employer challenges
- Placements
- Through other work the students do outside of their course and university placements, but which might also allow them to utilise skills and attributes developed as part of their studies.

The second and third 'locations' in the framework of this study relate to national and local policy. National policy (explored further in Chapter 2, Section 2.2) places significant emphasis on graduate outcomes as an indicator of individual and institutional success and is highly critical of particular courses which are not perceived to deliver what the Conservative government in power in 2022 deemed to be appropriate career outcomes. Local policy (explored further in Chapter 2, Section 2.3) seeks to promote inclusive growth and address skills gaps.

In considering this framework, each of its three 'locations' generate intelligence and developments which shift the pressure and emphasis in the framework at different times, requiring the University to respond. At the start of this research, the intelligence from and requirements of the local labour market were key influences for starting an action research cycle but, during the course of the

study, the pressure and focus of national policy shifted considerably. As will be outlined, this shift has reinforced the need for ongoing research around graduate outcomes and employability.

Any research study involving graduate outcomes has to navigate key divides at the heart of this landscape. Employability and its place in HE have long been contested, with key critiques focusing on its role in driving a generic approach to degree education. Even where it is 'accepted' as a key component of HE, the myriad of approaches noted above to describing, framing and delivering outcomes related to graduate employment bring complexity to the ways in which students and academic staff engage with an agenda which policy puts front and centre of HE. Of course, graduate outcomes are a core metric for HE, meaning that employability is central to discussions around performativity and the extent to which the need to achieve strong metrics drives strategy and operations rather than pure education and discipline requirements. This performativity agenda shifted significantly throughout the course of this study. At the start of the work, the Teaching Excellence Framework (TEF) was a central focus of discussion around performativity in HE but, as the work drew to a close, the sector was being subjected to new regulatory baselines under Office for Students (OfS) Condition B3 (Office for Students, July 2022), meaning failure to achieve minimum outcomes in a number of areas, including graduate outcomes, can have significant consequences for providers. The policy landscape is explored further in Chapter 2. However, in an increasingly regulated environment and one in which the political discourse around HE and its performance is often negative, it raises the issue of the conflict between consideration of the *values in* HE – what the sector might traditionally have valued in terms of a degree education and its benefits - and the *value of* HE – what it offers in terms of benefits to its participants, its communities and the economy.

At the University where this study is located, the approach to employability is operationalised in a three-stage cycle – the undergraduate students start their

first year thinking about the labour market, its requirements and how they meet these requirements and the preparation culminates in the choice of a 2-week placement or 2-week employer-led Professional Challenge Project. The reflection on this experience leads into their second year and a further round of consideration about the labour market, how to build on their skills and attributes development and a further placement 6-week block (or equivalent hours) with an employer. This experience is then channelled into a final year Professional Learning Through Work Project which requires a student to take a more proactive role and negotiate a project and outcomes for this with an employer with support from the university. This three-stage cycle has informed the approach to this project.

Given that the digital skills gap is articulated by employers and in policy documents (Burning Glass Technologies and Department for Digital, Culture, Media and Sports, 2019; WorldSkills UK, 2021) with regard to what students lack in terms of attributes and what employers need in this regard, then the literature which covers components of employability has been a key consideration in this research. However, this study views the University, employers and students as all being key stakeholders and, given the aim was to understand how to improve outcomes for all, then consideration of co-creative practice has also been core to the approach.

The overarching aim of this action research study was to broaden understanding of how employability is understood and experienced by students and employers. The approach to achieving this understanding was by level of study and across disciplines with the framework of the institutional approach to credit-bearing placements. The study was specifically located at the discipline level and the views of discipline academics were not within the scope of the study. From an institutional perspective, the aim was to undertake work with students and employers which could potentially support the development of an outline of an intervention or interventions, co-designed by students and employers, which could be used in the Professional Development and

Placement module. It was recognised at the research design stage that the shape/type of intervention(s) and the way forward with them would be determined by students and employers rather than being pre-determined and that it would take a further cycle of action research, beyond the scope of this study, to run and evaluate any intervention(s). This aim and associated considerations resulted in a study with an objective of evaluating how a university could work with employers to address the digital skills gap by co-creating engagement with students, and to evaluate how co-created engagement can influence student perceptions of digital skills opportunities. This informed the following overarching research question and sub-questions:

Q: How can an evidence-based University-business intervention be tailored to engage students effectively in digital skills gap opportunities?

a) *How do digital sector employers view graduate attributes and how does this view differ from that of students?*

b) *How can an evaluation of the interactions with and between employers and students inform the collaborative design of an intervention to increase student engagement in digital skills gap opportunities?*

To support answering these questions, the study covered in the nine chapters which follow sets higher education and academic context through an overview of policy (Chapter 2) and theoretical perspectives (Chapter 3), before synthesising the scholarly field in the literature review (Chapter 4). The methodological approach is set out in Chapter 5 and the data analysis and findings presented in chapters 6, 7 and 8. The results of the study are discussed in Chapter 9 and an overall conclusion to the work is provided in Chapter 10.

CHAPTER 2: POLICY INFLUENCE AND IMPACT

2.1 Sector and regulatory context

This action research project is situated in the context of both local and national policy. It is important, therefore, to reflect on some of the approaches and thinking within policy, along with the pressures this brings to universities and the perceived impact of these pressures. Graduate employment is a key professional and performance challenge facing universities and the sector has focused on graduate employment outcomes for more than 30 years via data around first destination statistics. Until 2018, this was in the form of the Destination of Leavers of Higher Education (DLHE) survey, a data collection mechanism criticised (Cave, Hanney, Henkel and Kogan, 1997) for both its timing (6 months after graduation) and the limited scope of its questions. This has subsequently been replaced by the Graduate Outcomes survey which addresses some of the DLHE criticisms by running 15 months after graduation and through the inclusion of questions about how meaningful and important graduates consider their work or activity to be, whether or not they are using skills gained in their studies, and how they are progressing towards their future goals (HESA, accessed 29-6-18).

However, during this study there was a significant increase in the political, market and regulatory pressures to deliver strong outcomes in terms of jobs defined as graduate / 'professional' (Donelan, 2021; Williamson, 2021). Following changes to the OfS conditions of registration for universities in 2022 and changing approaches to Access and Participation, the pressure on graduate outcomes is channelled through two key regulatory levers. The first is the revised Condition B3 (Office for Students, July 2022) which introduces numeric thresholds for university performance, including the percentage of any programme cohort who should progress to highly-skilled employment; the second is through revisions in the approach to Access and Participation which required institutions to "ensure access leads to participation on high quality

courses and secures good graduate outcomes" (Office for Students, March 2023).

2.2 National policy and context

The sharply competitive HE environment, with significantly increased regulation and accountability, has been shaped by a policy roadmap covering more than 50 years, dating back to Robbins (1963) who linked expansion in higher education to skills development. However, it is developments from Dearing (1997) onwards which provide the core focus in this research as this made a significant connection between higher education and the importance of human capital in a knowledge economy, fully establishing a link between higher education, the economy and business. Added to this, in the late 1990s the Labour government sought to emphasise the urgent need to prepare for the next century, and education and lifelong learning were seen as central to this (Edwards and Nicoll, 2001). This, according to Stevenson and Bell (2009), put Higher Education Providers (HEPs) in a pivotal position in terms of economic success, with knowledge as a commodity linked directly to future earnings.

This connection has continually been reinforced by governments for more than 20 years, with a twin-track of notable policy and position reports and legislative developments which can be seen to highlight issues, ramp up the regulatory climate institutions are working in, and outline not just the role of universities but the role of competition between universities. This has resulted in an intense focus on the marketised nature of the sector and the role of the regulator in shaping and highlighting the nature of market success. Significant policy instruments include the Higher Education Act (2004), which supported expansion, particularly through new qualifications and continued the emphasis on development of human capital to support a competitive economy. The place of universities in making significant contributions to the economy was noted in Higher Ambitions: The Future of Universities in a Knowledge Economy (BIS, 2009) which also identified the need for employers and universities to work

together to address skills gaps. Alongside this, in the early years of the new millennium, the discourse around digital skills sharpened. Digital Britain (BIS and DCMS, 2009) discussed digital innovation and infrastructure broadly but also identified the need to develop digital skills at all levels. The pace of innovation was cited as a driver for a continual skills gap in The Digital Economy (BIS 2016), which also outlined the need for a clear understanding of the digital economy to inform strategy and the need for a workforce with a clear grasp of fundamental skills to tackle on-going skills gaps.

The predicament faced in terms of continuous digital innovation was outlined in Digital Skills Crisis (Science and Technology Committee, 2016), a report which recognised the need for the business and education sectors to work together to address the digital skills gap. In 2022, the Government published the UK Digital Strategy (Department for Digital, Culture, Media and Sport, 2022) which noted the thriving digital economy's £151 billion contribution to the economy in 2019 and the fact that it accounted for 9% of the UK workforce. However, this strategy also noted the cost to the UK of the digital skills gap was estimated to be £63 billion; it further noted that having workers with the right skills would not only support the economic potential of businesses but also provide rewarding, sustainable and well-paid opportunities.

The current regulatory climate arrived through the Higher Education and Research Act (2017), a piece of legislation which brought the Office for Students into being, setting down a framework for further marketisation of higher education and duties of providers to protect students, and enshrining the Teaching Excellence Framework in legislation (McCaig, 2018). However, it was across 2021 and 2022 that the regulatory climate become significantly more stringent, as noted in Section 2.1 above.

2.3 The evolution of local policy

The link between the economy, the labour market and higher education is also drawn through local policy in Leeds and reinforced at regional level. In terms of

the latter, and at the broadest level of region, The Northern Powerhouse Independent Economic Review (2016), identified four sectors – advanced manufacturing, energy, health innovation and digital - where the north was seen to have “prime capabilities” and the greatest potential for growth. At the next level, the Leeds City Region Strategic Economic Plan 2016-2036 set out four strategic priorities to cover development in its geographic landscape which covers all of West Yorkshire, parts of North Yorkshire and Barnsley in South Yorkshire, with the first two being particularly relevant to this research. Priority 1 focused on growing business, with an ambition for the region to be a global digital centre with specialisms in data storage, analytics, digital health and tech skills. Priority 2 focused on Skilled People, Better Jobs and the delivering of a “More Jobs, Better Jobs” programme to widen skills and progression opportunities, as well as specifying a need to devise and deliver a programme of action to increase high level skills. This plan identified education as a sector with important capabilities to support this work. The West Yorkshire Combined Authority Employment and Skills Framework (2021) noted that West Yorkshire is the largest labour market in the Northern Powerhouse with a number of strengths, including in “the rapidly developing fields of digital and healthcare technology” (p.6). This framework has an ambition statement aligned to “great education connected to business” (p.13) which outlined that careers information should be informed by employers to inspire and enable informed choices around work.

While this focused more on pre-18 education the ‘informed by employers’ approach is a thread through local policy. In terms of universities, the 2021 framework notes the need to focus on graduate retention in scientific and technical disciplines.

At the start of this research study, the Leeds Inclusive Growth Strategy 2018-2023 was a key document for understanding plans for economic growth and the key sectors for this, with creative and digital sectors identified as significant. It also identified regeneration, housing, skills, transport and infrastructure opportunities. The strategy was based around “12 big ideas”, one of which is “Leeds as a digital city”. This strategy was supported by New Skills for the New

Economy: The Leeds Talent and Skills Plan 2017-2023 and this was a key document for understanding the challenges local policymakers were focusing on, along with potential actions to address the digital skills gap. This plan identified universities as key stakeholders and solution providers; it placed the onus on universities to consider how to act in response to the information about skills gaps and could be argued to have been assumptive in its view that HEIs *would* react. The plan outlined the city's context, six collective calls to action and a series of potential interventions aligned to specific sectors, one of which was digital, before concluding by calling on stakeholders to join in making change happen "for the benefit of all our businesses, residents and communities." (p.54). While the plan outlined the positive aspects of significant economic growth in the city it also identified risks associated with success, in particular the possibility of demand for skills outstripping supply in the city which could result in Leeds lagging behind other areas of the UK in terms of productivity, inadequate skill levels and worklessness. Finally, this research study was shaped with reference to The Leeds Digital Skills Action Plan (2017), which was developed at the instigation of the Council working along with a group of employers and education providers. Actions in this plan, to be taken in partnership, were designed to create entry points to the sector and improve connections between employers and education.

The Leeds Talent and Skills Plan was superseded in September 2022 by the Future Talent Plan which envisioned a globally competitive city, a rapidly changing labour market and a need to enable opportunities to ensure that nobody is left behind. Within its action framework, it prioritised lifelong employee progression, along with digital, green and soft skills for jobs, businesses and leaders. It also set out the need to 'align' the city's education and training structure to support the vision, including a clear priority to develop 'talent pipelines', to focus on graduate talent attraction and retention and to ensure that young people understand the rich and diverse graduate job opportunities the city has to offer. The focus on graduate retention was also emphasised in Supporting Graduate Employment and Employability in Yorkshire, a report published by Yorkshire Universities in September 2022. It noted the shared

agenda for graduates, universities and employers, the opportunity to work collaboratively through a task force group and identified eight priorities, including ensuring graduates were prepared for a changing labour market, developing models to connect graduates to graduate-level jobs and providing clearer entry points and lines of communication for employers to connect with HE providers.

2.4 Policy impact

The cumulative impact of the national and local policy framework is a clear focus on the economic and financial impacts of graduates, although the local approach could be said to be set in a collaborative context with the potential for innovative partnership work. This is set against the regulatory environment which only has the potential for negative consequences for institutions not performing to what are set as the required standards and baselines. Local policy does have aspects which look more broadly at inclusivity, the benefits of a thriving city and the role of universities within this; but the sharp economic focus of national policy pushes the broader benefits of the cultural, social and leadership outcomes often linked to HE very much into the background. Bearing in mind this policy context and the emphasis on performance, HE staff could be perceived to be operating as “policy engineers”, choosing the best course of action based on the information available to solve problems (Adams, 2016). In the case of this research, working out the best way to achieve strong student and graduate outcomes while addressing the local labour market and skills agenda is an example of a best course of action. This characterises HE as transactional, rather than a journey through it being a process which brings collective value through contribution to life, culture and democracy (Kelly, Fair and Evans, 2017). For McGettigan (2013), treating undergraduate education as a “normal consumer good” results in a focus on the end qualification and outcome rather than the experience itself.

While universities retain their status as autonomous institutions, this autonomy is exercised in the context of two external pressures, firstly through the view of

their role in the levelling-up agenda (Department of Levelling-Up, Housing and Communities, 2022) and secondly through an increasingly stringent regulatory environment and a political environment which has identified some courses, particularly arts courses, as of little value because the outcomes for graduates from them do not fit within political expectations (Donelan, 2022). If universities were at liberty to negotiate their place and position amid policy development, the divisions over the value of higher education and the contested place of the employability agenda might not be such knotty issues. However, the cumulative impact of the neoliberal trajectory that HE policy has been on for more than 30 years (McCaig, 2018) has compounded the challenge and the division, with a significant body of literature which sees the performativity agenda as having undermined academic professionalism and experience (Olssen & Peters, 2005; Avis, 2011 and Ball, 2003, 2008 and 2012), leading to an increased focus on students as consumers (Bates, Lewis and Pickard, 2011) and the way in which HE contributes to the development of students (Cave, Hanney, Henkel & Kogan, 1997). It has created a highly competitive market in higher education, but one with increasingly stringent regulatory and accountability apparatus that providers have to work within and performance triggers they have to respond to, while being seen to provide value for money.

The increasing emphasis on metrics and outcomes, including the Graduate Outcomes Survey, imposes a regime of key performance indicators (KPIs), and this is an example of what Avis (2011) called a “technology of control”, (p.430). Ball (2012), meanwhile, viewed performativity as “a powerful and insidious policy technology” (p.19). This metric-driven environment has led a number of scholars to note the impact on institutions, on staff and on students. Olssen & Peters (2005) summarised the impact as an “input – output system which can be reduced to an economic production function” (p.324) and they asserted that academic staff are de-professionalised by the emphasis on job performance and having less autonomy over teaching and research. Kelly, Fair & Evans (2017) portray students as “individual entrepreneurs, transacting their way through higher education, preparing themselves for high-earning success in the global field of market competition” (p.106). They noted that this transactional

nature of HE means education is no longer primarily perceived as bringing collective value through contribution to life, culture and democracy and that student engagement was akin to “an instrumentalist form of preparation for the workplace” (p.115) and that linking this to the success of employer recruitment would further limit student and academic freedoms. According to Adams (2016), the broader sociological benefits of education are now less important than individuals and their output as measured against government objectives. Education is viewed as being “in the service of the economy” by Standish, (2012, p.2) and “impoverished” (p.108) by an emphasis on the economic, inclusive and social mobility purposes of education over and above the intrinsic value of education generally and any given discipline in particular.

Whether this focus and climate has a long-term detrimental and transformative impact on HEPs is still playing out. However, the consideration through research, including this study, of the behaviour of HEPs and employers working with students around the digital skills gap creates a space to consider some of these issues. This research highlights potential avenues for further study to understand the impact of changing ways of working with stakeholder groups in a challenging regulatory climate. Sabri (2010) considered the debate around academics being “co-opted to the neoliberal project” and to what extent there are “spaces and potential for resistance” (p.192). In an interview-based study, Sabri noted the virtual absence of the word ‘academic’, this instead being substituted by ‘practitioner’. This, according to Sabri, undermined specialist expertise as a key characteristic of HE and “isolates the practice of teaching from academic identity and discipline: teaching itself becomes a generic practice” (p.195).

This prompts reflection on the way HEPs respond to labour market issues and these responses could be categorised within three general approaches. These categories (numbered 1 to 3 below) have been identified by the researcher and have a variety of consequences, depending on how institutions perceive their responsibilities to their own academic communities, their students and the wider world. My own institution (and the location of this research) carries out work

which is situated across options 2 and 3 and this research sits firmly within option 3.

The options are:

1) **Take no specific action and leave it to the market and employers to recruit and then train graduates themselves.**
   While this approach could be seen to value disciplinary education over and above any other outcomes, it could potentially be poorly perceived in terms of taking responsibility for an issue which impacts on local economies in the areas which HEPs serve, and which will impact on societal and economic development.

2) **Face inwards and implement actions which are internal and unilateral in focus, using in-house expertise, such as it exists, to change programme content and introduce new content to address the skills gaps in a manner which is perceived as appropriate.**
   If HEPs followed this path, it may result in some appropriate outcomes, but this would be more incidental than deliberate as the work would not be directly informed by deeper market intelligence than the initial understanding of the skills gap.

3) **Face outwards and work with the market – utilising existing and developing new industry partners – to draw on external expertise and to work collaboratively to implement actions to address the issues facing the labour market.**
   This approach could be viewed as placing less value on discipline education and a greater value on “trainability” and the need to equip students for the demands of the employment market. Following this path may result in a fruitful partnership for HEPs which enriches programmes of study and delivers outcomes for both graduates and employers in a planned and directed way but, equally, it may lead to concerns that the very nature of degree education is being undermined.

This categorisation is seen as valuable context for this research given the

scholarly debate and criticism focused on changes to HE and its responsiveness to the policy agenda. It supports clarity of approach and positioning with regard to the work and a framework which can be referred to at the point of discussing the results of the study.

2.5 Summary and conclusion

Reviewing national and local policy illustrates clearly the increased focus on graduate outcomes and the introduction of performance regulation around this, as well as the nuances local policy brings to the pressures universities are working under. Torgersen's (2010) contribution regarding creating and sustaining relationships can be seen to be crucial in considering how universities operate within their local arena. Equally, the position of disciplines within degree programmes may be further challenged by the need to consider how to address the skills agenda across all undergraduate delivery, rather than just in those programmes in disciplines which directly and most obviously link to digital skills gaps. While there have always been degree programmes closely tied to vocational education and essential work skills, such as medicine, engineering and architecture, it seems clear that a broader instrumental approach to education has been emerging. This foregrounds the economic, inclusive and social mobility purposes of education over and above the intrinsic value of education generally and any given discipline in particular. However, the consideration through research of the behaviour of universities, their students and employers around the digital skills gap creates a space to allow this impact of policy to be discussed, considered and evaluated.

CHAPTER 3: POSITIONAL AND THEORETICAL PERSPECTIVES

3.1 Introduction and my positionality

As noted in the introduction, the approach of the institution in this research sits firmly within an enterprise educational ideology, with a strong focus on students as future workers, the usefulness of the curriculum, new technology and core skills (Bates, Lewis & Pickard, 2011). Given this background context, my positionality as a researcher is explored in this chapter, along with the theoretical perspectives I have drawn on in the shaping of this study.

As a researcher, my 15 years in industry prior to joining HE, working at a senior level in the news media, has significant bearing on my positionality and approach to this work. Equally, my senior institutional responsibilities, which include oversight of approaches to employability and graduate outcomes and all metrics related to the OfS agenda, underpin my approach as I have influence to drive change and improvements in these areas, as well as a requirement to deliver on key indicators of success in relation to them. Given my background and current responsibilities, professionalism, pragmatism and enterprise are key contributors to how I lead, manage and problem-solve. These factors mean that my approach to the problem-solving in this project does not come from the perspective of curious exploration but from one of how to improve University performance and standing.

In undertaking this research, I reflect that my pursuit of improved survey results plays to the performativity agenda. I can also see my approach in the context of Sabri's (2010) work around the weakening of academic identity in that my concerns about how employable graduates are and how they build a skill set and portfolio to 'sell' to employers, sit side-by-side and with equal status to the more academic aspects of degree education. While I have noted and considered literature which includes extensive criticism of this approach (see Chapter 2, Section 2.4), I recognise that the national and local policy direction outlined in Chapter 2 pushes universities further in this direction of performativity. However, I also take the view that working with employers and

the labour market to understand requirements and supporting students to succeed in continually evolving workplaces is an example of contemporary problem-solving that universities should engage in. In addition, a core part of this problem-solving is to consider, challenge and understand how this can add to and enhance degree education and how subjects might have renewed value by interrogating and understanding their potential connectivity with and value to the labour market.

I am conscious that I focus on real-world practice, take a problem-centred approach, am concerned to understand what works successfully in addressing the issues and consider carefully the consequences of actions. In considering my positionality as a researcher, I am acutely aware that my worldview and my ontological perspective are informed by my position as an insider and practitioner researcher, as well as my professional background and the accumulated professional knowledge I bring to this study. Being an insider researcher can bring advantages, with Costley, Elliot and Gibbs (2010) outlining the advantages of being able to "draw upon shared understandings" (p.1), the ability to challenge "the status quo from an informed perspective" (p.3) and understand contextual complexities. However, there are potential pitfalls of being an insider and during this study I have questioned my "attitudes, theories-in-use, values, assumptions, prejudices and habitual actions" (Bolton and Delderfield, 2018, p.10), particularly when thinking about ethical issues, such as power dynamics and potential assumptions about interactions between students and employers. To support a robust approach to these matters, Etherington's (2004) definition of reflexivity as the researcher's "capacity to acknowledge how their own experiences and contexts .....inform the processes and outcomes of inquiry" (p.31 &. p.32) was useful and supported me in reflecting on the potential for my own experience and position to influence my approach.

In considering my own positionality, ontological perspective and the approach to education in the institution where I work, I am conscious of the interaction with the notion of values in HE. Scholarly discussion around values in the sector tend to cover three aspects – the values of the institutions in the sector, the value of the institutions and their work supporting society and the value of the education they provide to the individuals who pass through those institutions. Maughan Brown (2016) noted that university mission statements are a key location for the identification of institutional values but argues that UK HE has been "ineffectual" (p,23) in "maintaining a coherent collective view on the fundamental question: what are universities for?" (p,23). He stated that the value of HE was not characterised through a degree classification but through a student's "entire experience . . . and the way that experience enhances their lives as graduates and the lives of those around them" (p.30).

For Harland and Pickering (2011) HE is a values enterprise, with how and what is taught, what is chosen for research and how staff conduct themselves all driven by values. In work which considers how academics translate and communicate values in their teaching, they argue there are two values questions which every academic should be able to answer, although they acknowledge achieving a good answer is not quick or easy:

- What is the purpose of higher education?
- How does an individual achieve this in their research and teaching?

I view the first of these questions as being at heart of the contested ground regarding the place of employability in HE. While Harland and Pickering (ibid) question whether universal values in HE are actually possible, they cite academic freedom, intellectual honesty, respect for diversity and critical thinking as potentially universal. However, they cite the move to mass HE and the drive to serve the knowledge economy as the biggest challenge to values in the sector, particularly as this has resulted in teaching often being separated from research foundations.

In work considering the position of HE in South Africa, Abrahams and Fitzgerald (2015) defined what they saw as identified values or a prism through which university operations can be viewed. Academic freedom was central to this prism, along with research quality and integrity, open knowledge systems, intellectual critique, collegiality, institutional autonomy and collaborative knowledge creation. They also made the case that social engagement – work with different organisations and different sections of society which can be seen to be for social good - should have equal status to research and teaching and outlined the importance of the constant interface between identified university values and emerging values (including scholarly knowledge production, knowledge for advancing society and high-level skills transfer). They argued that the value of HE in a knowledge economy should not stand in opposition to traditional values but should be "developed and derived from them in evolutionary or revolutionary ways" (p.135). This would appear to be a somewhat more optimistic view than that of Collini (2017), who considered in detail the developments which have downgraded the academic voice and refers to British society being subjected to a campaign which places "contributing to economic growth as the overriding goal of a whole swathe of social, cultural and intellectual activities which had previously been understood and valued in other terms" (p.61).

Using published research, national policy documents and statistical data, Alves and Tomlinson (2021) looked at how HE is being "(re)framed" (p.176) in both England and Portugal and considered how the changing value of HE needed to be viewed "within the context of massification, as well as of a growing importance of employability" (p.176). In developing an analytical framework to support exploring changes in national and transnational contexts, the authors viewed the tension between the notions of education for marketisation and education for the public good as key to understanding the changes in different national contexts.

What emerges from this literature is the sense that HE is struggling to put an agreed stake in the ground to anchor itself to in a shifting policy environment. It

is also clear that the debate, endeavour and challenges linked to the employability agenda are a central tenet of considerations about the values that permeate HE. However, the case is made here that it is research into practice which sees HE interacting with other stakeholders, including around employability, which support the sector in anchoring itself and contributing with societal changes, developments and impacts.

3.2 Research design

My focus on problem-centred and real-world approaches has led to a research design that aims to understand how a university might work with student and employer stakeholders to address a core labour market issue while keeping in mind the need to consider the consequences of actions. The ability to address this labour market issue and potentially impact on graduate employability outcomes might be positive from an institutional perspective but any pursuit of survey gains (in this case through Graduate Outcome Survey results) plays to the performativity agenda (Ball, 2012) and is open to criticism around undermining the purpose of HE. My openness about this may address the need to be honest about the reasons for investigating an issue, as highlighted by Smith & Bowers-Brown (2010) but reflection on this also brought into focus that honesty should not be a cover or justification for conducting research in a way that simply aims to move towards a desired end point. In other words, I have been acutely aware that addressing labour market issues by better connecting students to opportunities might have a positive outcome in terms of graduate employment, but equally a positive graduate outcome is not guaranteed.

During the study I was open to the fact that the work might deepen understanding around how to bring students and employers together to address labour market issues, but that it might equally enlighten me as to why this is challenging or highlight how not to approach this work going forward. This links back to the value of an inductive study in that ideas and

theories will “grow and develop from the data as opposed to being fixed and in place before the data is collected” (Smith & Bowers-Brown 2010, p.113). In designing the study, I was mindful that literature often views research paradigms as separate entities but that my work could potentially be viewed as utilising more than one paradigm. The work of Bogna, Raineri and Dell (2020) looking at views relating to hazard identification was useful in this regard as it applied two paradigms – critical realism and constructivism, although it is to be highlighted that these are not the same as the paradigms being used in this work. While their area of focus is very different to this study, the authors noted that a multiparadigm model supported deeper insight and helped to widen the boundaries to qualitative research by challenging more traditional approaches with a single paradigm perspective. In this work, both social constructivism and pragmatism were seen as an appropriate means to view and reflect on the study. They are each explored below, followed by a chapter summary which articulates the value of the epistemological approach in this study.

3.3 Social constructivist perspective

Given that the focus of this study has been framed around the interaction of stakeholders considering current labour market issues and how this might be addressed, this resonates with a constructivist epistemological stance (Gray, 2009) with meaning within the field of graduate attributes and the digital skills gap being constructed by stakeholder groups interacting with the researcher and each other, rather than being discovered by the researcher. In particular, this work aligns with the field of social constructivism. The role of the environment and the nature of interaction between learners was noted by Schcolnik, Kol and Abarbandel, 2006, and Mitry, 2021. It is acknowledged, however, that consideration and presentation of any paradigm is by no means as straightforward or simplistic. Indeed, Denzin (2010) brings to life the conflict surrounding paradigms with his overview of “paradigm wars” (p.421). He referred to the challenge of having “no ironclad criteria regulating the production of knowledge or the validation of findings” (p.424) and called for a

“moral and methodological community that honours and celebrates paradigm and methodological diversity” (p.425). In a similar vein, Kelle and Reith (2023) reviewed paradigms and their foundations, critiquing the notion that mixed methods researchers “have to adopt a specialist epistemological paradigm” (p.1). They recommended that “scholars freely use ontological claims and epistemological arguments from different schools of thought where it seems appropriate” (p.2).

With this in mind, it has been important in this work to be aware of the conflict, debate and evolving work around paradigms, including around constructivism, and to be clear I understand my application of social constructivist principles is not a fixed formula based on a singular understanding but is guided by scholarly thinking, is mindful of the differing views in the field and has a clear rationale for the approach taken. Guidance was drawn from von Glasersfeld’s (1995b) two distinctive meanings of the concept of environment from the constructivist perspective. The first refers to all the permanent objects we interact with and “the relations we have abstracted from the flow of our experience” (p.2); the second meaning arises when there is focus on a particular thing and, in this case, the environment refers to the surroundings of the thing that has been isolated. Relating those two distinctive approaches to this study, the first notion of “permanent” environment for students during degree study would encompass their educational, personal and work life in its totality; the second would be the focus they were asked to bring to graduate job opportunities through this study.

As will be seen when the methods applied to this study are outlined in Chapter 5, this research and the questions it asked of students relate to von Glasersfeld’s (ibid) second meaning of environment as it asked them to focus on graduate job opportunities and their approach to them. The analysis and discussion, however, does lead to consideration of how students draw from their broader experience even when focusing on one particular thing. Von Glasersfeld (ibid) also noted the “naïve assumption” (p.2) that educators can too easily assume their own perceptions and what they draw from these are

“ready-made” (p.2) for students to pick up. He reminds us that the way we view and utilize our experience is subjective and this is seen as an important consideration in this study. So, in the field of employability, university staff could easily utilize their labour market knowledge and experience of job opportunities – where the chance for employment exists and what they perceive to be fruitful routes to graduate outcomes – to make assumptions about what is ‘good’ for students. If this was the approach, then it would fall short of the principle von Glasersfeld (ibid) outlined that learning (in this case, about the potential for different employment pathways) is a “constructive activity that the students themselves have to carry out” (p.4).

This study sets out to consider how to approach connecting students with labour market skills gaps in ways that avoid assumptions and take account of stakeholder perspectives. While the study worked with student participants as one, homogenous group rather than segmenting along demographic, discipline or interest lines, it does recognise the power and influence of individual perspectives and choice in the student educational and employability journey. It is also useful to see the university structures that support employability and steps to graduate outcomes as a “learning environment . . . of experimentation and dialogue, where knowledge is seen in the context of problems to be discussed and solved” (Adams, 2006, p.245). However, the focus on dialogue is also important as Hein (1991) notes that knowledge is intertwined with the meaning given to experience by learners.

3.4 The lens of pragmatism

Given my ontological perspective as outlined at the start of this chapter, I have also reflected on the value of pragmatism as a “worldview” (Creswell, 2009, p.5). Creswell (ibid) noted that pragmatism arises out of “actions, situations and consequences” (p.10) and is concerned with applications and what works, allowing freedom of choice around methods and research procedures. I am clear that this is not prompted simply by curious exploration but rooted in my own values (Clough & Nutbrown, 2012) and driven by a real-world and

problem-focused perspective around improving graduate employability and, therefore, university league table performance. Using Creswell's (ibid) framing, I am using a situation (linked to graduation employability) and taking action (this study) which may have consequences (potentially improved graduate outcomes and, therefore, survey results; or potentially another consequence for student education and progression beyond university). Interrogating this worldview identified literature which explores the philosophical foundations of pragmatism (Hammond, 2013). It also identified a range of work which considers the challenge of theoretical frameworks in mixed methods studies and the place of pragmatic approaches or pragmaticism in this (Onwuegbuzie and Leech, 2005; Morgan, 2007; Evans, Coon and Ume, 2011; Hall, 2013; Clarke and Visser, 2019), in action research studies in particular (Fendt and Kaminska-Labbe, 2011; Hammond, ibid) and in professional practice settings, including education (Ormerod, 2021).

Kelle and Reith (2023) note a dual approach to pragmatism in paradigm discussions – the first is in a "common-sense" (p.16) view of using the best methods to address problems and achieve outcomes; the second is the context of the pragmatic philosophical school. A position is taken here that it is not the work of this study to critique the pragmatic philosophical school but to understand its methodological application. To that end, it is useful to consider Feilzer's (2010) case that pragmatism has the potential to "serve as a rationale for formal research design as well as a more grounded approach to research" (p.6). She noted that it "sidesteps" (p.8) the challenges around truth and reality and accepts that there are "singular and multiple realities" (p.8) and lends itself to solving practical and real-world problems. However, Feilzer also considered that pragmatism was a "commitment to uncertainty" (p.14) and that any knowledge produced is relative rather than absolute. The work of Clark and Visser (2019) could also be seen to reinforce notions of uncertainty by acknowledging that boundaries between methodologies are now accepted as both permeable and inclusive and that a pragmatic and pluralist methodology in qualitative research can counter some of the challenges and limitations which arise when following a 'pure' methodology. The notion of permeable

boundaries is explored further in Chapter 5 which outlines and justifies the methodological approach used in this study.

Fendt and Kaminska-Labbe (2011) noted that action research is deeply rooted in pragmatism as it seeks to “solve practical problems *while* expanding scientific knowledge” (p.224). Although Hall (2013) noted the criticisms made by a range of scholars of pragmatic approaches, including the potential for undermining the validity of results, citing the potential for the meaning of pragmatism to be “trivialised to doing what is expedient” (p.23) they also outlined the role of responsiveness and reflection in addressing these concerns. In this research, there is a clear articulation of a real-world problem, but the case is made that the approach taken is responsive to a variety of contexts, covering sector, location and stakeholders, and this responsiveness would need to remain in any on-going work as the circumstances which prompted this work will not remain fixed. In addition, the reflective process has made use of co-creative approaches with stakeholder groups and the output of this co-creation requires multiple perspectives to be taken into account in order to develop the means to address the problem under scrutiny. In the context of a skills gap and the policy requirement to ensure students achieve highly-skilled graduate outcomes, the ‘extreme’ approach would be for universities to unilaterally design their employability and careers content around addressing this gap. However, this would miss stakeholder perspectives and this may impact on its success. Using reflection and responsiveness allows for the design of approaches which address stakeholder requirements and views and which frequently check-in on the way these evolve.

I have been mindful of Hammond’s (2013) work to consider the value of the label ‘pragmatic’, particularly in shifting the focus around action research from method - “a series of steps to improve a situation” (p.603) – to a “distinctive approach to the generation of new knowledge” (p.603). He noted the value of action research in having a “practical impact on a local context” (p.609) but that the process of action research can reveal “what is useful or desirable”

(p.609) and how that might be further achieved. For Hammond, pragmatism offers a rationale for action research as an original or particular way of thinking about it and emphasises the centrality of collaboration.

3.5 Summary and reflection on the use of pragmatism and social constructivism

This study has taken a dual paradigm view as a foundational approach to furthering knowledge and understanding through action research. I recognise the potential shortcomings and criticisms of action research in providing a 'solution' that is seen to work at a point in time rather than results and information which provide and inform long-term understanding and development. However, this dual paradigm approach is seen to provide a robust framework by drawing from a social constructivist stance to put students / learners at the centre, recognising the importance of their immediate and broader environments, along with the significance of their interactions and involvement in dialogue in informing their learning. This is complemented by a pragmatic grounding in the real-world and the problem-solving nature of action research, placing value on multiple perspectives, and collaboration with stakeholders, along with responsiveness and reflection as integral to the research process.

CHAPTER 4: LITERATURE REVIEW

4.1 Introduction and typological approach

There is a vast wealth of literature that addresses both the concept and components of employability as well as the impact of the performativity agenda on employability itself and on the very nature of university education, including the graduates produced by HE. There is also a range of literature which outlines models for framing and implementing employability initiatives. Given the scale and breadth of this scholarly field, this review is based on my own typology to support understanding the different approaches and this was developed in such a way that it might be used with students in future iterations of action research to support them understanding a component of their HE experience where there are internal and external expectations that they will show development in and be able to achieve. This is illustrated in Figure 1 below. The typology is based on the supply-side of employability and attempts to define what employability actually is at the heart of the typology as all other approaches to it will require some kind of a definition to work with. In the bottom left of the illustration is the use of attributes as a means of understanding employability (although it is noted in this review that 'attributes' is one of a number of interchangeable terms used by scholars and practitioners) and it is noted that these can be approaches at the level of individual attributes or through categorised groupings of attributes. The bottom right of the illustration notes the internal and external considerations which are seen to influence, develop or support understanding employability, including personal processes and university processes, personal development and identity and policy. Finally, at the top of the illustration, are the models and frameworks which scholars have developed by way of managing approaches to implementing and operationalising employability initiatives; consideration of how employability might be measured is also included here. It is important to note that the categories detailed in Figure 1 below are not seen as mutually exclusive. The boundaries between them are permeable and scholars often write across more than one category. In developing this typology, it was also

noted that issues around performativity and the impact of employability on HE are present in some shape or form in all categories, although not necessarily in every individual study.

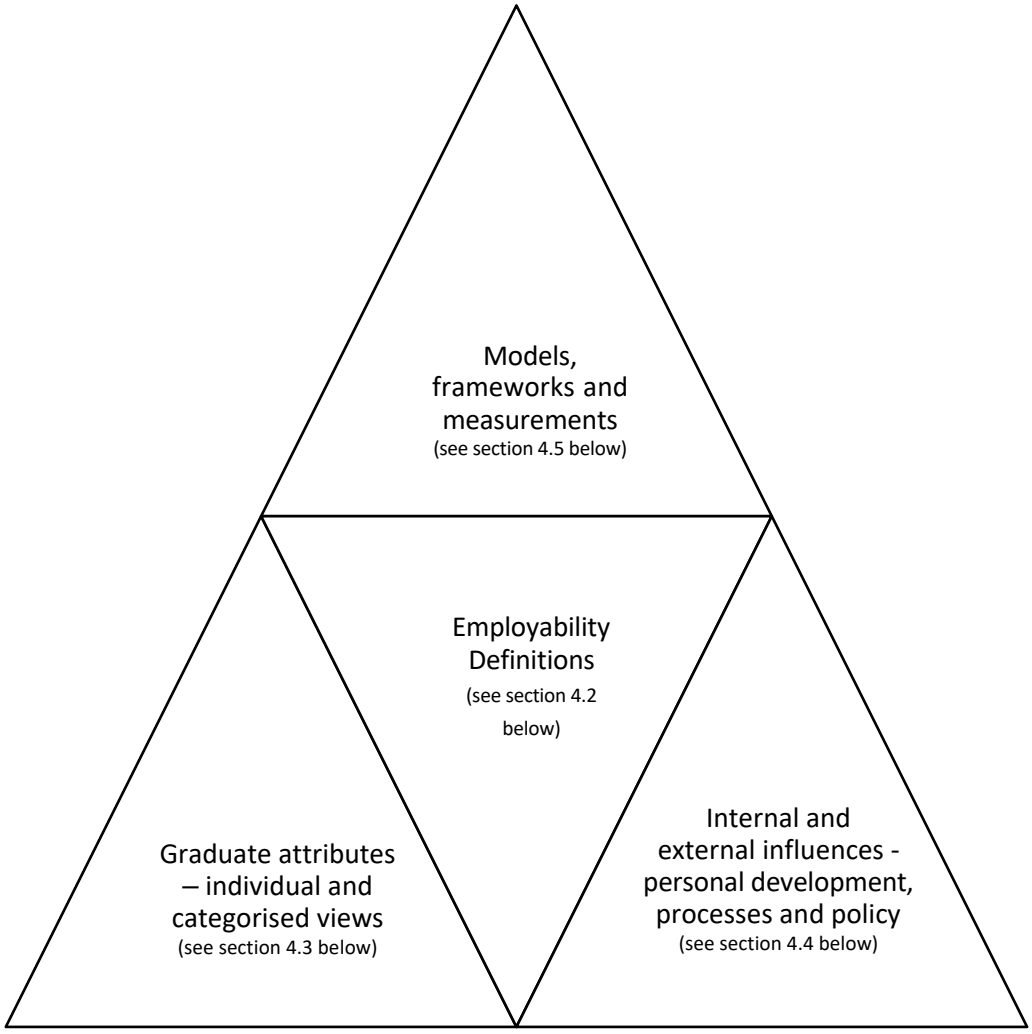

Figure 1: Typology for employability literature used in the review for this study.

4.2 Employability definitions

The very place of employability within the lexicon, operations and outputs of HE and what precisely it means remains open to considerable debate. Within the literature, scholars have tended to outline employability as a concept, consider

the influences that underpin it and reflect on what is an evolving rather than a static discourse. This is illustrated through key definitions of employability. In a review for an Institute of Employment Studies briefing, Hillage and Pollard (1998) sought to both use the literature to define employability and provide a framework to inform future policy development. They concluded employability was “having the capability to gain initial employment, maintain employment and obtain new employment if required” (p.1) but also emphasized it was not just about vocational and academic skills but also labour market awareness to make informed decisions. Other definitions bring in organisations and the benefits of employable graduates, including Harvey (1999, p.4) who defined employability as: “ . . the propensity of the graduate to exhibit attributes that employers anticipate will be necessary for the future effective functioning of their organisation.” This resonates with the view of Bennett, Richardson, Mahat, Coates, MacKinnon and Schmidt (2015) who said graduate employability measures should record more than simply employment and that the skills and traits required for employability should be part of an expanded view of graduate outcomes.

In a Higher Education Academy guide designed to support academics working through the complexities of employability, Yorke (2006) elaborated on broader benefits, considering it as: “A set of achievements – skills, understandings and personal attributes – that make individuals more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy” (p.8). Taking a slightly different stance, Brown, Hesketh and Williams (2003) pointed out that employability was not an isolated notion but about “the relative chances of acquiring and maintaining different kinds of employment” (p.111), framing their discussion around what they called “the duality of employability” (p.110). The absolute dimension within this was students having appropriate skills for jobs and the relative dimension was linked to supply and demand.

Despite this range of definitions, some scholars have noted a lack or narrowness of understanding around employability (Tymon, 2013; Gedye and

Beaumont, 2018; Divan, Knight, Bennett and Bell, 2019; and Hall, 2020). Tymon (2013) found that business school students had a narrow view of the concept of employability, seeing it as a "short-term means to an end" (p.852) and that there was little alignment between student views and other stakeholder groups. In a joint UK and Australian study, Divan, Knight, Bennett and Bell (2019) found inconsistencies between the narratives used in marketing and conceptualisation of employability by academic and support staff. They noted that marketisation could result in transactional approaches to promoting courses but said the tension arising around these narratives could be used to promote critical dialogue. Behle (2020), however, noted that while employability was one of the most important outcomes of HE it was "weakly conceptualised" (p.105), resulting in challenges when trying to compare research results or understand quality of provision in HE. Additionally, the potential challenge in defining employability is illustrated in the work of Römgens, Scoupe and Beausaert (2020) who integrated employability frameworks based on HE with those based on workplace learning and looked for overlap between the models. The strongest overlap was in relation to human capital and its place in the different models; there were also parallels with transferrable generic skills; lifelong learning and reflection on self and organisation. The work in this study is not seeking to redefine employability but, given that it is framed around thinking about skills for jobs and that it is a response to a particular demand generated by a labour market gap, then it can be said to connect strongly to the definition outlined by Brown, Hesketh and Williams (2003).

4.2.1 Employability and its impact on the sector

The central role of employability in a marketised and expanding HE policy landscape, where improved economic productivity is directly linked to growth in graduate numbers, is noted by a range of scholars (Barrie, 2006; Boden and Nedeva, 2010; Brown, Hesketh and Williams, 2003; and James, Warhurst, Tholen and Commander, 2013). The work of Boden and Nedeva (ibid) and Brown, Hesketh and Williams (ibid) critiques not only the concept of employability but also the associated discourse and its impact. Boden and

Nedeva (ibid) acknowledged that in the UK the state has assumed authority to frame employability discourse, concluding that one of the most concerning implications for HE is that University education has become less about "enlightening, informing and engaging" (p.50) and more about delivering material which focuses on "a narrow range of skills and competencies" (p.50). Brown, Hesketh and Williams (ibid) pick up on the skills agenda, noting that government employability policy assumes that the "knowledge, skills and entrepreneurial zeal of the workforce" (p.122) will support both the economic welfare of individuals as well as the "competitive advantage of the nation" (p.122). Policy is seen to have normalised the expectation that HE will deliver economic productivity through the graduates it delivers, with Boden and Nedeva (ibid) noting that employers do not have to take responsibility for training graduates, rather they "order 'oven-ready' graduates" (p.46). In a 2020 study, Brown and Souto-Otero studied data from 21 million job adverts and concluded that formal academic qualifications resulted in only a minor differentiation in terms of the labour market as most employers were more interested in "job readiness" (p.95) which required "job seekers to demonstrate both specific and generic, hard and soft skills" (p.100). The study also acknowledged that the position of graduates in the labour market will shift both in relation to job requirements and evolve based on the skills of available labour and changes which result from technology. Brown (2020) also noted the tension between "organising education around the purported needs of industry as opposed to the needs of individuals to live meaningful and fulfilling lives" (p.496), a tension which is clearly present in this study.

A more positive perspective emerged from Harvey (2000) who noted concerns that employability undermines academic autonomy in his detailed consideration of the 'new realities' in HE. However, he perceived them as being about responsiveness rather than "downgrading" (p.3) university education to a form of training, an axis highly relevant to consideration of approaches to the digital skills gap. He argued the knowledge, skills and attributes which students acquire are part of HE's contribution to enhancing students and empowering them as "lifelong critical and reflective learners" (p.3). He addressed the

development of the employability agenda and considered how HE might address the flexibility this required but did not view employability as either an extra or a primary focus in HE, rather as a "subset of, and fundamentally contingent on, transformative lifelong learning" (p.4). He noted the fast-changing world of work required graduates to be flexible, concluding the 'new realities' of HE were not about how to accommodate employability but how to shift the balance of power around this to learners.

Publications relating to employability show it is not an agenda that is shaped or fixed in any permanent way. It is heavily influenced by other aspects of HE policy, to the extent that while this has made it very much a core part of university provision, its inclusion is openly contested by scholars with protestations that it undermines the very nature of university education. It is an agenda also influenced by business evolution and the resulting shifts in the labour market. The literature clearly indicates such an approach exposes HE and the institutions within it to criticism for being directive, potentially manipulative and playing to the performativity agenda. It is a sphere in which universities find themselves in conflict between their role as organisations which society looks to as problem-solvers and perceptions that they are shackled by the performance agenda which government policy has imposed on the sector (Avis, 2011; and Ball, 2003 and 2012; Olssen & Peters, 2005). The literature considering the concept of employability lacks consensus and does not provide the means to resolve this conflict, but it does provide a basis for exploring and understanding the potential positive outcomes which might be derived through universities and employers working closely together to address a particular labour market issue. This basis is evaluated next through consideration of graduate attributes.

4.3 Graduate attributes – individual and categorised views

A number of scholars have attempted to define, list and / or group graduate attributes – the qualities seen as important for students to be able to articulate and apply when they are completing their HE studies and transitioning to the

labour market. The potential challenge and complexity of this approach to employability is revealed through systematic reviews that considered attributes in detail. While this approach can provide granularity and a breadth of understanding it might also be viewed as a ‘tick-list’ approach to employability and lacking individual, educational and market context. In a review for the Higher Education Academy (now Advance HE), Artess, Hooley and Mellors-Bourne (2017) reviewed 187 pieces of employability literature published between 2012 and 2016 and detailed 34 different graduate attributes drawn from the different frameworks they considered. They concluded that there was a value in moving away from lists of attributes to the more subtle discussion of graduate identity. Their work followed a 2016 study by Williams, Dodd, Steele and Randall which considered a theoretical framework as an essential tool to evaluate employability initiatives and the contribution they make. In a review to support the development of this, they considered 16 conceptualisations of employability and 88 different components before detailing how these feed into human, social, cultural and psychological capital (concepts considered later in this review). They argued that given their review failed to illustrate the “superiority of a single theory in understanding employability” (p.897), it evidenced the need to pull together theorising in a number of areas, including capital, identity, career management and labour market demand to better understand employability, making clear that further conceptualisation of employability was required to inform the design and measurement of interventions. While both of these studies attempted to draw graduate employability away from the atomised approach to attributes, their conclusions showed that scholars see this field as continually evolving, while the scope of what was considered illustrated the lack of consensus within employability discourse around what graduates require to support transition to the labour market.

With this in mind, it is appropriate to consider the work of scholars who give careful consideration to the issues that can arise out of generic approaches to attributes, commonality (or lack of it) and the potential (or lack of it) to generalise. This indicates there is a clear challenge in achieving commonality in

the field of graduate attributes. Two studies that used employer interviews as a means of developing understanding - Finch, Hamilton, Baldwin and Zehner (2013) and Collet, Hine and du Plessis (2015) - wrestled with the complexities of arriving at a shared understanding of graduate employability across all relevant stakeholders and considering the different approaches taken to these studies helps to illustrate the challenge of arriving at shared understandings. Given that both studies involved employers as stakeholders in drawing out skills / attributes / factors which they see as important in graduates, they are highly relevant to this action research project. Collet et al. (ibid) in particular cited the absence of a shared language in a study which extracted a list of 61 skills from a number of disciplines utilising academic, policy and industry literature and then utilised interviews with senior staff in 207 businesses involved in bringing emerging technology to market to assess their perception of these skills. These senior staff were asked how important each skill was to their organisation and the extent to which each skill was evident in the graduates they employed. The authors concluded that the relationship between different skills was a key component of understanding graduate employability but that it was easier to develop new lists of skills than work to develop a shared language.

The approach of Finch et al. (ibid) is interesting in that it characterises work by some scholars to shift thinking from lists of individual attributes to groupings or categories. The authors used a range of literature to identify 17 factors seen to impact on graduate employability before firstly working with 30 employers to consider how these 17 factors could be sorted into five groups. Secondly, they worked with 145 employers to consider the relative importance of each of these groups, with soft skills being ranked as most important and academic reputation as least important. This is in contrast to Bhaerman and Spill (1988) who developed three higher order categories, with the two approaches shown in Table 1 below.

Table 1: Examples of higher order categories for graduate attributes.

Bhaerman and Spill (198)	**Finch, Hamilton, Baldwin and Zehner (2013)**
Pre-employment and work maturity	Soft skills
	Problem-solving skills
	Pre-graduate experience
Basic education skills	Academic reputation
Job-specific skills	Job-specific functional skills

Viewing these two approaches side-by-side illustrates the issues in trying to categorise and define attributes. The Bhaerman and Spill (ibid) pre-employment and work maturity category could be said to cover three of the categories outlined by Finch et al. (ibid) – soft skills, problem solving skills and pre-graduate experience. However, problem-solving skills might also be said to fall into the basic education skills category, which, it is noted, is very different to the academic reputation concept noted by Finch et al. (ibid). Additionally, Harvey (2000) further illustrated the complexities in this arena. He identified that interactive skills (communication, teamwork and interpersonal skills) and personal skills (including intellect, knowledge, flexibility, self-motivation, self-confidence and self-management) were what employers were looking for. Reflecting this back to the contents of Table 1, interactive skills might be considered to be similar to, if not the same as, soft skills. Personal skills, meanwhile, could cover problem- solving skills, pre-graduate experience and job-specific functional skills.

In their critical review of understanding around graduate skills, James, Warhurst, Tholen and Commander (2013) argued that the notion of being skilled “seems to rest on possession of a seemingly expanding nomenclature of personal capabilities” (p.957) with no recognition that “different skills can have different sites of formation” (p.957). They made a distinction between the “skills of graduates” (p.958) – developed in broad environments and possibly prior to entry into HE - and graduate skills, which they viewed as formed specifically in higher education. They also made the distinction between graduate occupations (those which require graduate skills) and “graduatizing” (p.959) occupations,

which are those which graduates have begun to enter. They called for further research which would address four aspects of skill – development, demand, supply and deployment, asserting that this will help develop an understanding as to why increasing numbers of graduates had not boosted economic growth.

Barrie (2006) questioned whether the dual and disparate influence of institutional values and the social and political climate actually ruled out the possibility of a shared understanding of generic graduate attributes, particularly in an arena where a "bewildering array" (p.217) of terms – including attributes, competencies and skills – were used. He sought to understand the challenges of articulating the outcomes of university education by using interviews with 15 Australian academics and phenomenological analysis to understand the different ways academic staff understand graduate attributes. He found four categories of description, a *precursory conception* which was based on the notion that graduates brought some abilities to university that could be built on; a *complement conception* based on the idea that additional general skills could complement discipline knowledge and skills; a *translation conception* where additional general skills were seen as key to the application of discipline knowledge; and an *enabling conception* where abilities linked to learning and knowledge had the potential "to support the creation of new knowledge and transform the individual" (p.224-225). In this regard, his study illustrates something of a division in the literature between those who critique employability, its components and its impact and those whose seek to move beyond this and consider how the employability agenda is operationalised, implemented and influenced by academic intervention.

4.3.1 Attributes, skills gaps and the changing labour market

In reviewing the application of the term employability, McQuaid and Lindsay (2005) concluded with a framework for analysing it through the lens of individual factors, personal circumstances and external factors. They noted that focusing on individuals and their skills, "hollows out" (p.205) the concept of employability and can come to define how policymakers identify skills gaps. Collet, Hine and

du Plessis (2014) considered that skills gaps arose because the structure of education made systemic change challenging, that universities had not always addressed the business and soft skills required by industry, that academics were uncomfortable teaching beyond their discipline expertise and that employers may not have communicated their requirements well enough. Their study with employers “at the front of the technology innovation curve” (p.533) identified that a “significant and meaningful gap” (p.544) was perceived.

However, Jackson (2016) asserted that an enhanced approach to employability could bridge skills gaps, raise organisational productivity and fuel innovation, considerations that are highly relevant to this research. Enhanced employability, she noted, covered self-assurance, technical proficiency and non-technical skills. In work that considered the landscape of practice and interacting communities in HE to consider how employability is influenced, Jackson (ibid) noted there was evidence of both efforts to broaden the concept of graduate employability as well as a continuing focus on key relevant skills. This approach, she argued, was narrow and failed to embrace the complexity of work readiness. This resulted, she concluded, in a position where there was no “emergent conceptualisation of graduate skills” (p.925) to offer a clear understanding and rationale for the way forward in the context of increasing graduate numbers in an uncertain economic climate.

If the focus of James et al. (2013) and McQuaid and Lindsay (2005) on broader aspects of employability development is viewed as the whole life experience of graduates, then it further highlights that a focus on lists of attributes lacks a human dimension, something central to the work of Bennett (2012). She critiqued the way learning, identity and work are discussed in academia and considered the development of self-identity among university students. She outlined that student motivation and interest would be high when they considered an activity to be meaningful and important, reinforcing the need for students to position their learning in “relation to creatively exploring their future” (p.27). She outlined that students needed a future vision of self, motivation and self-esteem in order to develop their identities. In the context of digitisation,

globalisation and deregulation, she said that there was a growing demand for graduates who could manage change, had an entrepreneurial outlook, who could contribute creatively, who were engaged in learning as a lifelong activity and who could "transform information and content into strategies and tools, and transform themselves from receivers of knowledge into participatory learners" (p.36).

It is apparent that a multitude of approaches to graduate attributes and their development are detailed in the literature and, therefore, that any research in this field will need to find a balance between the shared employability agenda that is a core part of university provision, experience and outcomes and the specifics of different fields of employment. The literature also points to the need to be aware of the interactions and complexities that arise out of considering the different components which feed into employability. This is an important frame for this research given the specialist nature of the sector it is looking at and its focus on business-university interaction and the impact this might have on students.

4.4 Internal and external influences – personal development, processes and policy

Research seeking to address skills gaps also needs to consider graduate transition to the labour market, moving beyond what students *need* to how they are engaged in this agenda through their HE experiences and the wider context of their lives.

The work of Fugate, Kinicki and Ashforth (2004) supports consideration of this wider context. They identified three dimensions of employability: 1) Career identity; 2) Personal adaptability; and 3) Social (networks and relationships) and human (knowledge and experience) capital in a study that considered employability in the context of job loss and job search. They viewed personal adaptability as the "conceptual glue" (p.18) that pulled these three things together to result in employability and a greater likelihood of employment. The

prominence given to adaptability is a key point to pull through into the present research as the digital sector continues to evolve as technology develops and large sections of it are discipline agnostic in that they will recruit graduates from any degree background. The significance of social and human capital is central to work developed by Tomlinson (2017) and Clarke (2018) around the notion of graduate capital, while Donald, Baruch and Ashleigh (2019) focused on the impact of human capital. Tomlinson's (ibid) graduate capital approach also included cultural, identity and psychological capital. In common with McQuaid and Lindsay (2005), he stressed the "dynamic and interactive forms of capital which are acquired through graduates' lived experiences" (p.340). In the context of the digital skills gap, it would be easy to consider human capital, which is focused on knowledge and skills, as being of greatest significance in closing the gap. However, such an approach would undervalue the role of social capital, networks and human relationships, in giving graduates insight into opportunities and the place of identity capital in supporting the personal investment of graduates in their own development, all of which will be addressed in the present research.

What is relevant to both attributes and broader concepts of employability is the *process* of acquisition or development, identified as significant by both Barrie (2007) and Holmes (2013). When considering generic graduate attributes within the learning context, Barrie (ibid) made a distinction between what is learned – the outcome – and how it is learned – the process - and then outlined six processes for acquiring the appropriate skills:

1) Remedial (graduate attributes not viewed as being part of university experience).
2) Associated (where attributes are taught in addition to the rest of the curriculum).
3) Teaching content (attributes are taught in the context of discipline content but the focus is on teaching rather than learning).
4) Teaching process (attributes taught through discipline content).
5) Engagement (attributes acquired through the way students engage with their learning experiences).

6) Participatory (attributes are learnt in the way students participate in the experiences of university life, not just with formal teaching).

(Barrie, ibid, p,444).

These processes are useful to consider in further evaluation of proactive or reactive approaches to employability (Fugate et al., 2004). Processes two and three are potentially where universities themselves can be most proactive but the development of attributes and broader qualities could be said to be most powerful in processes four and five because they are based on synergistic approaches by both universities and students. In terms of this research project, it is processes 4, 5 and 6 which have relevance as students will develop some attributes through their discipline and the inclusion of embedded placements means there is a specific mechanism for both engagement around relevant learning experiences and participation in work-based learning through the placement, providing learning outside of formal teaching.

Developing the idea of process, Holmes (2013) initially identified and critiqued two views of graduate employability – possession and social positioning. He then outlined a third perspective, the *processural* approach. His view was that the first of these approaches, possession (of graduate attributes or characteristics) was flawed because it was not actually possible to measure the attributes possessed, there were so many different terms used about attributes, it was difficult for employers to make sense of them and because they did not explain employment outcomes, particularly in the way they differed between demographic groups. He also critiqued social positioning – which related graduate outcomes to the social background of graduates. This, Holmes (ibid) argued, did not account for graduates being involved in “interactional” (p.548) processes around employment over a period of time – the *processual* approach. His work rejected the idea of graduate employability as a static endpoint, instead conceiving it as a “temporary relationship that arises between an individual graduate and the field of employment opportunities” (p.550). In considering what Holmes (ibid) sees as this temporary nature of the relationship it is useful to reflect back to Fugate et al. (2004) and their notion of adaptability

and note the synergy between these two ideas.

In a further development of his ideas around the relationship between graduates and job opportunities, Holmes (2015) outlined five “modalities” (p.219) – from under-determined identity through to agreed identity – concluding that they could provide a framework for investigating early career trajectories and understanding how graduate identity was warranted through the way graduates gain acceptance by others. He considered the skills and attributes approach to employability restrictive in that it took no account of the notion that becoming a graduate was akin to having an emerging identity that might come to the fore over a greater period of time than the course of a degree. This identity might also be supported by processes and interactions other than the acquisition of attributes. He argued that universities needed to support graduates into employment by “developing their ability to warrant their claims to be “worthy” of such employment” (p.234).

The notion of being able to warrant a claim links to identity and Jackson’s (2016) redefinition of graduate employability to include “pre-professional identity” (p.926) which she outlined as the “understanding of and connection with the skills, qualities, conduct, culture and identity of a student’s intended profession” (p.926). In common with Holmes (2015), Jackson (ibid) identified interaction as a key part of the transition to employment, suggesting “relevant and interacting communities” (p.926) as a key component of enhancing student learning, with students forming their pre-professional identities through their interactions. Given this work refers to an intended profession, there does need to be consideration of how well it applies to graduates who will aim for careers not linked to their subject discipline or who will make a late decision about their career path as opposed to those who are making a direct link between the two or who fix early on the career they aim for. This is particularly relevant to careers where employers will consider graduates from any degree background rather than a specific degree discipline. However, the notion of interaction with communities is particularly relevant to this research project as it seeks to actively engage students with a particular community in the labour market.

The role of communities of practice also arose in the work of Hughes and Barrie (2010), who noted the need for staff development around the assessment of employability skills and the need for such assessment to be authentic to communities of practice. Attributes, they argued, were most successfully embedded when they framed curriculum development; when students were engaged as partners; when there was negotiation of the assessment task and when students actively collected evidence in relation to attributes. However, they argued that a shortcoming in assessing attributes often arose out of assessment *for* rather than *with* students. This perspective has resonance with the ideas of Collet, Hine and Du Plessis (2015), who articulated the notion of "interprofessionalism", signified by team working with an emphasis on "highly collaborative problem solving where different professions learn with, from and about each other to improve outcomes" (p.550). The associated discourse around employability needed to shift, they argued, so the key focus was on how to enable graduates to perform in a diversity of workplace contexts and meet a range of workplace expectations.

In considering how students and graduates might navigate communities of practice successfully, it is useful to draw on the work of Jackson and Wilton (2016) on the development of career management competencies, including the forming of career goals, understanding the labour market, establishing job search skills, identifying useful and relevant learning opportunities and professional networking. In a study based on a self-assessment online survey undertaken by UK and Australian business students, they found that participation in work experience could have a positive impact on the way participants rated themselves in relation to career management. The authors cited two drivers for the need to switch from discussing employability to focusing on career management competencies - the pressure within HE around employability outcome and the need for graduates to navigate opportunities and articulate their strengths. Their ideas have resonance with Williams, Dodd, Steele and Randall (2016) who also identified career management – an individual's ability to navigate the labour market to achieve personal goals – as

an increasingly important dimension of employability.

The empowerment of students is a theme which emerged in the literature, with Harvey (2000) asserting that the key challenge for higher education was not how to accommodate employability in the curriculum but "how to shift the traditional balance of power from the education provider to those participating in the learning experience" (p14). For Bennett, Knight, Dockery and Bawa (2020), there was a need for HE to engage "learners' whole self in their consideration of their future" (p.340). In an Australian study comparing the views of STEM versus non-STEM students, they argue that employability pedagogy was a pedagogy of metacognition where learners "actively engage in the exploration of explicit learning goals and in dialogue about learning processes" (p.342).

In considering any shift in the balance of power around employability, it is important to reflect on how this shift – or empowerment of learners – might be shaped and utilised. Drawing on the scholarly themes outlined above, it gives learners influence over the process they are involved in at the University and how they shape their emerging identity; it also feeds into how they might make decisions or manage their steps to their future career. Hodkinson and Sparkes (1997) modelled the notion of 'careership', comprising decision-making, interaction with others in the field and the location of decision making within the "unpredictable pattern" (p,.29) of the course of life. They critiqued the market-driven approach in education and the disconnect between this and how students actually made career decisions.

The complexity of career-decision was also a focus for Amir and Gati (2006) who noted the potential for negative consequences, especially where young adults have relatively little experience in decision-making. Their study involved 299 young adults and asked them to rate career decision-making difficulties and they concluded that any support offered to young people should take into account decision-making styles and the ability of individuals to undertake tasks involved in decision-making. Hamzah, Kai Le and Musa (2021) looked at career decision-making and its relationship with self-efficacy, career adaptability and

emotional intelligence. Their results, based on working with 205 university students in Malaysia, suggested that emotional intelligence and career-decision self-efficacy had a substantial association with career adaptability. They acknowledge the increased need for career adaptability based on the changing labour market and noted the importance of identifying things which could influence this adaptability. Career adaptability was also the focus of the work of Monteiro, Ferreira and Almeida (2020), who used career construction theory to explore how this concept might be a "mediating variable" (p.408) between the competencies developed during the course of higher education and perceived employability. Their findings recognised that while "academic competencies represent a pre-requisite for employability" (p.408), students needed career management resources to utilise those competencies and transition to the graduate labour force.

4.5 Models, frameworks and measurements

A number of scholars have sought to develop models which help to frame, manage and operationalise employability for students and institutions. In some instances, scholars have devised a means to potentially measure employability through the use of these models.

In terms of measurement, two studies illustrated different approaches of what can be measured. For Harvey (2001), the UK's approach to defining and measuring employability was too simple as it was an outcome and a measure of the effectiveness of the institution rather than based on the likelihood of an individual student getting employment. Considering the result of a Welsh project to look at the "nature and extent of employability skills development" (p.106), he considered the issues around measuring employability via an audit of development opportunities provided by institutions or by looking at the extent to which students at an institution had developed a defined set of attributes. He surmised there was no simple answer to this but that evaluations of employability needed to indicate areas for improvement rather than simply

providing a ranking.

Finch et al. (2013) looked at the employer perspective and the potential to measure the importance of soft skills, problem-solving skills, pre-graduate experience, academic reputation and job-specific skills for employers. Their findings, based on 30 interviews with “hiring managers and influencers” (p686), saw soft skills as the highest ranked category of skills, followed by problem solving. Academic reputation was the lowest ranked category. However, they noted that the employer’s views of the competencies required in the workplace were changing faster than HE could adapt its programmes.

The models outlined in the literature are seen as offering potential frameworks to adapt provision. One such employability model is DOTS developed by Law and Watts (2003) which included decision-making, opportunity awareness, transition learning and self-awareness. The USEM model was developed by Knight and Yorke (2004) to address what was perceived as a limiting focus on skills. In contrast to the DOTS model, USEM made specific reference to subject understanding which sits alongside skills, personal qualities and metacognition. Degree knowledge was also a central component to the CareerEDGE model developed by Dacre Pool and Sewell (2007) and sits alongside career development learning, experience, generic skills, emotional intelligence, reflection and evaluation. The authors were clear that all components were essential to the development of employability and that any missing component would reduce employability. Their model was developed to address what they perceived as a gap between complex, scholarly articles and those which are more descriptive.

A range of studies have utilised CareerEdge as a means to measure employability. Scott, Connell, Thomson and Willison’s (2019) study gathered student perceptions of a final year employability module. Participants reported increased confidence and ability to communicate personal skills, but the results also showed that students could have “skewed” (p.692) perceptions of skills in relation to their chosen career path. Yawson and Yamoah (2023) sought to

extend the CareerEDGE model by developing a measurement framework including entrepreneurship knowledge and skills which they believed could inform the planning of interventions. In evaluating the impact of collaboration with employers on student work-readiness, O'Regan, Carthy, McGuinness and Owende (2022) utilised the CareerEDGE model to show that tailored workshops could improve participant scores on the model.

A new psychometric instrument – the Graduate Capital Scale – was adopted at a UK Russell Group University and validated by Tomlinson et al. (2022) as a self-reflective tool aligned to the graduate capitals that he outlined in 2017. The scale seeks to measure learning gain in relation to interventions such as careers coaching and is seen as having potential in working with students who have specific support needs. This is particularly relevant to the new Teaching Excellence Framework approach introduced for 2023 as this requires providers to outline, and eventually measure, their own conceptualisation of educational gain (Office for Students, 2022).

4.6 Employer engagement and university-business connections

In considering literature which looks at university-business engagement, a field of activity which often relates directly to employability initiatives, scholars look at over-arching approaches, specific interventions with students or a combination of the two.

Bennett and Kane (2009) looked at the most common methods for employer engagement in 142 UK business schools and the perception of benefits and challenges linked to this work. Through the development of a model to explain the extent of university-business engagement, the authors identified common engagement activities such as reviewing of documentation, consultation with professional bodies and collection of feedback but also noted that challenges around engagement were often linked to resources available, particular in terms of employers investing in activities.

Tudor and Mendez (2014) adopted Covey's (1989) mutual value win-win principles and utilised two UK HEI case studies to illustrate how this approach,

focused heavily on relationship management, could enhance engagement activities with employers. The research is one of a number of examples to cite government policy as a driver for a focus on this area of activity. Indeed, the role of government and its place driving employability education in the UK, was noted by Sun (2011) whose research looked at employer engagement embedded in product design degrees at two universities – one in the UK and one in China. In contrast, industry was seen as the key driver for such approaches in China and Sun further noted the evolution of engagement approaches from being about teaching to managing learning opportunities.

The challenge of sustaining employer engagement is recognised by Harris, Chisholm and Burns (2013) who looked at the potential of using Knowledge Transfer Partnerships (KTPs) in UG education as a means of extending sustainable practice-based learning to address government, employer and HEI strategies. The authors noted many engagement activities were ad hoc and viewed KTPs as a means to take forward “innovative and creative projects that have both economic and societal impact” (p.182). However, they viewed academics as key to taking the lead “and to “sell” this to organisations as it is they who hold the potential to explain it and make it happen through their accreditation systems and courses” (p.187).

A number of studies focus specifically on embedding employer engagement in the curriculum as a means of impact skills development. These include Gibson and Tavlaridis (2018), who looked at enterprise and work-based learning pedagogy to create impactful experiences for students and noted the potential of partner projects in developing entrepreneurial skills across all areas of the curriculum. The work of Russell and Rowlett (2019) utilised curriculum and assessment input from employers in a mathematics programme at one UK university and identified that some skills, particularly problem-solving and presentation skills, were particularly enhanced by this approach. Meanwhile Perrin and Sun (2022) looked at changes to delivery and assessment at one university in China as a means to connect students with research and inquiry-based learning through real-life problems posed by industry. They concluded

that students could make creative discipline contributions through learning by doing.

While such studies can report positive outcomes, there are limitations when work is focused in a particularly geographical area, linked to a specific discipline or industry sector and this is noted by Suleman, Videira and Araujo (2021) in work which focused on barriers to employer engagement through interviews with 19 employers in a northern region of Portugal. They found “cultural mismatch between business strategy and academic language” (p.12) was a major barrier. Similarly, Stroud and Hopkins (2016), whose study focused on one UK engineering school, noted that specific barriers arose out of sector / organisational differences in practices, policies and cultures.

4.7 Summary

The graduate employability literature illustrates how a wide range of studies have attempted to define what is meant by graduate employability and the concepts which support or further define this. It is clear that graduate attributes are central to university-labour market interactions and there are a range of approaches in terms of how graduate transition to the labour market is considered. Scholarly understanding and practical operationalisation in this employability arena sits within clear policy expectations that graduates will contribute to economic productivity. Despite the breadth of work, there is no single definition of employability, or single, agreed list or grouping of attributes, or a single approach to capture all aspects of the work in this area. However, it could also be argued that given the inherently evolving nature of the employability agenda in response to the demands of a changing labour market, there is unlikely ever to be a single agreed definition or approach. Given the range of stakeholders with a vested interest in graduate employability, the shifting demands of the labour market, the pressure imposed by policy in this area and variety of responses to this, it is probable that the nature, definition and use of terms and approaches will remain contested. In the same way, the debate around the extent to which HE should ‘bend’ to the employability agenda

is also likely to continue to be a prominent point of contention. The discourse in this field is further shaped by a range of different ideas around the processes, interactions, capitals and identities that influence the development of graduates in terms of the labour market. But, as with attributes, the literature reveals a lack of commonality and shared understanding within this field. In addition, literature covering employer engagement and university-business connections identifies that while there are positive drivers for organisations and institutions to work together, and positive examples of specific (often subject or course-focused) projects, there are also significant challenges in relation to practice, policy and cultures. Considering this range of factors makes clear there is further opportunity to consider the nature of how stakeholders can address graduate employability development and a labour market issue within the sphere of a specific skills gap along with the means of engaging students in this agenda. This review does not suggest that finding a single, agreed and neatly contained way to view, place, develop and discuss graduate employability is a tangible outcome. However, it is a backdrop which signposts the need to develop further understanding in this arena within the changing HE policy landscape and the continually emerging requirements of the labour market. By asking the overarching question - *How can an evidence-based university-business intervention be tailored to engage students effectively in digital skills gap opportunities?* – it is anticipated that this research will provide further understanding around the relationships between stakeholders and their ability to develop and introduce curriculum material which could potentially impact on a labour market issue.

It is clear from the literature that the transition to graduate employment is hugely significant but cannot be viewed as a straightforward and simple stepping off process. Rather, it is a complex navigation that requires graduates to understand the labour market and how they place and apply themselves in it and continually adapt to its shifting demands. With the digital skills gap particularly in mind, this will mean them navigating sectors of the labour market that they may not be familiar with or necessarily confident in. This process of navigation is outward looking in terms of how students interact with the labour

market but ‘internal’ factors – or the influence of academic structures, academic understanding in the field and the influence of personal factors – also have significance in that they will shape the discourse within institutions, between stakeholders and impact on student experience and outcomes. While there may be a temptation to take a simplistic view of work to address skills gaps as simply being *reactive,* the literature supports a more nuanced view. In the first instance the notions of flexibility and emerging identity could be said to be *reactive* to labour market conditions. However, in recognising their significance within the process that students go through during the course of their degree and beyond graduation, there is the opportunity for universities to work *proactively* with students to build these aspects of their experience in the context of shifting labour market demands.

CHAPTER 5: METHODOLOGY

5.1 Methodological approach

In developing the methodological approach to this research, it was conceived as an action research study and as a form of practice to allow "real-life theorizing" (Whitehead and McNiff, 2006, p.52). It draws on my ontological positioning as an insider and practitioner researcher, with an identity in HE which is significantly influenced by prior senior leadership in industry (news media) and senior leadership positions held within HE. An action research approach also helped to create a strong alignment between the research questions and the methods utilised to address them, as well as providing an "overarching strategy for unearthing useful answers to problems" (Dahlberg & McCaig, 2010, p.30). In this case the research involves multiple stakeholders and a degree of complexity in that there is no single and/or quick-fix solution to the problem. The study was seen as a "purposeful investigation" (Whitehead and McNiff, ibid, p.12) which involved a structured approach to "gathering data and generating evidence in relation to articulated standards of judgement in order to test an emergent theory" (ibid, p.12). In considering the multiple stakeholders at the heart of this research and their interactions in relation to graduate employability, I utilised a social constructivist and pragmatic epistemological stance which allowed meaning to be constructed by these interactions rather than discovered by me as the researcher.

The notion under investigation is that a skills gap can only be addressed by key stakeholders working together to shape the way forward. However, alongside considering the cyclical and iterative nature of action research to support work towards an emergent theory, it was also useful to consider Whitehead and McNiff's (ibid) critique of social science research. This practice of a researcher observing others and then developing theory is one which they argued could be: "linear and one dimensional" in its logic (working towards a specific end point); "mechanistic and functional" (forcing an answer when one might not be there); and "imperialistic" (applying the answer to all situations without consideration for context) (ibid, p.15). Addressing this reflection, this study was designed with an

understanding that: the answers which emerged might not be the answers expected or desired; that at the end of the action research cycle, the only outcome might be to carry out a further cycle to work out a way forward; and that any consideration of employability and related issues must take into account the evolving labour market, the changing educational landscape and the nuances of different cohorts of students studying in a single university. Fernie and Smith (2010) defined a number of characteristics of action research that feature in the design of this study: reflection, research and action form the foundation of the study; there is an aim to change practice; the work is problem driven; participation is involved, and the research is cyclical. It is useful to draw on these characteristics in considering the way the study was shaped around an overarching research question:

> ***Q: How can an evidence-based university-business intervention be tailored to engage students effectively in digital skills gap opportunities?***

In framing this question, I reflected on University context and a labour market problem, which is an issue in West Yorkshire and elsewhere, and then considered how to gather information which would inform action. From the perspective of the University where the research took place, given its career-led status and focus on employability through embedded and credit-bearing placements, the problem being addressed arose from institutional and labour-market intelligence which indicated that students were not connecting with the opportunities offered in the digital sector. The question indicates an intention to change practice through stating that an intervention to address this problem needs to involve the University itself, its students and businesses and it also indicates that something new or different will be considered to try to engage students in particular opportunities.

In order to address this overarching question, two sub-questions were formulated through consideration of how an action research cycle would work and these are as follows (with reflection on the development of these questions through an action research cycle considered further on in the chapter):

a) ***How do digital sector employers view graduate attributes and how does this view differ from that of students?***

b) ***How can an evaluation of the interactions with and between employers and students inform the collaborative design of an intervention to increase student engagement in digital skills gap opportunities?***

The first of these sub questions supports the need to understand the different perspectives of key stakeholder groups on graduate attributes. While the literature review has noted the potentially problematic nature of focusing on graduate attributes because of the challenge of finding a shared language across different groups, they are a common part of the discourse around employability and graduate job opportunities which helps to connect employers and students. In this research, the use of a list of graduate attributes drawn from a systematic literature review (Artess, Hooley and Mellors-Bourne, 2017) provided a useful tool to give insight to any shared or differing views between employers and students. The second of the sub questions reflects the cyclical nature of action research and indicates a clear path to use the findings from one activity or cycle to inform how to approach the next activity or cycle.

5.1.1 Action Research models

In designing this action research study, a review of a range of models was undertaken. The 'tight' model first developed by Lewin (1946) involved planning, fact-finding and execution and was outlined by McNiff and Whitehead (2002) in a review of key theorists. Numerous scholars have revised and nuanced this

model. Elliot (1991) outlined three cycles, with each featuring reconnaissance, planning, actions, implementation and monitoring of actions, before the cycle starts over. Coghlan (2019) included a pre-stage of context and purpose and a further four stages – constructing, planning action, taking action and evaluating action. Craig (2009) went on to identify eight components. While the organisational and functional stages of action research may differ from scholar to scholar, there is consensus on the view that, rather than simply focusing on outcomes, the actual process of action research and the learning through this process is fundamentally important. It is also acknowledged that action research is not a tidy and linear process (McNiff with Whitehead, 2002; McAteer, 2013); it is responsive and multi-layered, with cycles repeated and actions not necessarily carried out in the same order every time.

For this study, the widely accepted cycle of plan, action, observe and reflect was adopted as it provided a clear framework to design around and captured the core steps being taken without the need for additional components outlined in other models. Figure 2 below summarises how each stage was utilised as the research was carried out (adapted from McNiff and Whitehead, 2002, pp.40-41 and p.57). This cycle is further explained and explored later in this chapter.

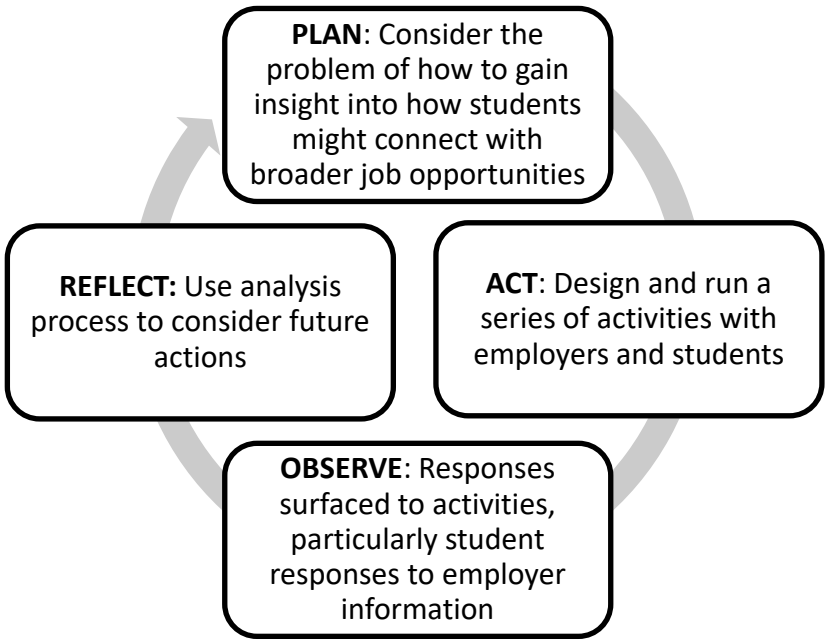

Figure 2: Action research cycle as utilised in this study (adapted from McNiff and Whitehead, 2002, pp.40-41 and p.57)

In framing this study as action research, consideration was also given to other methodological approaches, along with 'labels' applied in this area with potentially interchangeable meanings. For example, in its practical approach to problem solving, this research could also be considered through the lens of pragmatic methodology. Equally, in combining a range of approaches to data collection, the study might have been considered as a bricolage approach in that it employed "various methodological moves" in order to solve a problem and in a way which was tailored to this research project (Pratt, Sonenshein & Feldman, 2022, p.211). While the approach here is pragmatic, in the sense that it is concerned with understanding what works (Creswell, 2009), action research is asserted as the appropriate approach given the cyclical nature of the labour market and, in turn, approaches to employability and graduate outcomes. Using action research to work with stakeholders and taking this study as just one component of connected activity – or as a stepping-stone - in a longer-term approach to supporting the employability and graduate outcomes agenda – can be justified from a social constructivist perspective given its focus on environment and interaction. Von Glasersfeld's (1995a) notion of radical constructivism assumes that individuals have no choice but to construct what they know based on their own experience and notes the "influence and shaping effects of social interaction" (p2). The employability and graduate outcomes agenda could be said to be framed around a range of interactions in the University, external and labour market environment and University interventions and support need to consider how students build and interact with networks and opportunities and understand their discipline, professional and potential labour market environment. Reflections on multiple interactions, including through the co-creative approach outlined in Section 5.2, and the cyclical nature of action research are both supportive of the epistemological approach in this study, helping to gradually layer and build understanding of the problem at the heart of any study. However, the importance of student agency in these interactions was noted by von Glasersfeld (ibid) who said "when students are driven by their own interest to investigate and conceptually grasp a situation, the conceptual

changes they are making during the process of reflection will be far more solid" (p.188).

In considering a range of methodological approaches, grounded theory was identified as a means to "learn about the worlds we study and a method for developing theories to understand them" (Charmaz, 2006 p.10). Dick (2008) acknowledged that like action research, grounded theory develops "theory grounded in specific evidence" (p.399) but also noted that action research is "more explicit about how understanding informs action" (ibid) rather than how theory is built from the evidence and that in grounded theory "researchers are seldom the actors" (p.401). These views confirmed a direction with action research as the most appropriate framework for the study but with the use of grounded theory for the data analysis. This approach is further considered in the Section 5.7 (Underpinning considerations for data analysis**)** below.

5.2 Utilising a co-creative approach within action research

As noted above, this study was problem-driven but there was no desire to solve the problem in isolation – rather the basis of the study was to attempt to understand how to solve the problem in collaboration with stakeholders. This, therefore, inspires and justifies a co-creative approach to the work. Healey, Flint and Harrington (2014) defined four areas in which students can act as partners in learning and teaching:

1. Learning, teaching and assessment
2. Subject-based research and inquiry
3. Scholarship of teaching and learning
4. Curriculum design and pedagogic consultancy

In the case of this study, the co-creative approach is designed to influence institutional thinking about learning, teaching and assessment (Item 1 in the above list) and curriculum design and pedagogic consultancy (Item 4 in the list above). In both instances, the influence would be intended to relate to employability content.

The benefits of co-creative approaches are numerous. Bovill (2014) used data from three case studies to summarise the cohesion, confidence, motivation and deeper understanding which emerged for students. Ruskin and Bilous (2020) argued that their model allows for “redistributing power through co-creation” (p806). They proposed that staff, students and workplace partners could all play multiple roles in co-creation projects, in particular as planners, contributors, creators and reviewers but expressed surprise that industry partners were not involved in the development of curriculum to support work-based learning. Bovill (2019) viewed co-creation as an umbrella term which covered participation, learner empowerment, shared decision-making, student agency and negotiation around learning and teaching. In the context of this study, learner empowerment and student agency around employability are central to the work. It is also notable that Ruskin and Bilous (ibid) wrote about co-creation in the context of work-integrated learning and identified that there was extensive literature around staff and student co-creation, but less attention had been paid to work with industry and community partners, although they acknowledged that curriculum planning between universities and businesses was widespread.

5.3 Methodological considerations

While action research is a potentially powerful tool in a workplace context, a number of scholars have noted that it has both advantages and disadvantages. Fernie and Smith (2010) noted its value-laden nature as practitioner values are central to the way the research is framed and conducted and have the potential to “contaminate” the research (p.103), giving it bias. Dhalberg and McCaig (2010), meanwhile, presented practitioner research as “sympathetic towards values within specific practices” but outlined that such research is typically undertaken by somebody who understands the field and “benefits practice and promotes change” (p.5). While recognising that practitioner research could be viewed as less trustworthy because of vested interests (Van Niekerk and Savin-Baden, 2010), the view of McWilliam (2004) that it is more ethical because it has the potential to **“**give voice to the

voiceless" (p,114) is of relevance here as this study aimed to establish students as stakeholders in the frame of how universities and businesses work together. This does not mean the study is without issues - there is still a need to be sensitive to power and relationship politics within the context of the research and this is explored later in this chapter.

The considerations noted above are also central to reflections on how values can bring strong guiding principles to research (Fernie and Smith, 2010). In the case of this research, a key guiding principle was that although I understood that it had the potential to impact on key University metrics and was acutely aware of the issues relating to performativity in the context of an increasingly stringent regulatory environment, I was guided by a belief and desire to ensure that the approach to addressing skills gap issues was not a blunt 'tell' for students; instead, co-creation and creative approaches to engagement needed to be explored, discovered and formed. In this approach, I drew on Fernie and Smith's (ibid) view that the 'reflect' component of action research can be powerful as a means " . . . to stand back from your experiences and to ask questions about what was happening, why and what you are going to do next time" (p.106). The reflective process must include consideration of researcher values and their influence on the research as this will support recognition of areas where bias may be an issue. I recognised that in approaching and designing the research, I had a positive bias towards digital skills opportunities because of my interactions with the sector as part of my University role but through reflection at the design and planning stage I also recognised that the journey for students would be different and would need to involve the development of their own understanding of opportunities rather than simply being presented with the University's understanding of them.

It was useful to consider Dahlberg and McCaig's (2010) view that practitioner researchers focus on what they want to understand through a study and need to also identify 'what they *do not know* at the moment' (p.31). Reflecting on

this led to a number of key points being noted as the study was being designed. Firstly, employers and students do not naturally come together to work collaboratively in the way set out in this research. It was recognised that the two groups may not naturally see, understand or value each other's perspective. Putting this in the context of digital skills opportunities, I noted that employers would know what they were looking for from graduating students and that, based on HE and other experience, students may be resistant to the digital agenda for a number of reasons. Examples include: a perception that their skills are inadequate to work in this sector; they may have no interest in what the sector has to offer; they may believe employers in the sector are not interested in them because their degree programme is not directly relevant to this sector. However, at the outset I did not know the extent and the basis for how students arrive at their various individual positions or how these positions might be shifted or altered so they could make more informed choices regarding graduate employment opportunities in the shortage area of digital skills. Careful thought, therefore, had to be given to providing a starting point for the two groups to begin discussions. Based on my experiences of working with employers previously, it was anticipated that they would be able to use their expertise and understanding of industry to pull out information to break down barriers. It was also anticipated that students would be able to share workplace and skills perspectives which employers currently talk about 'at a distance' but they would potentially hear about more directly. This process also offered opportunities to share their own perspectives for consideration by students who could take a view as to whether those perspectives influenced their own position in any way but without any pressure to be influenced.

In considering the co-creative element of this study, the work of Ruskin and Bilous (2020) was noted, particularly potential challenges around time constraints, that co-creation might feel 'chaotic' or 'unsettling' (p.810), that there might be gaps in student representation or that it might result in narrow interpretations of student needs. A range of work by Bovill (or including Bovill) was also used to inform thinking. In a 2016 study with Felten, she identified

three challenges in co-creation – resistance, navigating institutional structure and norms and establishing an inclusive approach. In 2017 Deeley and Bovill noted the relative difficulty of establishing and maintaining partnerships, particularly given time constraints, class sizes, resistance and scepticism. And, in a 2019 paper Bovill noted how the focus of projects tends to be on small, privileged or already engaged groups. Given the way students were recruited for this study, it has potentially avoided the pitfalls outlined in Bovill's 2019 study, however, I was conscious that already engaged students might be those who participated most extensively in the workshops. The amount of the time for the workshops (90 mins) and the fact that they took place online, did impact on the level of co-creative relationship that could be developed but the use of the Microsoft Form was seen as a means to partially mitigate against this.

5.4 Ethical approval and considerations

The data were collected within the framework of the Sheffield Hallam University Research Ethics guidelines and care was taken to adhere to steps and checks outlined in my ethics application, approved in May 2020 (see Appendix 1 for Sheffield Hallam approval and Appendix 2 for associated self-assessment carried out for my own institution), with intended data collection in autumn 2020 delayed by the COVID-19 pandemic. Amendments to the ethics application were approved in April 2021 (see Appendix 3; employer participant consent form included as Appendix 4; student invitation with opt out included as Appendix 5).

A key ethical consideration in the research design was the need to address prior relationships with research participants and power relationships, especially for students. The University works with a wide range of employers as part of its placements programme and it is important to openly address this connection (Wimpenny, 2010). This connection has positive benefits in that there is a wealth of knowledge about labour market requirements and significant understanding of the many employers who have a vested interest

in addressing this. Although the number of employer participants was small (five) compared to the scale of the sector, the group represented two large corporate organisations with more than 500 employees each, a medium-sized corporate organisation with between 151 and 500 employees, a relatively new organisation with between 61 and 150 employees and a very small organisation with less than 10 employees. Therefore, they represented a spectrum of views and approaches within the digital sector, particularly within the Leeds City Region which is recognised as having national strength in this area of work. The University's existing working relationships with these employers meant there was a level of familiarity and informality which was at odds with the formal and careful approach required in research. To address this, employers who agreed to participate were informed that the communication would be formal and different in format to what they might be used to but that this was essential to protect the ethical integrity of the research as it was essential to achieve a balance between developing rapport and avoiding potential bias (Harding, 2013).

Consideration also had to be given to power relations (Costley, Elliot & Gibbs, 2010; Harding, 2013) from three perspectives, that of the researcher's role and position as a senior member of staff in the University, the role of the University in running these workshops and also the dynamic between employers and students. In terms of my own role, Etherington's (2004) view of the constant need to "scrutinize and interrogate our own positions, views and behaviours" (p.226) was a useful point of reflection with regard to power and reputational issues that needed to be kept in mind when designing and conducting the study. These were also considerations at University-level in the organisation and running of the workshops. It was noted that employers cannot force students to 'like' digital skills and opportunities so the action research study and any resulting intervention must avoid the potential for this to be attempted. It was also noted that employers could draw negative views about students generally if they perceived students to be not reacting in the way that they wanted. The study design needed to be such that stakeholder groups could

respect the mutual benefit of understanding each other's views. Impact on University-business interactions also needed to be considered, particularly the potential for employers to be disappointed if they felt they did not benefit directly from being part of the research. It was also recognised that students might feel unable to express their views freely with people who have extensive experience in business, so the study needed to mitigate against this. This same consideration needed to be applied in terms of the University's own role and it was noted that students might find it to challenging to express their views freely in the context of what is seen by the institution as providing positive support towards graduate outcomes. Additionally, the potential for students to be concerned about negatively impacting their job chances through the exercise was kept in mind, particularly in terms of providing more than one mechanism for student participants to express their views, including directly and anonymously.

5.5 Methods and data collection design

While qualitative methods and data were the primary focus of the study there were some elements of quantitative methods and data used. Both qualitative and quantitative contributions to the study are outlined in the following sections.

5.5.1 Qualitative methods and data

Broadly, my study employed qualitative methods to allow the research questions to be evaluated in depth and "to uncover reality, as seen from the eyes of the research participants themselves" (Smith & Bowers-Brown, 2010, p.122). It was driven by what Robson and McCartan (2016) described as an impetus "to facilitate action, to help change or make improvements" (p.39). While this impetus is acknowledged, the study was not designed to achieve action or change in or of itself. Rather, it was designed to develop an understanding of how a potential action, in the form an intervention, might be designed utilizing the data generated in the study. Dawson (2002) noted that

action research “begins with a process of communication and agreement between people who want to change something together” (p.17) and, in this research, communication between the University, students and businesses was factored in as a formal part of the co-creative approach to data gathering in this study.

The overall data collection approach was conceived as a gathering of qualitative data to support an understanding of the views of students and employers with regard to approaches to graduate employment generally and to broader opportunities in the labour market but particularly in the digital and technology sector. As outlined earlier, this study defines ‘broader labour market opportunities’ as graduate employment openings which are not directly aligned to a programme of study but are open to graduates from any discipline. It used digital and technology sector opportunities as a working example, prompted by a skills shortage in this area.

The overall data in this study was gathered in five steps which are illustrated in Table 2 below and each step is then further explained. This helps to illustrate the non-linear nature of action research as Step 5 was an ‘act’ phase which was appropriate to run as a dynamic and live research scenario. The five steps outlined below were preceded by the ‘plan’ stage of action research which identified the broad problem - what will help to gain insight into how students connect or might connect with broader graduate job opportunities – and led to the development of the specific research questions and research design.

Table 2: The five steps which generated data in this study.

PLAN: Identify broad problem, in this case how to gain insight into how students connect or might connect with broader graduate job opportunities; develop specific research questions		
Step/link to action research cycle	**What happened in the step**	**Data generated**
Step 1 - OBSERVE	Employers and students complete graduate attributes ranking data	Quantitative – ranking data from the two stakeholder groups
Step 2 – ACT	Run a preparatory workshop with employers and produce briefing sheet for students to stimulate discussion and support their understanding	Qualitative – notes of discussion and briefing sheet produced for student workshops
Step 3 - OBSERVE	A short employer questionnaire on Microsoft Forms completed by the five employers as part of the session on 5-5- 21 (see Appendix 6 for questions)	Qualitative and quantitative – the former in response to questions on employer views with regard to graduate recruitment and the latter through a repeat of the attributes ranking exercise
Step 4 – ACT AND OBSERVE	Run 7 x workshops with students to discuss approaches to graduate careers; embed student questionnaire as part of workshop to allow detailed observation of views beyond the timescale boundaries of the work itself (an employer was present in 2 of the 7 sessions)	Qualitative and quantitative – the former in response to questions on views with regard to graduate recruitment and the latter through a repeat of the attributes ranking exercise
Step 5 – ACT	Run employer discussion on headline outputs from student workshops and produce student questionnaire on potential employability intervention for use in further action research cycle	Qualitative – workshop discussion underpins thinking in questionnaire design
REFLECT: Review and analyse data; identify findings and consider what actions they suggest or inform for future research cycles		

Step 1 - OBSERVE: Individual employers and students completed a ranking of 33 graduate attributes to familiarise them with commonly used terms related to graduate employability and allow them to identify which attributes they considered to be important from their perspective. This also generated some

quantitative data that allowed a comparison of ranks for the two stakeholder groups (see Section 5.4.2 below for more detail).

Step 2 - ACT: A preparatory workshop and discussion with five employers from the digital and technology sector to explore their views on the attributes they saw as important in graduate recruits and their considerations in the recruitment process. This was held via Microsoft Teams on 5/5/21 and this 'act' step produced data in the form of a briefing sheet for students. This was shared with the five employers and approved for circulation to students as part of their workshops as an appropriate summary of the session (see Appendix 6 for briefing sheet).

Step 3 - OBSERVE: A short employer questionnaire on Microsoft Forms completed by the five employers as part of the session on 5-5-21 (see Appendix 7 for questions).

Step 4 – ACT AND OBSERVE: Seven workshops with Level 4 students held via Microsoft Teams with a total of 141 student participants. Two were held on 19/5/21 with 26 and 33 student participants respectively; one held 20-5-21 with 8 student participants; one held on 24-5-21 with 31 student participants and one employer participant; one held on 25-5-21 with 16 student participants and two employment participants; and two held on 26-5-21 with 13 and 14 student participants respectively. During these workshops, students took part in discussions and were asked to complete 20 questions via a Microsoft Form. The questions were split into three sections: ***Job opportunity questions*** which explored views about approaches to graduate opportunities; ***intervention questions*** which explored ideas for workshops to engage students in broader labour market opportunities beyond those which might normally be associated with their programme of study; and ***evaluation questions*** which explored what participants thought about the workshop. In total 92 student participants out of 141 attendees completed this questionnaire (see Appendix 8 for questions).

Step 6 - ACT: Discussion with three employers and two student observers to

share key headlines from the student workshops and to consider activities for intervention sessions to support and develop broader thinking about graduate opportunities. This was recorded and resulted in the design of a further questionnaire based on discussions in the workshop to be used with students to explore their views about the suggested activities, although this questionnaire was not implemented in the scope of this study. It is, however, included as Appendix 9.

5.5.2 Quantitative methods and data

While the core focus of the study has been around the value of qualitative data in understanding the range of viewpoints held by two key stakeholder groups, the study design was mindful of Gray's (2009) view that the boundaries between qualitative and quantitative data can be blurred (Robson and McCartan, 2016). In this study some quantitative data emerged from counts of categories of responses to questionnaires and the ranking of graduate attributes was used as an activity by employers and students to inform the qualitative data whilst at the same time providing some quantitative data.

While the five steps detailed above resulted in a rich seam of qualitative data and some specific quantitative data through a graduate attributes ranking exercise, there is also some naturally emerging quantitative data. Firstly, during the coding process, categories were assigned to answers to identify emerging themes and considerations. The number of answers assigned to these themes were counted to identify those which occurred most frequently; this was in addition to thematic and comparative review of these answers from a qualitative perspective. Secondly, some questions on the student questionnaire naturally produced answers that could then be quantified as counts. For example, the questions asking students about a preferred venue for intervention sessions resulted in quantitative data in the form of counts for venue preferences.

In addition, quantitative data resulted from both employer and student

participants' rankings of a set of graduate attributes. Both participant groups were asked to do this individually via a JISC Online questionnaire (Step 1 in Table 2 above) prior to the Microsoft Teams sessions in Step 2 and Step 4 in Table 2 above). Participants were asked to rank 33 graduate attributes (taken from a systematic review carried out by Artess, Hooley and Mellors-Bourne, 2017, see Appendix 10) as essential, important, desirable or not important.

They were then asked to rank all of the attributes they recorded as essential in order of importance. Then, during the Teams sessions (Step 2 and Step 4 in Table 2 above), they were asked to review a 'top 10' list identified by the three employer participants in the pilot phase of this study and consider whether the order of this 'top 10' should remain the same or should be changed. This was done via Microsoft Forms. These exercises generated ordinal data, in the form of a set of ranks for the graduate attributes, and they were viewed as an efficient and effective participant activity to establish a baseline for key similarities and differences and facilitated an effective visual representation of a range of views in a small number of tables and figures which are detailed in Chapter 8.

5.6 Summary of data collected

The data collected in this study was as follows:

- Notes from an employer workshop
- Briefing sheet based on discussion in employer workshop to use in student workshops
- 3 x 'top 10' graduate attributes ranking exercises completed by employers during workshop
- 52 x graduate attributes ranking exercises completed by students ahead of workshops
- 92 x Microsoft Forms from student participants answering 20 research questions
- 92 x 'top 10' graduate attributes ranking exercises completed by students

5.7 Underpinning considerations for the data analysis approach

There is significant potential in the collection and analysis of qualitative data in the way it can, “provide rich descriptions and explanations . . . as well as often leading to serendipitous (chance) findings” (Gray, 2009 p.493). However, at least as much attention must be paid to the processes of data collection and analysis as to the outcomes of the analysis, given that Robson and McCartan (2016) noted that analysis is not an “empty ritual carried out between doing the study and interpreting it” or a “bolt-on feature” (p.405) not thought about by the researcher until all the data is gathered. In contrast to quantitative data, there are no widely accepted rules for the analysis of qualitative data (Gray, 2009), rather a broad acceptance that the approach is inductive and therefore driven by the data itself and the way the analysis and coding of this is approached. Analysis is seen by Robson and McCarten (2016) as being as much a test of the researcher as it is of the data, noting that it is “closer to codified common sense than the complexities of statistical analysis of quantitative data” (p.462). This is particularly resonant in a study based on a social constructivist approach and the ‘test’ in this context, it is argued, is to ensure sufficient depth in data analysis to construct meaning in the data.

It was important to view the qualitative data analysis as exploratory, rather than confirmatory (Robson and McCarten, 2011). The analysis of data was seen as an immersive process but not a linear one. It was viewed as ‘immersive exploration’, recognising that data is an unfamiliar landscape which needs to be repeatedly, and freely, navigated in order to understand the stories it can tell through a series of interpretive acts, informed by a grounded theory approach to data analysis and carried out by the researcher.

This resonates with Gray’s (2009) emphasis on the need to identify a story in the data as part of coding. These ‘stories’ can also be viewed as what Flick (2006) referred to as an “anchoring point” (p.296) for deciding how to move forward. What is significant in this research is the prominence given to student

and employer stakeholder voices to understand how to potentially map a way forward around the graduate employability agenda and, in particular, how to interest students in broader graduate job opportunities. Viewing the emerging themes as stories arrived at through the interpretation of the researcher was seen to connect with the place of voice and the human focus of this research.

In considering approaches to data analysis, careful thought was given to the crossover between action research and grounded theory. The significance of grounded theory as a means of gathering and analysing data is noted by Gray (2009), Flick (2006) and Robson and McCarten (2016), although the latter suggested it “may be regarded as a particular version of thematic coding” (p.463) given that “much published research gives little or no attention to the theoretical background to grounded theory” (p.463). This may be seen as somewhat dismissive given that there are a significant number of texts which cover grounded theory as a methodology in much detail in its own right, with Charmaz (2006) and Urquhart (2013) used in particular for this study. A number of texts also note how action research and grounded theory can be complementary to one another when used in combination (Butterfield, 2009; Dick, 2008; Manuell and Graham, 2017; Teram, Schachter and Stalker, 2005).

In the case of this project, primacy is given to action research because it allows theories to be produced within practice, supports the researcher to learn “how to do things in a more personally and socially beneficial way” (McNiff and Whitehead 2002), can lead to practice being enhanced and “encourages the researcher to consider the interconnectedness of the environment and everyone in it” (Craig, 2009). Here, enhanced practice would mean that the University would find a way to connect with stakeholders to effectively address the skills gap and positively impact on a key labour market issue. As Dick (2008) noted, action research is explicit as to how understanding informs action, with theory associated with reflection; with grounded theory, theory is built from evidence and emerges from the process of constant comparison. It is this emphasis on comparison noted by Dick (2008) which has partly prompted the integration of a grounded theory approach to coding data for this study. The second justification is that it is seen

as important not to move too swiftly to the solution component of action research without fully understanding stakeholder perspectives, and grounded theory supports developing depth in this understanding. In the case of this study, the insight and themes gained from a grounded theory analysis approach helped to inform the action within an action research framework. Bryant's (2017) exploration of the place of pragmatism in grounded theory also helped to inform the view of student participant questionnaire responses as instinctive reactions informed by their social interactions, noted as key for the development of individuals and associated with the thinking of Blumer (1969) around symbolic interactionism.

The overarching order used to approach the analysis is shown in Table 3 in Section 5.11 below but, as I moved deeper into the analysis phase, there were many moments of 'revisiting' or 'going to look' as part of the exploration and this resulted in the generation of coding notes. These notes were a valuable part of shaping the story telling resulting from the analysis. Here I was cognisant of the advice in a number of texts around the importance of writing reflectively throughout the analysis process (Bazeley, 2013; Robson and McCarten, 2016). McAteer (2013) referred to this as conversing with the data, while Coghlan (2019) talked about the need for attentiveness to the data. This habit of writing, even if only in short note form, helped to develop my understanding with regard to the ease with which views, assumptions or interpretations can be reached before full analysis has taken place. These notes and the journey through the data analysis were illustrative of Bazeley's (ibid) notion of an iterative process which should not necessarily be dry or flat but can, instead, be approached as "purposeful play" (p.106). A further common point in qualitative analysis literature is around understanding similarities and differences of views which emerge. Harding (2013) suggested a list of similarities and differences as a starting point in any analysis, while Charmaz (2006) encouraged questioning what data suggests and from whose point of view it can be seen, challenged or analysed. At the most basic level, the analysis process can be considered in the context of Coghlan and Brannick's (2014) process of 'knowing'. This process starts with experience (in this context running the workshops); it is followed by

understanding (this is the multi-layered analysis process used in this study); it completes with judgement (in this case, identifying the stories which emerge from the data through the interpretive analysis and those which can be used to shape employability content and interventions moving forward).

Bearing in mind the advice of Charmaz (2006) that the initial coding stage should be approached with speed and spontaneity was also helpful as it promoted instinctive responsiveness which countered being pulled too much into the detail. Harding (2013) noted the “huge variety” (p.104) in coding systems and that there are no right and wrong answers in how to approach data analysis. Similarly, Urquhart (2013) emphasised that while approaches to coding may be carefully set out in the literature, they can be seen as inspiration rather than a set of strict guidelines that must be adhered to. This resonates with the view of Charmaz (2006) that coding is “part work” and “part play” (p.70) and that “theoretical playfulness” is a means of trying out new ideas to see where they may lead. Nevertheless, one of the challenges in the analysis process is to understand, appreciate and draw on the expertise and ideas of scholars who specialise in the methods to be used, but to also have the strength to push this work to one side to allow your own immersion in and response to the data, rather than trying to slavishly follow ‘rules’.

According to Charmaz (2006), focused coding allows explanation of larger sections of data. However, it is not a linear process; active response to data is important and codes emerge from the data but must be compared back to it in order for them to be refined. This active response includes finding a starting point to help to consider how theoretical codes might help “tell an analytic story that has coherence” (Charmaz, 2006, p.63). The coding families outlined by Glaser in 1978 and 2005 as a framework for theoretical coding feature in work of other scholars, including Charmaz (2006) and Urquhart (2013), but both emphasise that researchers should not shoehorn their data into already-set analytical frameworks. Indeed, after following the flow of responsiveness to the data in the initial and focused stages of coding, Glaser’s theoretical framework seemed restrictive and to push consideration to the application of the framework

and away from ‘what does this data tell me’.

It was useful, in approaching the analysis, to consider the steps utilised against the key features of grounded theory outlined by Charmaz (2006) as a result of synthesizing the work of earlier scholars. This is shown in Appendix 11 below with the addition of commentary about the value of the operationalisation of each feature in this study. The value of this exercise in terms of the methodological approach was to test and challenge the use of grounded theory as part of an action research study to ensure that I was genuinely drawing on the principles of this approach to support my analysis.

5.8 Negative and positive impacts of the COVID-19 pandemic

Due to the COVID-19 pandemic, the study design had to be amended to allow for data collection via Microsoft Teams rather than via in-person activities. Recruitment for the original in-person data collection event was originally due to take place in autumn 2020 but at this time COVID-19 infection rates were rising and student attendance at face-to-face sessions was declining because of this. A decision was taken to pause recruitment at this stage. However, the University’s Head of Placements and Partnerships suggested that the activity planned would be a valuable addition to the Placement Launch Programme (PLP) for Level 4 taking place in May 2021, as this programme is designed to encourage students to reflect on employment opportunities, how to access them and how best to develop and apply their skills and attributes to different opportunities as they progress through their undergraduate studies and associated placements.

In order to embed this study and its data collection as part of the PLP, a re-think was required because of the potential for large student numbers to be involved. Workshops in the PLP were open to all Level 4 students on an opt-in basis and, therefore, in excess of 700 participants could have comprised the sample and this eventuality had to be planned for. Amends to the study design were made in early 2021 and approved through revisions to the ethics application through

the Sheffield Hallam University process.

The agreed process through the ethics application amendment was that the placement team would send invites to all Level 4 students for the workshops and inform them that it was part of a research project, supplying them with the agreed informed consent information. Students were informed that by accepting the invite they would be agreeing to participate in the study but were also given a means to request to take part in a separate session which covered exactly the same activities, but which was not part of the research project. In total, 141 students accepted the invite to workshops which were part of the data collection. Less than 10 students requested to attend a workshop which was not part of the data collection, with the balance declining both opportunities. Placement staff handled the administration of all of this. An academic tutor who has experience of working with the placement team was brought in to run the session which was not part of the data collection. This tutor was briefed by me and also attended (but did not participate in) one of the data collection workshops I ran so she could see the activities in operation. This ensured greater parity of educational experience, irrespective of whether the workshop attended was part of the research project or not.

At the time of making these amendments, it was accepted that the increased number of students involved in the amended study required a slightly different approach to the practicalities and logistics of the activities and this is illustrated in Figures 3 and 4 below (in Section 5.9 and 5.10 respectively). It was recognised that not being able to bring the participants together in person might pose challenges in terms of communication and in terms of how the co-creation process was conceptualised and operationalised. Figure 3 illustrates the original study design and shows how two unilateral (involving single stakeholder groups) and concurrent co-creation workshops were going to be used to bring employer and student stakeholders together for a multi-lateral (both groups together) co-creation workshop with a collaboratively designed output. Figure 4 illustrates the amended study design and shows how what was conceptualised as a shuttle co-creation process was used to connect three unilateral co-

creative activities to produce a final output. This shuttle process allowed information to be relayed between the employer and student stakeholder groups to inform activities.

5.9 Original study

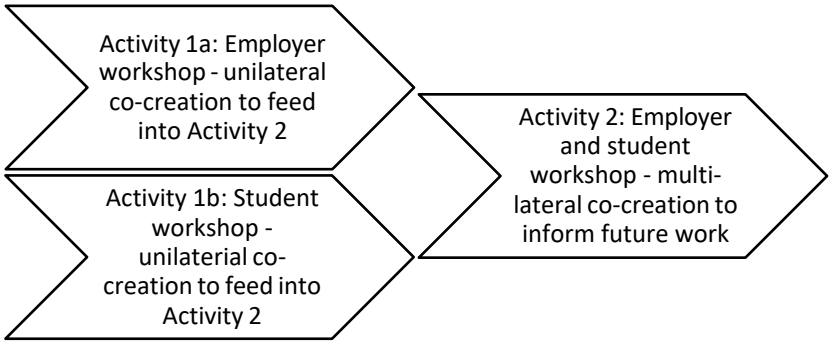

Figure 3: Activities and co-creative process as planned for the original study.

As Figure 3 above shows, the original study essentially involved three areas of activity. Activity 1a and Activity 1b would have run simultaneously, with each stakeholder group involved in unilateral co-creation which would have required them to collectively produce a set of information to feed into Activity 2. Activity 2 involved multi-lateral co-creation between the two stakeholder groups with employers and students working together to produce and agree a set of information to inform how a future intervention might be designed.

5.10 Amended study

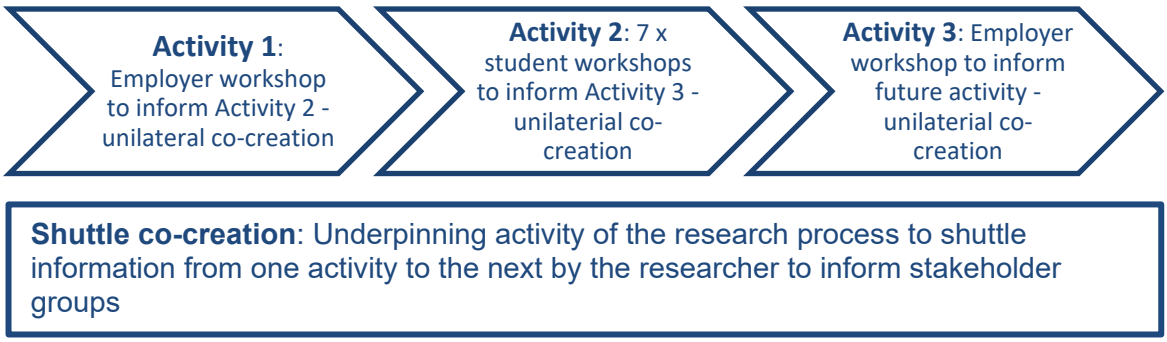

Figure 4: Activities and co-creative process from the amended main study.

As Figure 4 above shows, the activities carried out in the amended main study were consecutively delivered because of the logistics involved in working on Microsoft Teams and involving a large number of student participants. The process of co-creation has been conceptualised as a ‘shuttle’ co-creative process, with the researcher as the conduit, shuttling information between groups, with appropriate checks in place to verify the information being taken forward. The verification points were as follows:

Shuttle verification 1: An information sheet to outline to students what employers are looking for was produced after Activity 1. This was pulled together by the researcher based on discussions in a Microsoft Teams workshop with the employers and sent to them to check and suggest any amendments to it. The information sheet was verified as reflecting employer views without any changes.

Shuttle verification 2: An initial review of the students’ Microsoft Forms filled in during Activity 2 was used to share key messages with the employer group. These key messages were pulled together by the researcher and verified by sharing with two students who joined the student workshops in a support role. The two students involved in the support role were also involved in Activity 3 to ensure there was representation of student voice.

Shuttle verification 3: After Activity 3, a further Microsoft questionnaire was designed to obtain student views about the type of intervention which should be used. This was based on the discussion in Activity 3 and verified with employers and the two students supporting the activity.

5.11 Data analysis – organisational approaches

Prior to the data analysis I drew on general literature on qualitative analysis, particularly that relating to action research, the interaction between action

research and grounded theory and the coding processes used in grounded theory. Just as data were collected in a number of steps, the resulting outputs were also analysed in a number of steps. These steps are outlined in Table 3 below.

Table 3: Steps taken in data analysis process, aligned to data collection steps and data component types, as conceptualised in the methodological process.

Analysis step	Data collection step used	Analysis activity and output	Data component type (see also Table 4 below)
Analysis Step 1 (AS1)	Collection Step 1 & Step 3 (CS1 and CS3)	Reflection on employer workshop and identification of key themes to communicate to students. Resulted in production of briefing sheet included as Appendix 6.	Framing
Analysis Step 2 (AS2)	Collection Step 4, Step 5 & Step 6 (CS4, CS5 and CS6)	Reflection on student workshops and identification of key themes to relay to employers to produce focused suggestions for intervention sessions. Resulted in production of a questionnaire included as Appendix 9 and a set of key themes and messages which can be used to inform further activity in future	Future insight
Analysis Step 3 (AS3)	Collection Step 4 (CS4)	Review of student Microsoft Forms to identify initial categories (identified on spreadsheet as 'category'). Resulted in production of first and second stage coding, identification of emerging stories and drafting of emerging theory.	Core insight and Future insight
Analysis Step 4 (AS4)	Collection Step 4 (CS4)	Carry out formal coding process on student data - name codes, describe codes, consider how and where they arise, consider links between codes (vertical and horizontal reading through questions).	Core insight and Future insight
Analysis Step 5 (AS5)	Collection Step 4 (CS4)	Review of video recordings and transcripts of initial employer workshop, employer discussions in student workshops and employer discussion of initial student findings to reflect on any issues which are significant to analysis and findings of Microsoft Forms data.	Framing
Analysis Step 6 (AS6)	Collection Step 1 CS1)	Review attributes ranking data from students and employers and consider differences and similarities and any connections to qualitative data.	Cross-cutting

The analysis steps outlined in Table 3 above are used as headings in the data analysis and findings chapters which follow (Chapters 6, 7 and 8) to lead the reader through the processes as they were applied and to surface the emerging themes and stories which form the basis of the key findings in this study. It is important to note that the stages are listed in Table 3 in the order that the data were analysed, and this was not in the order that the data components were collected. Steps 1 and 2 had to come first as they were a key part of the 'shuttle' co-creation process. It was decided to analyse the student Microsoft Forms data next as this was the largest data set and that which was perceived as having the potential to generate the richest and most diverse themes and, through immersion in this, it was anticipated that there would be pointers to support the navigation of other data components.

The analysis of the data and the associated findings have been split into three chapters as a means of managing and organising a large volume of material and in recognition of the fact that the core depth and detail emerging from this action research project were associated with Questions 2 to 6 in the student questionnaire. The qualitative findings from these questions give insight into student thinking about graduate job opportunities. In arriving at this position as a means of providing a clear account of the journey through the analysis and the production of the findings, it was important to consider the relationship between the different elements of the data and be clear that all of the activity was in the framework of a single action research cycle.

This is illustrated in Table 4 below, with the components of this cross-referenced to the collection and analysis processes shown in Table 3 above. This figure illustrates how I conceptualised the components of the data in the first review of it and notes the terminology I have applied to these different components of data. In setting out my approach to data analysis, it was helpful to view the data in four distinct ways – framing, core student insight, core supporting and student future insight:

- A framing component – an activity or process used to frame how the data was obtained or to structure discussion as part of the process of trying to answer the research questions.
- A core student insight component – key data which supports and advances understanding of participant views to attempt to answer the research questions.
- A core supporting component – data which adds understanding of the perspectives of student and employer participants.
- A student future insight component – data relevant to answering the research questions.

Table 4: The components of data insight named and utilised in this research study.

<table>
<tr><td>Framing component: Employer preparation CS1 and CS5; AS1 and AS5</td><td rowspan="3">CORE STUDENT INSIGHT COMPONENT

Questions 2 to 6 on student Microsoft Form

(CS4 and AS3 and AS4)</td><td>Student Future insight: Interventions CS4, CS5 and CS6; AS2 and AS3</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Framing component: Employer involvement CS1 and CS4; AS5 and AS6</td><td>Student Future insight: Evaluations CS4 and AS3</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td colspan="3">Core supporting component: Ranking data (CS1 and AS6) for student and employer participants</td></tr>
</table>

The headings identified in the data insight illustration (Table 4 above) are also used to inform how the analysis and findings are set out in the subsequent three chapters, with a brief summary of the approaches outlined below. It is

important to note that in the summary below, there is an outline and illustration of how the research methods were applied. The use of a grounded theory approach, however, necessitates that the data analysis and findings chapters do also include some detail of the application of the methods because the process of application was informed by the response to the data rather than being set out remotely from the data and prior to the start of the analysis. By way of an example of this, the summary of Chapter 6 includes the three-phase coding process utilised in analysing the data which emerged from Questions 2 to 6 on the Microsoft Form completed by student participants. Prior to beginning the analysis, I anticipated that there were likely to be three or four stages to this based on the coding process outlined by Charmaz (2006) which detailed the following coding process: Initial, focused, axial (relating categories and subcategories) and theoretical (how substantive categories related to each other). These are not fixed in the way they are used nor are they impermeable; there is fluidity which relates to the reaction to the data.

5.12 Telling the analysis and findings story

In **Chapter 6: The Holistic View: Data analysis and findings (1)** the framing components and core student insight questions are addressed as follows:

- Analysis of the employer informed framing data shown in Table 4, Section 5.11 above, covering Steps 1, 5 and 6 of data analysis (outlined in Table 3, Section 5.11 above)
- Analysis of the core student insight data shown in Table 4, Section 5.11 above, covering Stages 3 and 4 of the data analysis (outlined in Table 3, Section 5.11 above)

As the chapter title suggests, this is seen as the holistic view of core student insight as it addresses how employers helped to set the context for the work with students but also the initial stages of coding which were carried out to arrive at the focused codes. The chapter explores the breadth of the core insight data before refining this insight to a number of focused codes.

The starting point for this analysis was to separate the questions on the Microsoft Form used by student participants into three clusters (Question 1 is not included in the summary below because it asked participants to rank a list of attributes; Question 7 is not included because it simply asked participants if there was an employer present in their session or not):

- **Cluster 1 (Questions 2 to 6)** were referred to as **job opportunities** in the form of open questions as they asked student participants about their approach to potential graduate jobs.
- **Cluster 2 (Questions 8 to 15)** were referred to as **intervention** questions as they asked student participants about how the University might design a session to support them in understanding broader graduate job opportunities.
- **Cluster 3 (Questions 16 to 20)** were referred to as **evaluation** questions as they asked student participants about the workshop they took part in as part of this research study.

Questions 2 to 6 and 8 to 11 were those which asked participants the most open questions and, therefore, resulted in the most data to process through coding phases as part of analysis steps 3 and 4, a process which was used to identify the stories in the data. These phases are detailed in Table 5 below.

Table 5: The three-phase coding process applied to the data from Questions 2 to 6 and 8 to 11

Phase 1 coding: Initial instinctive coding	**Phase 2 coding: Initial exploratory coding**	**Phrase 3 coding: Reflective and focused coding**
Category applied to each participant answer for questions 2 to 6	Underlying themes for each category were identified	Review stories across themes which emerged in Stage 2 process
Number of responses for each category reviewed	Number of responses for each theme reviewed	Identify overarching story for each theme
Using a memo approach, a story was drafted for each question	Using a review and memo approach, a sub-story was drafted for each theme	Review overarching story for each question
Using a review and memo approach, an overarching story for questions 2 to 6 was drafted	Using a review and memo approach, an overarching story for questions 2 to 6 was drafted	Identify overarching story / stories across all questions

This first initial coding is referred to as the instinctive phase as it was done, as far as possible, using either the first word participants used in answer to the question or a word which reflected their answer where the first word was not suitable as a code. For each code, an emerging story was noted. To illustrate this, Appendix 12 (Coding Process at Work) includes an extract from the coding spreadsheet for Question 2 (job opportunity question) in the instinctive phase and how this information was then extracted to give a quantitative and qualitative output and to note a story.

Once this instinctive phase was complete, a coding table was put together to show the number of times each code was used against each question (see Appendix 13). This exercise allowed consideration of which codes were arising most frequently or least frequently and what the meaning of this might be. It was a key part of the comparative process which grounded theory supports, facilitating both comparison across and between questions and across and between instinctive codes.

In the second phase of coding - the initial exploratory coding - each code was

reviewed and attention was given to the underpinning considerations, or subordinate codes. As with the initial instinctive phase, the code occurrences were quantified and themes identified. The comparative analysis was both horizontal (consideration of how each code featured across questions) – and vertical (consideration of the way different codes feature in each question). The emerging stories for each question resulting from the initial instinctive coding and the initial exploratory coding were compared side-by-side as part of the analysis and this is illustrated in Appendix 12 (Illustration of Coding Process at Work). This comparative and multi-directional journey through the data ensured a deep analysis process to support the development of reflective and focused categories. Consideration of the most frequently used codes was the first part of arriving at reflective and focused codes. These were then reviewed against the narrative and qualitative data from the Microsoft Forms completed by student participants to check for any further detail which might be missing. This process is outlined in more detail as it emerged in reaction to the data analysis, as it is fundamental to grounded theory, rather than being set in stone beforehand.

In **Chapter 7: Data Analysis and Findings (2): Exploring and Defining Focused Codes**, the focused codes are explored in further detail, their meaning is defined in the context of this research based on the response to the data and discussed in the context of comments from students which were entered into the Microsoft Form used to collect data (this covers Step 4 of the data analysis). To support the illustration of the analysis and findings at this point in the study, a table is shown for each reflective and focused code to illustrate how many times it was used in each question. This helped to highlight where certain things might be more or less important to students. This is illustrated in Appendix 12 which shows the coding process at work.

In **Chapter 8: Data Analysis and Findings (3): Future Insights**, student views on employability interventions are illustrated, along with employer and student views about graduate attributes. The logic for this approach and placing these data and the resultant findings at the end of the analysis process was to ensure that the story emerging from the analysis was foregrounding, through the voice

of the students, their views about graduate job opportunities over and above insights into more mechanistic aspects of this research with regard to views on employability interventions and the ranking of attributes.

5.13 Methodology summary

This chapter has set out the methodological justification for this action research study and considered the research question through the lens of characteristics of action research. It has provided detailed consideration of why and how methods were applied to collection and analysis of data, particularly the combination of grounded theory with action research and co-creation to support deep, immersive and non-linear analysis. Setting out this process is an important foundation for the exploration of the data and the surfacing of the stories within it – and the associated findings – which are presented in the next three chapters. It has utilised a number of illustrations to support the reader in understanding how the data were collected, viewed and connected. Finally, it has set out a roadmap for the analysis and findings which are explored in the subsequent three chapters.

CHAPTER 6: THE HOLISTIC VIEW: DATA ANALYSIS AND FINDINGS 1

6.1 Introduction

This chapter begins telling the story of the data analysis process emerging from the 'act' phase of this action research study and the resultant findings and has three functions in this regard, to share:

1) The analysis and findings resulting from the initial workshop held with employers.
2) The analysis and findings based on the initial reflections drawn from students' workshops and then shared with employers to further develop thinking around interventions.
3) The three stages of coding of the Microsoft Forms completed by student participants - initial instinctive coding, initial exploratory coding and focused and reflective coding – for Questions 2 to 6.

The analysis steps referred to below are those illustrated in Table 3, Section 5.11 above.

6.2 Analysis Step 1 (AS1) - Employer workshop and Top 10 attributes

Analysis Step 1 (AS1) involved reflection on the workshop held with five employers and identification of key themes to communicate to students, resulting in the production of a briefing sheet included as Appendix 6. Three of the employers involved in this workshop were from large digital and technological sector organisations, all of which recruit graduates; one was from a smaller organisation but with very broad experience across a range of sector organisations with involvement in graduate recruitment; and one was self-employed but works with a range of specialist organisations and has had students on placement and recruited graduates.

In the first part of this workshop employers were given the top 10 graduate attributes as sorted by employer participants in an earlier pilot study which

tested the sorting of attributes by employers and students. They were also given a longer list of graduate attributes adapted from Artess, Hooley and Mellors- Bourne (2017) that the top 10 emerged from and were asked to reflect on both and to make any changes as a group to establish their top 10 attributes. Table 6 below shows the changes that were made. The key differences were that 'work ethic' and 'creativity' were removed from the list and 'research skills' and 'initiative and self-direction' were added, together with some alteration in position in ranking. The content which follows Table 6 highlights key discussion points amongst the employers which underpinned the changes to the top 10.

Table 6: Comparison of employer top 10 from pilot study and main study.

Employer top 10 from pilot study *Boxes highlighted amber indicate attributes which ended up being removed from the top 10 in the main study*	**Employer top 10 resulting from initial workshop in the main study** *Boxes highlighted green indicate attributes which ended up being added to the top 10 in the main study*
Work ethic	Positive attitude to work
Willingness (and capability) to learn	Willingness (and capability) to learn
Positive attitude	Research skills
Flexibility and adaptability	Team working
Problem solving	Flexibility and adaptability
Team working	Problem solving
Creativity	Critical thinking
Communication skills	Digital literacy
Digital literacy	Initiative and self-direction
Critical thinking skills	Communication skills

6.2.1 Views on work ethic

The most significant area of discussion was around work ethic and the message it sent to potential recruits. The employer participants discussed whether work

ethic was something graduate recruits would naturally have or whether it was something they would pick up. One participant, employed by a large organisation, saw it as illustrative of a person being willing to fully commit to work, to the role they were undertaking and something that probably could not be taught. It was seen as something that "needs to be learned" by one participant from a large organisation and a second, also from a large organisation, agreed that it was something an employer could develop in a recruit by the way they worked with them. In contrast, there was a concern from the self-employed participant about the notion of work ethic as a toxic concept and it being wrongly used to make negative judgements about people starting out in their careers. One employer from a large organisation viewed work ethic, willingness to learn and positive attitude (the top three attributes in the list they were shown at the start of the session) as "the same thing because if you have one then you've kind of got the other two". Following discussion around this (which included crossing over into the areas highlighted below), the consensus was that work ethic should be removed from the top 10.

6.2.2 Understanding the place of digital literacy against other attributes

In the pilot study list shown to employers, digital literacy was at number 9 and there was agreement from all participants in the main study that employers did not expect graduate recruits to already possess the specialist skills they require in their business, for example a representative from a large organisation said:

> *"I don't expect a graduate to walk into our business and start developing something but I do expect them to be naturally good problem solvers and naturally good critical thinkers".*

There was less discussion around the change between creativity and initiative and self-direction which was made relatively quickly towards the end of the discussion about the top 10 as it was agreed by all. However, there was a more detailed discussion about the importance of research skills to the sector, particularly driven by the employer from the smaller organisation, and a wide

range of comments which reinforced the importance of critical thinking and problem solving, as these are central to the digital sector. One employer from a large organisation was clear that critical thinking and problem-solving can be embedded in many different degrees and are fundamentally important to the digital sector. There was consensus from all in the discussion that employers in the industry would provide training in the specific skills needed rather than requiring graduates to have them at the point of recruitment.

6.2.3 Views on team diversity

The group also discussed the diversity of teams, with one employer from a large organisation talking about ‘rainbow teams’ in their business, covering developers, testers, user researchers, behavioural scientists and policy experts, among others. This was followed by a discussion on the focus in the sector on removing barriers to entry and putting in place structures to support success, with one employer noting: “ . . . if you put in place a support structure . . . then it doesn’t matter what their skills are before.”

6.2.4 Views on what is missing from the Top 10 list of attributes

There was discussion about how to differentiate graduate recruits who were likely to have similar qualifications and work experience. This included comments about “passion”; things done outside of a degree; and evidence of developing or showcasing interest through projects, with consensus across all employer participants that they look for these potential differentiators. In terms of ‘passion’, this was seen as important in driving participation in projects and, therefore, a positive force. However, it was also seen as supportive in helping graduate recruits through challenging work circumstances, as noted by an employer from a large organisation:

> *“We make them aware it’s going to be difficult . . .it needs to be something you enjoy or you’re passionate about or perhaps you might*

give up."

Based on this discussion, I developed a single sheet with 11 bullet points to represent the view of employers relating to opportunities in and recruitment to digital and technology jobs to students and to illustrate the sector is accessible to all. This was then sent to employers to review to ensure it reflected the discussion which had taken place and articulated key messages to students. The employer participants confirmed they were satisfied with this student briefing sheet (Appendix 6) which included a range of messages, in particular:

- That the sector is open to all graduate disciplines
- Has a wide range of jobs
- Provides training
- Has societal and personal benefits

6.3 Analysis Step 2 (AS2): Reflection on student workshops and key themes to relay to employers, followed by discussion with employers

At the end of the student workshops, high-level themes were identified and agreed by two student participants who had volunteered to help with the workshops. These themes were the student focus on granular day-to-day detail, rather than development opportunities; the lack of understanding of digital employment opportunities and negative perceptions of the sector; a willingness to hear from employers but a desire to do this at university and in short periods of time. These were discussed in a Teams call with three employer participants (all from large organisations) and the two volunteer student participants. In reviewing the discussion, there were two clear messages associated with these themes, as outlined below.

6.3.1 Teams and people

The following messages emerged and can be summarised as highlighting the importance of people in digital and technology organisations and the vast range of roles beyond those which are truly technical:

- There is huge importance in digital and technology organisations attached to understanding human-to-human interaction when developing products. While this can be perceived as having very little to do with digital, it is an essential piece of the jigsaw for digital teams.
- Beyond technical roles, there is significant demand for user researchers, user experience designers, interaction designers or visual designers, service designers, content designers, product owners and product managers.
- Roles which are truly technical often only make up around a third of a team.
- The alignment of teams in digital and technology industries which aims to produce creative design teams with a focus on user-centred design.
- The various roles for analysts – in horizon-scanning, understanding markets and potential for new products; understanding product performance and product security.

6.3.2 Engaging students

The following messages emerged and can be summarised as highlighting the sharp focus employers have on how to engage new graduate recruits with the potential the sector offers:

- Giving students insight to user research sessions would be a powerful way of giving insight to the broader context of work and the skillset needed to essentially be the voice of a customer.
- The potential use of paper-prototyping to help students unravel the richness of digital environments and to give them insight into the different roles. This could include role-play in teams which place students as both designers and users.
- The potential use of design sprints (a means of solving challenges and validating ideas used in the digital and technology sector) as a framework for student activity to give insight to digital and technology roles with a focus on co-creation and collaboration.
- The sector has a significant focus on problem-solving using digital tools

and technologies; therefore, there is the potential to use real-world problems and issues relevant to students as a focus for paper-prototyping and design sprints.

- Employers could see ways to engage students on social platforms via hashtags and campaigns and the potential of using a virtual environment as well as a physical environment to support demystification of the sector.
- Employers already run events which are designed to demystify the sector they work in and how they work.

The insights from this workshop were used to produce a further student questionnaire (included as Appendix 9) to be used outside of the context of this doctoral study to support the development of an intervention. The intervention was not included as part of this study as it was considered that it extended the action research beyond a single action and, therefore, had the potential of not giving sufficient space to analysis of findings of the initial student workshops. While it is accepted that action cycles do not always run in a linear or ordered way, this was not sufficient justification for including this particular additional action within the scope of a single study, though this work will be undertaken in postdoctoral work.

6.4 Analysis Step 3 (AS3) – initial coding of student Microsoft Forms

6.4.1 Cluster 1 analysis – initial (instinctive) coding

As outlined in Chapter 5, the instinctive coding was carried out, as far as possible, using either the first word participants used in answer to the question or a word which reflected their answer where the first word was not suitable as a code. At the end of this instinctive coding process, the data was reviewed in two ways. Firstly, the number of times each code was recorded was noted; this was important to understand whether majority / minority views were emerging. Secondly, the review considered what was being said and a memo approach was used to note an emerging story for each code. This supported deeper

reflection on the data and encouraged me to ask questions of the data. These first level emerging stories are included in Table 7 below. For the initial cluster 1 analysis, there were six questions to consider. The first asked student participants to rank 10 graduate attributes and the outcomes of this are covered in Chapter 8, along with the outcomes of other ranking exercises. The remaining five questions asked participants for their views about job opportunities, and these are listed below.

Job Opportunity questions

These five questions focused on participant views of job opportunities:

Q2: What sort of information would attract you to consider a graduate job opportunity?

Q3: What information might make you consider a graduate job opportunity in the digital and technology sector?

Q4: What sort of information would be helpful in considering a graduate opportunity in an area of work or sector you hadn't considered before?

Q5: What would put you off a job opportunity?

Q6: If you hear the phrase "digital careers" what things spring to mind and what assumptions do you make? At this initial (instinctive) stage, codes were assigned as shown in Table 7 below.

Table 7: Initial instinctive codes assigned to student participant responses.

Initial instinctive code	Used where participants mentioned the following:
Career development	The opportunity to develop and progress
Clear information	The detail they wanted to be provided with to support them understanding of expectations
Creative	Links to or examples of creative industries
Experience	The day-to-day experience, other staff they might work with and company ethos
Hours	The hours they might work
In tech	Work of a technical nature and how technology is applied to a range of tasks and in a range of settings
Interest	Their own level of interest in the role in the first instance
Job titles	A focus on specific job titles
Link to degree	A desire or a requirement for a direct link between their degree discipline and a job
Location	An interest in where the work was located
None	An indication that there was no information which would interest them in a particular role / industry
Online working	Working through online platforms
Progression	Being able to get on in a job
Repetitive	A particular view or perception about the work
Reviews	What other people say about a role
Salary	What they would be paid in a role
Support	Support for staff outside of career development
Tasks	A focus on specific work tasks
Taster	The opportunity for job taster sessions
Tech use	Specific mention of use of technology
Training	Specific mention of opportunities for training
With tech	Using computers and other technical kit to complete tasks
Other	Used where there were individual answers which fell outside of the scope of other emerging categories

The number of times each code was used in relation to each of the job intervention questions is shown Appendix 13 (Frequency of allocation of codes in the initial (instinctive) coding exercise) and this is illustrative of quantitative data emerging from qualitative analysis. During the allocation of these initial codes it was noted that Questions 2 to 5 produced a consistent set of codes but Question 6 produced a different type of data because of the nature of the question.

In reviewing the initial allocation of codes, emerging stories were noted and the following overarching themes or issues for further consideration were identified:

- The need to understand why the experience of what a job might be like when considering a job opportunity was the strongest message which emerged from the initial instinctive coding (94 mentions)
- The requirement for clear information (or concern about lack of information) about job opportunities was the second strongest message which emerged from the initial instinctive coding (87 mentions)
- The need to be able to see career development opportunities when reviewing and considering a job opportunity was the third strongest message (43 mentions)
- Consideration of salary was the fourth strongest message (32 mentions)
- In response to question 6 (assumptions about digital careers), there were 28 mentions of online working, suggesting that participants potentially viewed these careers through the lens of how they had to work during the pandemic.

The initial (instinctive) coding phase stories are included as Appendix 15.

6.4.2 Cluster 1 analysis – initial (exploratory) coding

The detailed tables developed for this stage of analysis are included in Appendix 14. Each of the codes initially identified was reviewed and underpinning considerations identified by the participants were noted and quantified in the second phase of analysis. These were viewed as subordinate, or exploratory, codes. So, whereas at Stage 1, only an initial code was noted; at Stage 2 there were some instances where the initial code was simply repeated. However, there were also instances where participants mentioned more than one underpinning theme (for example, in relation to experience they might mention opportunities and job security). Where this was the case, this led to two code notes. Horizontal themes across Questions 2 to 6 for each subordinate theme were identified where possible and vertical themes through each question were also identified. This was used as a means of further exploring and questioning the data. Giving consideration to horizontal and vertical themes also allowed for a review of the stories as they emerged at each stage of analysis, providing a means to both question and confirm the stories

emerging from the data. This exercise was instrumental in drawing out the focused themes in the data and then working to group initial and exploratory codes against these themes. The results of this layer of analysis are presented below by question with reference to the key coding stories emerging. This information is presented in narrative form below but is also presented as a table in Appendix 16 (Emerging Stories Compared).

6.4.3 Question 2 – What sort of information would attract you to consider a graduate job opportunity?

The initial instinctive and exploratory coding that produced emerging stories for Question 2 are shown in Table 8 below. Across these two stages, there is a clear emphasis on the need for granular detail and the emergence of information which could begin to support an understanding of how students might think when they are looking at job opportunities in unfamiliar areas or sectors.

Table 8: Emerging stories for Question 2 after first two stages of coding.

Initial instinctive coding – emerging story	**Initial exploratory coding – emerging story**
Day-to-day experience of the job appears to drive student thinking. Clear information code suggests that information provided through job ads is crucial to attracting interest. Overall approach more likely to be driven by personal perceptions and concerns rather than broader Opportunities.	Half of the answers are related to needing operational / granular detail or responses which were explicit about lack of interest in something or uncertain what would interest them. This suggests that with an unfamiliar sector, it is more challenging for students to think in developmental terms

The following vertical themes were also drawn from the exploratory coding stage for Question 2:

Experience family (24 notes): Overwhelming focus of answers is around work environment and day-to-day experience.

Interest family (9 notes): There is more detail from participants when thinking about opportunities generally, rather than specifically.

Career development family (33 notes): When thinking about opportunities generally, participants have a focus on development and progress.

Clear Information family (19 notes): Working environment is the most significant consideration, followed by development opportunities.

Salary family (19 notes): Environment and pay are dominant themes; potentially links to operational view of jobs.

There were no emerging themes for other code families.

In terms of this question, the findings are that there is an overwhelming focus on day-to-day experience and operational and granular detail. While participants might want clear information, there is a greater requirement for information about day-to-day experience and the working environment, above information about development opportunities. These data suggest that participants find it harder to think about development when they are unfamiliar with something.

6.4.4 Question 3 – What information might make you consider a graduate job opportunity in the digital and technology sector?

The initial instinctive and exploratory coding for emerging stories for Question 3 are shown in Table 9 below. Again, there is a tendency towards the need for granular and operational detail and an apparent emerging issue around the challenge of thinking in developmental terms when it comes to unfamiliar sectors.

Table 9: Emerging stories for Question 3 after first two stages of coding.

Initial instinctive coding – emerging story	Initial exploratory coding – emerging story
Does predominance of 'clear info' suggest a passive ('sell to me') approach rather than an active / curiosity-driven approach?	Half of the answers are related to needing operational / granular detail or explicit responses about lack of interest or being uncertain what would interest them. Suggests that with an unfamiliar sector, it is more challenging for students to think in developmental terms.

The following vertical themes were also drawn from the exploratory coding stage for Question 3:

Experience family (12 notes): Day-to-day work environment also significant – though not as much for Q2.
Clear information family (18 notes): Skills is the biggest consideration for a specified but unknown sector, followed by working environment.
Not interested / uncertain family (11 notes): Most dominant theme is lack of interest in sector; second is lack of understanding. Consider if these two things could be connected? This would be a reflection rather than evidence and a potential path for further study
Progression family (13 notes): Skills development dominates.
Tech use family (7 notes): Most are focused on use of tech.
Training family (3 notes): Concerns raised about expectations being too high when considering a specified but unknown sector.
Link to degree family (8 notes): Participants make a link between job and course skills more strongly when thinking about a specified but unknown sector than they do when thinking about an unspecified and unknown sector.

Skills family (2 notes): There is more detail on the answers where participants are thinking about a specified but unknown sector rather than an unspecified and unknown sector.
Taster family (2 notes): This detail emerges when participants are asked about a specified but unknown sector rather than an unspecified and unknown sector.

There were no emerging themes for other code families.

In terms of this question, the findings are that there is a dominant theme around participants wanting clear information at operational and granular level. This leads to two considerations – that participants find it challenging to think in terms of development when thinking about an unknown sector. In addition, it would seem that participants do not take a 'curiosity' led approach – they want information provided to them so that the opportunity is 'sold' to them.

6.4.5 Question 4 - What sort of information would be helpful in considering a graduate job opportunity in an area of work or sector you hadn't considered before?

The initial instinctive and exploratory coding of emerging stories for Question 4 are shown in Table 10 below. This question asked students to think about a sector that was unknown to them, but it did not specify what that sector might be. This is in contrast to Question 3 which specified a sector – digital and technology – which was considered to be unknown to students as they were not on degree programmes which could be said to be directly linked to this sector. Looking at the data from these questions suggested that asking about a specified but unknown sector prompts a different response to asking about an unspecified and unknown sector.

Table 10: Emerging stories for Question 4 after first two stages of coding.

Initial instinctive coding – emerging story	Initial exploratory coding – emerging story
Does predominance of a need for 'clear info' suggest a passive ('sell to me') approach rather than an active / curiosity-driven approach?	This question was about an unknown sector not a specified sector (unlike question 3 which was specifically about digital and tech). It is interesting that themes from the stage 1 coding are in much larger groupings. Being specific about the sector for question 3 seems to have splintered the themes.

The following vertical themes were also drawn from the exploratory coding stage for Question 4:

Experience family (26 notes): Overwhelming focus of answers is around work environment and day-to-day experience.
Career development family (7 notes): Shows some consideration of skills development and future opportunities.
Clear information family (44 notes): Working environment is the biggest single category; followed by skills required; then development opportunities. For an unspecified and unknown sector, operational comes first, followed by whether a participant can do the job and whether there will be development.
Training family (12 notes): Availability of training is a key concern when considering an unspecified and unknown sector.
Link to degree family (2 notes): Link between course and skills.

There were no emerging themes for other code families.

In terms of Question 4, the issue of passive / 'sell to me' approaches also arise as a finding. The data is beginning to show differences between reactions to a specified but unknown sector and an unspecified and unknown sector.

6.4.6 Question 5: What would put you off a job opportunity?

The initial instinctive and exploratory coding of emerging stories for Question 5 are shown in Table 11 below. As with earlier questions in Cluster 1, the issue of granular / operational focus arises again, alongside perceptions of what the lived experience of a role might be like.

Table 11: Emerging stories for Question 5 after first two stages of coding.

Initial instinctive coding – emerging story	Initial exploratory coding – emerging story
Perceptions / concerns about 'lived experience' of a role are the biggest driver	Balance between what a job is lacking and unreasonable expectations. Overwhelming focus on day-to-day granular detail rather than overarching focus on potential.

The following vertical themes were also drawn from the exploratory coding stage for Question 5:

Experience family (58 notes): Overwhelming focus of answers is around work environment and day-to-day experience but greater focus towards 'deficit' views (what is not there).
Career development family (8 notes): Shows concern about lack of development / environment.
Hours family (12 notes): Clear definition of things that would put candidates off a job.
Limited details family (7 notes): Concern about poor salary is most frequent

secondary code.

Location family (10 notes): Concern about distance is most mentioned; other items mentioned support emerging story about operational perspective of participants.

There were no emerging themes for other code families.

For Question 5, the focus on operational and granular details again emerges, leading to a key consideration as to whether participants view all opportunities through the lens of their part-time jobs.

6.4.7 Question 6 - If you hear the phrase “digital careers” what things spring to mind and what assumptions do you make?

The initial instinctive and exploratory coding of emerging stories for Question 6 are shown in Table 12 below. There is an emerging assumption that working in digital and technology means working online, prompting consideration about the extent to which the answers to this question are influenced by the experience of studying and working during the pandemic. The data also leads to consideration around the language used to discuss labour market sectors and the associated understanding of these among students.

Table 12: Emerging stories for Question 6 after first two stages of coding.

Initial instinctive coding – emerging story	Initial exploratory coding – emerging story
Potential for these answers to be driven by pandemic experience? Assumption that digital and tech = online working. The labour market is traditionally discussed in sectors – that does not work for digital / tech. May not work for others but with a 'newer' and fast developing sector there is no understanding of the sector absorbed through day-to-day experience. Participants are surrounded by technology but have a limited understanding of its workplace impact.	Assumptions limited by experience and potentially influenced through the lens of the pandemic.

The following vertical themes were also drawn from the exploratory coding stage for Question 6:

With tech family (48 notes): Three key themes – two linked to use of technology and one around media / creative. The latter is likely to be influenced by students on specific programmes.
Online working family (40 notes): All comments could be seen to be linked to experience of the pandemic and working online.
Creative family (32 notes): Social media and marketing are the most dominant themes, which fits with core components in programmes studied by some participants.

There were no emerging themes for other code families.

In terms of findings related to Question 6, there is an apparent pandemic influence emerging in the answers as participants associate the way they worked during lockdown and social distancing as being the way they would work in digital and technology. Also emerging is a clear challenge around participants responding to questions about a sector that is not known or understood. Aligned to this, there is potentially a very limited understanding of technological impact in the workplace and where there is some understanding, it tends to be associated with students' programmes of study. This is further explored in the Chapter 9: Discussion of Findings.

6.5 Analysis Step 4 (AS4) - Cluster 1 analysis – reflective and focused coding

In both the initial instinctive and exploratory coding, the analytical process was immersive and designed to explore the detail of the data in both its breadth and depth. Prior to outlining the approach to reflective and focused coding, it is useful to summarise the analytical steps which were used to explore the data from Questions 2 to 6 in a transparent way.

Three approaches were taken to reviewing the initial instinctive and exploratory codes. Firstly, the codes used most frequently were identified (as detailed in Appendix 13) these were:

a) Experience
b) Clear information
c) Career development
d) Salary
e) Online working

Items **a**, **b**, **c** and **d** could easily be expressed as drivers; item **e** could not. The identification of the notion of drivers was key to the articulation of the findings in this study and the model which resulted from this work.

Secondly, these codes were reviewed in the context of the narrative included on the Microsoft Forms from student participants to consider if any strong or clear messages were missing. This reflection surfaced the notions of 'link to degree' (11 codes) and 'interest' (15 codes) as being among those most strongly expressed by student participants and, therefore, clearly a driver in their thinking.

Thirdly, all codes were reviewed to consider whether it was appropriate to 'collapse' them under the headings of the identified drivers given that this way of expressing potential influences on student approaches was viewed as significant. Taking this approach with 'link to degree' and 'interest', these codes could be seen as appropriate to combine together as they indicated thinking aligned to current or existing interests. In pulling them together under "**Existing interest driver**", this resulted in 26 uses of this code and, therefore significant under the rule that was applied at the initial instinctive coding stage (anything with 25 or more uses was seen as significant given that it constituted more than a quarter of the participating cohort). Other codes were 'collapsed' under the focused codes as they were associated but not sufficiently significant in their own right. This worked as follows:

Development – seen to be a reflective and focused code to also include the following initial codes: Support; progression; training; skills.
Information – seen to be a reflective and focused code to also include the following initial codes: Taster; hours; limited details; location.
Interest – seen to be a reflective and focused code to also include the following initial codes: Link to degree, not interested / uncertain.

Reviewing the vertical and horizontal themes (show in Appendix 14) and use of the codes revealed that subordinate themes under each code family supported a view of how 'rich' a code was in terms of indicating and detailing the thinking of student participants. However, it was also possible to see a difference between operational and opportunity approaches. The operational approach by participants was seen to be focused on day-to-day detail rather than future-

facing. In contrast, the opportunity approach by participants was more focused on development and progression and was, therefore, future facing. These descriptors were used to sub-divide a number of focused codes. In addition, for the experience driver, the review of the initial instinctive and exploratory coding also revealed the potential for a 'deficit' code which arises where answers are prompted by concerns that an experience will be lacking or missing something. During this review, the term 'material' was also introduced as a code to replace salary as this allowed for a broader discussion around the material benefits which student participants considered important, with salary a key element of this.

This process left five codes unaccounted for – technology use; with technology; online working, creative and repetitive. These codes were seen to be specifically useful to supporting an understanding of views around digital and technology and have, therefore, been integrated into the discussion utilising a Digital Perception code with positive and negative sub-categories to indicate interest in or rejection of digital and technology opportunities.

As a result of this process, the following reflective and focused categories emerged as an original outcome of this study in the form of a Key Drivers Model and these were then used to structure the discussion in the next chapter:

Code 1a: Experience (operational) driver
Code 1b: Experience (opportunity) driver
Code 1c: Experience (deficit) driver
Code 2a: Information (operational) driver
Code 2b: Information (opportunity) driver
Code 3a: Development (operational / training) driver
Code 3b: Development (progression) driver
Code 3c: Development (deficit) driver
Code 4a: Material (operational) driver
Code 4b: Material (opportunity) driver
Code 5: Existing interest driver

Code 6a: Digital Perception (neutral)
Code 6b: Digital Perception (negative)

6.6 Summary of chapter

This chapter contains an analysis of the employer workshop which was the first component of the action phase of this study and an outline of the findings which emerged from this. These findings were two-fold; firstly, they resulted in a set of information to inform the second component of the action phase of the study – the student workshops; secondly, they revealed employer approaches to graduate attributes. The chapter has also outlined the three-phase approach to analysing the content of the questionnaires completed by student participants which resulted in the identification of reflective and focused categories – or drivers. This resulted in a Key Drivers Model being formulated as a means of understanding student approaches to graduate job opportunities, and as an original outcome of this study. This is further explored in the next chapter.

CHAPTER 7: FOCUSED CATEGORIES: DATA ANALYSIS AND FINDINGS 2

7.1 Introduction

This chapter considers the reflective and focused categories which were allocated following review of the data set in the Microsoft Forms Questions 2 to 6 completed by student participants. It *defines* the meaning given to each focused code as part of the analysis and findings process. These definitions are essential to this study, but they are also seen as having potential in further action research, at my own institution in particular, but they may have potential to inform further research in the wider sector. Even if they are not considered or tested elsewhere, they are useful in supporting an understanding of the complexities of the employability agenda and, at the very least, they provide a comparison point for other action researchers. The chapter also explores the detail underpinning the codes, including discussion of the views students expressed in relation to them.

The analysis resulted in a series of tables, one for each reflective and focused code, to show the pattern of the code allocation across questions and these are included in Appendices 17 to 21. This study is primarily qualitative in nature but, just as in quantitative studies, tables are an effective and efficient tool to see and understand the pattern of how each reflective and focused code featured across questions and, through a qualitative approach, give a perspective on the 'power' of the code. They allowed me to outline headline detail that emerged that was linked to a code and also show its prevalence across difference questions and provide the reader with the same overview.

In sharing this analysis, it must be noted that student participants were all at the end of their Level 4 studies and from a variety of academic programmes. The questionnaires they completed did not ask for identifiers such as programme of study or gender, although through the answers some information emerged with regard to programmes of study. The study, therefore, treats the participants as

a homogenous group of Level 4 students, an approach which is considered further in Chapter 9.

It is also noted that Question 6 is an outlier in terms of the focused codes. This question asked participants: **If you hear the phrase "digital careers", what things spring to mind and what assumptions do you make?** The chapter, therefore, includes a section which summarises these assumptions and considers how these assumptions might be linked to the focused codes before the key themes from the data are drawn together.

7.2 Model component: Experience drivers

The three-stage coding process applied to the data from Cluster 1 Questions 2 to 6 highlights that *experience* drivers were first and foremost for student participants when considering their approach to job opportunities generally and in relation to specific sectors.

At Stage 1, the *experience* code was used 94 times. At Stage 2, a more detailed analysis of the underpinning data revealed that student participants focused on the working environment generally and mentioned a range of considerations and concerns including hours, atmosphere, working conditions, culture, security and job satisfaction. In this analysis, the meaning attached to this code was as follows:

> *A concern for, or focus on, the day-to-day experience of undertaking a job and understanding what being in that job might feel like or how it might impact on an individual*.

This "what does doing this now feel like" approach is seen as operational and does not suggest anything of the career aspirational - "what progress will this help me make going forward" - perspective that might be expected from undergraduates. There are two considerations here. Firstly, while the study did not capture demographic information from its participants, the overall picture of

entrants in September 2020 (entry point for those who participated in this study) is highly relevant. The profile is as follows and is indicative of students who may not have high levels of social and cultural capital (Clarke, 2017):

- 64% of students are first in their family to attend university
- 44% are from areas of low HE participation
- 48% are from areas of high deprivation
- 37% are from low socio-economic backgrounds
- 68% are female
- 24% are from black, Asian or minority ethnic backgrounds.

Secondly, the fact that the participants were in the first year of their degree study and that they were studying during a global pandemic may have impacted on this, although the extent to which this was the case is not known.

During Stage 2 underpinning themes were identified and these are detailed in the table in Appendix 14 (Detailed codes for initial (exploratory) coding). In addition, consideration of horizontal and vertical themes which emerged during this analysis also revealed that the experience code might be sectioned in three ways, resulting in focused codes 1a to 1c outlined in Appendix 18. This approach allowed each of the experience-related focused codes to be enriched or underpinned with additional detail. So, Code 1a – Experience (opportunity) is underpinned by notions of development and skills; Code 1b – Experience (operational) is underpinned by considerations generally related to the working environment, including hours, conditions, variety, culture and social opportunities; and Code 1c – Experience (deficit) is underpinned by considerations of things that might be lacking, including opportunities for progression, care for staff and flexibility.

7.2.1 Experience (opportunity - focused code 1a)

Across three of the questions in Cluster 1, there were 14 answers aligned to *opportunity* demonstrating that, for a small number of student participants, their consideration of experience is associated with developmental and progression

opportunities. The notion of opportunities seems to be less important for students when considering an unknown but specified sector (digital), potentially suggesting that they made a value judgement based on an overall perception rather than a level of deeper understanding.

7.2.2 Experience (operational - focused code 1b)

Across four of the questions in Cluster 1, there were 64 answers aligned to *operational* demonstrating a significant focus on the day-to-day experience of undertaking a job. The largest number of these – 25 answers – was in relation to Question 5 – *'What would put you off a job opportunity?'*, demonstrating that some participants have a very clear picture of conditions they *do not* wish to work under. The smallest number of answers for this sub-category – 10 answers - was in relation to Question 3 – '*What information might make you consider a graduate job opportunity in the digital sector?*'. This could suggest that there is less of an inclination towards *filtering norms*, which is the detail participants would normally use to sift and reflect on information to begin to make decisions about opportunities. It is seen as significant that participants are less likely to require information for something they are unfamiliar with as it suggests they make decisions which might be less than well informed or even uninformed, rather than decisions which are informed because they have detail which helps them understand requirements. This raises the challenge for universities as to how they facilitate and support students being universally informed with regard to graduate job opportunities rather than selectively informed only in relation to their own degree.

7.2.3 Experience (deficit - focused code 1c)

Across two of the questions in Cluster 1, there were 40 answers aligned to *deficit*, demonstrating that for some student participants, what a job opportunity is perceived to lack is more significant than what it offers. There were a small number of these answers for Question 4 (7 answers in relation to '*What sort of information would be helpful in considering a graduate opportunity in an area of*

work you hadn't considered before?') and a significant number for Question 5 (33 answers for *'What would put you off a job opportunity?')*. This gives a very clear indication that a negative perception of what day-to-day experience might be like is significant in putting students off potential opportunities.

7.2.4 Participant responses in relation to Experience code

In relation to this driver and **Question 2** (What sort of information would attract you to consider a graduate job opportunity?), student quotes showed they thought about both personal experience and the broader business context. These two experience drivers were used a total of 22 times in relation to Question 2 and in half of these instances, the language the students used was positive and indicated they were thinking about environments and work contexts which they would enjoy, as illustrated here:

> *"Good benefits, nice hours, good work ethics, the business has good credibility."*

> *"It is a fun job as part of a hard-working, good team. They will teach and help improve the skills required for the job."*

> *"If I would enjoy it. Whether I'd be happy doing it. Money to an extent but I'd rather be happy in my job."*

In other comments, the language was more neutral, but it did identify aspects of the work environment which students might take into consideration, such as: "*how flexible and diverse the company is"* or *"more lenient in when you can work".*

In relation to this driver and **Question 3** (What information might make you consider a graduate job opportunity in the digital and technology sector?), two answers mentioned potential enjoyment of a role, one mentioned the ability to

be social rather than being stuck at a desk and three comments mention the opportunity to work from home, including the following examples:

> *"More opportunities to work from home, a focus on being given a set of hours within a working day with the flexibility to just ensure that the workload is done within that time as opposed to being monitored consistently; decent administrators/support team."*

> *"Flexible working, job benefits, working from home, open working."*

In relation to this driver and **Question 4** (What sort of information would be helpful in considering a graduate job opportunity in an area of work or sector you hadn't considered before?), two key themes emerged in the student comments. Firstly, linked to the operational approach to experience, participants talked about the potential to enjoy a job or feel satisfied by it. For example:

> *"Something that suits my interest and that I would enjoy doing."*

> *"Job satisfaction, job excitement, it is interesting enough for you be willing to learn."*

> *"Job satisfaction, making sure you're able to like and enjoy the job you want to do. Job assignments, being academic within the workspace."*

Secondly, linked to the opportunity approach to experience, the notion of development is present, as follows:

> *"How I could enjoy it and offering skill-building in areas I would like to improve."*

> *"How skills I have would help me thrive in this industry, what a career in this industry would be like for someone with my degree and where it could take me."*

“How challenging it would be and how taking up this opportunity might affect you. What can a person learn and gain and take out from it.”

“A good work environment and engaging/compelling training so that I can learn to enjoy this new sector/area of work.”

It is recognised that the potential for development could be key to enjoyment of a role for some people, but this is not explicit in the comments from participants. It is also recognised that development opportunities might also be less valuable if participants do not enjoy other aspects of a role or the environment they are in. However, in reviewing the comments there is connection with answers to other questions in terms of an operational approach to thinking about jobs rather than a developmental approach.

In relation to this driver and **Question 5 (What would put you off a job opportunity?)**, behaviours of others in the work environment are a key theme, along with requirements or expectations in the work environment.

Considerations around behaviours in the workplace are illustrated in the following comments from participants which raise the question as to whether they are viewing potential roles through the lens of previous negative experience in the workplace, either personally or among their peer group:

“As you are a graduate student the employers might undermine or underestimate you which would be disrespectful and put you off working in that environment.”

“Rude and disrespectful staff, feeling belittled.”

“If the employer was too harsh on the requirements on the job or not caring about their workers.”

“If people don’t show respect and professionalism for the job.”

“The co-workers not being friendly.”

“The employer and their treatment of staff. I'd want to know if they are good to work for, will they take care of their staff and reward them appropriately?”

In terms of requirements, the kind of hours expected are commonly cited in some comments and expectations around work life balance emerge, as illustrated by the following:

“They expect flexible hours.”

“If they are expecting full flexibility, I need time to have a life. If the job descriptors are too full on (detailed), they are expecting too much.”

“Long hours. Demotivation from the company. Too much workload.”

“If the hours working were anti-social such as working at nights or working more than 5 days a week.”

“Business based on greed. Low paying for the job you do. High flexibility to the point of no life beyond work.”

Overall, the greatest tendency is towards operational approaches and considerations in relation to job opportunities. It is important to reflect that the student participants were towards the end of their first year of degree study, so they had no professional placement experience to draw on and, potentially, less experience in part-time work. The influence of personal perceptions in making decisions about job opportunities, therefore, is potentially more dominant than open and critical reflection which draws on professional experience and development towards graduation. That is not to say that the student participants

were not capable of this open and critical reflection – it is a key element of academic study. However, their academic experience of this would be influenced, and potentially limited, by their level of study and the associated skills development was perhaps not being transferred across to thinking about their career development.

7.3 Model component: Information drivers

The *information* code was allocated 79 times in the Stage 1 coding. There were also a further 27 allocations for hours, location and taster at this stage and these codes were merged with '*information*' in the focused coding stage.
In this analysis, the conceptualisation of this focused code is as follows:

> *A clearly expressed requirement for detail – often granular rather than 'big picture' - in order to make decisions about potential graduate job opportunities.*

During the focused coding stage, it also became clear that there were two sub-drivers linked to this code - *information (operational)* and *information (opportunity*), as illustrated in Appendix 19. The *operational* sub-driver was used when the dominant theme in answers was linked to day-to-day granularity around hours, job requirements and what the atmosphere in a workplace might be like. The *opportunity* sub-driver was used where students expressed a requirement for the details of training and development opportunities in order to make a decision.

The requirement for *information (operational)* was greatest in terms of two questions – Question 2, which asked students what might attract them to a job in an unknown sector (35 allocations) and Question 5, which asked students what would put them off a job opportunity. This suggests that students utilize their own awareness, understanding of and connection with sectors and opportunities when making judgments about graduate job opportunities. It is recognised that this could be based on explicit knowledge – where students or

people they are close to actually have direct experience of a sector – or tacit knowledge – where students have picked up anecdotal information about a sector or make high-level assumptions about it. However, this study did not seek to draw out the level of explicit or tacit knowledge students might have about careers opportunities but exploring this in a further study about student approaches to careers may support a better understanding of how this knowledge influences decisions.

The number of answers relating to *information (operational)* far outweighed those for *information (opportunity)* – 95 answers against 17 answers – and *information (opportunity)* appeared to be most relevant when students were considering what would attract them to an career in an unspecified and unknown sector. This focus on granular and day-to-day detail is seen to be further reinforced by findings linked to the *experience* code which is presented later in the chapter.

7.3.1 Participant responses in relation to the information driver

In relation to this driver and **Question 2 (What sort of information would attract you to consider a graduate job opportunity?)**, student answers illustrated the granularity of thinking, although this was not always specific, and the answers also suggest that this may come into play at two stages – when deciding whether to take an opportunity or when making a decision to give that opportunity any level of consideration in terms of application. Some answers did not go beyond the notion of details, for example:

> *"The detail of the job and what I would be required to do whilst in the job."*

In fact, nine out of the 14 times the *information (operational)* driver was assigned in relation to Question 2, the answer referred to 'detail' generically rather than anything specific.

Others gave a greater indication of what that detail might include, for example:

> *"Roles within the job, location of company, hours, further chances of promotion".*

There were, however, instances, where it was clear that a student understood the two-way nature of access to job opportunities and the requirements of both employers and recruits, for example:

> *"The information I would need to start considering a job would be the pay, what they are doing, how I will be able to benefit them and how they will be able to benefit me. I would also like to know who the people I will be working with are."*

In relation to this driver and **Question 3 (What information might make you consider a graduate job opportunity in the digital and technology sector?)**, seven out of the 18 occurrences of the *information (operational)* driver saw students make specific links to their current interests, their degree or skills they already had, including:

> *"Detailed information about the different roles within the sector (particularly ones relating to my degree), information about job-specific skills I would need to have already, and information about any training that might be available as part of the job."*

> and: "*If it was within the lines of either work I have done before, or work that would be helpful for my ideal job.*"

Other answers were more general, for example:

> *"Interesting topics mentioned that would encourage me to obtain further knowledge on them."*

and: *“The actual area of work involved. The target audience if there is any and the team that I will be joining.”*

While the link to existing skills or interests and degree-related skills and interests features in less than half of the answers, the issues of students anchoring what they might do as a graduate with what they can already do is potentially restrictive and will be explored in the discussion.

In relation to this driver and **Question 4 (What sort of information would be helpful in considering a graduate opportunity in an area of work or sector you hadn’t considered before?)**, student answers again illustrate granularity in thinking about day-to-day experience in a role, link to skills they already possess and that participants are grounded in the immediate rather than future-facing thinking.

In terms of granularity, 23 out of the 35 responses evidence that participants want to know the detail of what they would do day-to-day. The following quotes are illustrative of this:

“The employer would have to meet you and tell you about what the job is and what you would have to do during working hours.”

“Detailed requirements of the role that match my interests.”

“A detailed description of the job and what it entails.”

“An outline of how many hours I can work.”

“In-depth descriptions of what the job entails, how the firm would train and up skill colleagues who are new to the sector and what skills are required for the job.”

Seven out of 35 answers refer to existing skills and five refer to the potential for skills development or training, as illustrated through the following comments:

> *"If I can apply any of the skills I already have and if I can get something out of it."*
>
> *"Knowing how I can apply my skills to that area."*
>
> *"How I may be able to use the skills I already have to the job."*
>
> *"New skill development; new opportunities; an opportunity that may suit you better."*
>
> *"What role I would do and what types of skills I would gain."*

In reflecting on these comments, particularly those around the granular day-to-day detail of a job, there is an implicit *suggestion* that students place the responsibility for providing information to support understanding on potential employers; there is no implicit or explicit evidence within this data to suggest that students have any perception of their own agency in regard to this issue.

In relation to **Question 5 (What would put you off a job opportunity?)**, there is again evidence in the student comments about the focus on day-to-day granularity but also some evidence of consideration of the environment in an organisation and what others might say about this. Both these issues are illustrated in the following comments:

> *"Brief description; low pay; hostile business, work or environment."*
>
> *"Lack of information and communication. Bad views online."*

Linked to this, the notion of respect, or lack of, also emerges in the comments in relation to both people and the job itself:

"Rude and disrespectful staff, feeling belittled."

"If people don't show respect and professionalism for the job."

While it is not possible to know whether these were 'potential scenario' answers or 'informed by experience' answers, I need to consider the possibility that students could view all potential work and graduate job opportunities through the lens of their own experience, and this may have been less than positive.

Overall, the responses linked to this driver illustrate that students are more likely to require clear information when thinking about things that are unfamiliar to them, in this case the digital sector or an unknown sector; additionally, they are more likely to consider information, and the types of information that put them off something, than they are to think of what might attract them to something. Further, their focus on information is at granular and operational level, rather than on developmental information.

7.4 Model component: Development drivers

During Stage 1 coding, *development* was used 41 times. A further 24 answers were coded as *support and skills*. At this stage, there were no answers coded as *progress*. At Stage 2, a relatively rich array of underpinning themes were identified. In reflecting on these at the focused coding stage, *development* and *support and skills* were merged into one focused driver with three aligned sub-drivers – *operational / training* (Code 3a), *progression* (Code 3b) and *deficit* (Code 3c). Data in relation to this is illustrated in Appendix 20.

In this analysis, the meaning attached to the *development* driver was as follows:

> *A clear identification with activity, processes and opportunities which would support personal and professional development and career progression.*

The most significant of the sub-drivers was code 3a, *development (training)* and this was used when student participants expressed a clear interest in training for new skills, support and opportunities for hands-on learning. This sub-driver was assigned 28 times in relation to students expressing what would attract them to a job opportunity and 18 times when students were asked what would attract them to a job in an unspecific sector that was unknown to them. However, this sub-driver was only allocated five times in relation to students being asked what would attract them to a job in the digital and technology sector. This could suggest that students are less open to development if they view a labour market sector as not of interest or relevant to them, but they do recognise the potential and power of development in relation to an unspecified and unknown sector. This further suggests that the challenge for universities is to recognise that students are potentially open to exploring career pathways they might not have previously been familiar with, but careful consideration needs to be given to how this is introduced and contextualised. The problem-solving nature of action research provides an on-going framework to address this challenge.

The second sub-driver was 3b, *development (progression)* and although relevant to a lower number of students (nine as opposed to 28 for *development (training)*, it was used where student participants made the connection between development and the ability to progress through jobs and careers. The final sub- driver was 3c, *development (deficit)* and this arose only where student participants were asked what would put them off a job opportunity and eight participants identified that a lack of development opportunities would be off-putting.

7.4.1 Participant response in relation to development driver

In relation to this driver and **Question 2 (What sort of information would attract you to consider a job opportunity)**, participant comments show a strong leaning towards training and comments which mention only this rather than the potential for development, for example:

“Training on the job, the salary and hours of work.”
“If they are offering training. If they are flexible around studies. If they are claiming they have good pay or at least showing their salary. If they seem student friendly, as in they appear to be friendly and understanding.”

“Support and training in the workplace.”

While it cannot be discerned from these data that the participants are only thinking about the level of training needed to do a job or fulfil a role at the point of entry, it raises the potential that students might not think about long-term development, particularly in the context of a changing workplace. It is also not evident from this data why some students might think about development with a greater focus on career progression. However, being able to see these two apparently distinct ways of considering job opportunities can be used to inform university approaches. The progression approach to *development* can be seen in the following comments:

“Progression. location. company ethics. job role. future opportunities. employee benefits. Workspace/area. colleagues.”

“How it would help me enter the industry, the benefits and mentorship I might receive, how it will help me develop professionally.”

“If there were skills I would be able to develop and the job was in the topic of interest, for example, mental health”.

The design of this study does not allow for understanding of the different ways students use language around training, development and progression but the comments made by participants suggest that ensuring students develop their lexicon around this in a way that is connected to labour market requirements is potentially a valuable part of any employability work.

In relation to **Question 3 (What Information might make you consider a graduate job opportunity in the digital and technology sector?)**, participants were more likely to think in terms of progression than simply in terms of training, as shown by these comments:

> *"Offers benefits for the future use."*

> *"The opportunities that you can gain from it and the skills you can strengthen."*

> *"Where the industry will take me career wise and how it can help me develop professionally."*

This leaning towards progression in this section of the data set is interpreted as suggesting an understanding that doing something new will require development and could then lead to progression, although it cannot be assumed from this study that this is a step that participants would naturally take.

In relation to this driver and **Question 4 (What sort of information might make you consider a graduate job opportunity in an area of work or sector you hadn't considered before?)**, the training aspects of *development* were most prevalent, as illustrated in Appendix 19. This is perhaps not surprising given that participants were being asked to consider the potential of work opportunities in an area unfamiliar to them. The following comments illustrate the training focus but also a view to the future:

> *"Training and what the opportunities are for future possibilities".*

> *"Training opportunities to learn. Get to know more about the sector. learn from other colleagues."*

> *"Where I could be in the next 5 years and if I will be trained".*

In relation to this driver and **Question 5 (What would put you off a job opportunity?)**, student quotes included:

> *"If the job wasn't providing me skills in order to attain getting my dream job in the future."*
>
> *"Lack of promotion opportunities."*
>
> *"Not enough learning opportunities. Or if the job isn't interesting then it may seem off-putting."*
>
> *"No room for progress/promotion."*
>
> *"Too far away to travel, inappropriate location."*
>
> *"Lack of confidence in my capability to take on the role, lack of support available, lack of opportunities to progress my career, lack of opportunities to travel, lack of opportunities to socialise with other people in the job area, unfriendly company atmosphere, lack of diversity within the company."*

In relation to the *development* driver, it appears most likely to be at play when students are thinking about what would attract them to a job opportunity and when considering something unknown but unspecified. It arose only five times when participants were asked about what would attract them to a job in the digital sector. This could suggest the following:

- That students do not think developmentally because they do not think they are qualified.
- That they do not think developmentally because they do not know what development in this sector involves.

- That they might think developmentally but it is not the first thing that comes to mind.
- That they might think developmentally but the lexicon they use might not align to that of the labour market or higher education.

Overall, responses linked to this driver support the notion that those students at level 4 of study included in this research have a tendency to think operationally rather than developmentally. This prompts consideration as to why developmental thinking might not emerge in a way that might be anticipated (or assumed) from a group of people who have undertaken a form of study which is intended to lead to progression and, according to policy, opportunity and outcomes at a certain level. This consideration is a rich foundation for further action research.

7.5 Model component: Material drivers

During Stage 1 coding, a *salary* code was allocated 32 times and, at Stage 2, a range of underpinning themes were identified. These are illustrated in Appendix 21 but at the focused coding stage a decision was taken to rename this code as a *material* driver to reflect the broader material benefits (e.g., holiday allowance, bonus, staff social events) associated with careers. In the analysis, the meaning given to this driver was:

> *A clear focus on the salary and broader benefits which may be attached to a job opportunity.*

Two sub-drivers were also identified. The weight of answers was towards *material (operational)*, with this sub-driver most significant when students were thinking about what attracts them to job opportunities generally (16 answers) and when students were thinking about what puts them off a job opportunity (nine answers). There were only eight *material (opportunity)* answers, and these arose when students were thinking about job opportunities generally.

7.5.1 Participant responses in relation to material driver

In relation to this driver and **Question 2 (What sort of information would attract you to consider a graduate job opportunity?)**, pay or salary is qualified in five out of 16 instances by use of the word ‘good’ or ‘substantial’ as illustrated here:

> *“Good wage and a job that I can develop in for example start small and work my way up.”*

> *“Pay of a substantial amount, career progression, team working/social aspect to work.”*

> *“Pay, mentorship, work environment, support, friendly atmosphere, family life. Experience and reviews of others, flexibility.”*

> *“Good pay rate, good employee benefits, flexibility, good working hours, good location.”*

How students define ‘good’ or ‘substantial’ is not clear from these data but how much they are paid is clearly important.

For **Question 3 (What information might make you consider a graduate job opportunity in the digital and technology sector?)**, four participants gave broader answers beyond just salary, including skills, location and flexibility, while one candidate made clear that only salary would be a consideration as it was not a field they were interested in, raising the potential that the amount a role pays may prompt some to think differently about a sector they are unfamiliar with.

The driver only occurred four times in relation to **Question 4 (What sort of information would be helpful in considering a graduate opportunity in an area of work or sector you hadn’t considered before?)**, with two mentions

having an *operational* focus (Code 5a) and two having an *opportunity* focus (Code 5b). Two of the comments from participants also raised the notion of interest in the sector – one directly and the second indirectly by stating:

> *"Wage, practical work, social aspects not just stuck at a desk"*.

Only one participant outlined more detailed thinking in relation to this question which is highlighted here as it shows the participant thinking both how they might access an unknown sector and the extent to which an employer might have consideration for their lack of specialist knowledge or skills:

> *"Job benefits focusing on the pay: hours ratio, easiness of entering that sector (entry level), good training courses, understanding for lack of knowledge or skill in certain areas but an appreciation or outlook for any pre-existing skills that may apply to that sector."*

In relation to this driver and **Question 5 (What would put you off a job opportunity?)**, there were a small number of participants (seven) who were clear that the level of salary might directly impact on them but in all instances, they detail further aspects of an opportunity that might deter them. This is illustrated as follows:

> *"Not paying enough and underestimating your ability as you may not have much experience."*

> *"If the pay was less / if it was with people who were going to be difficult to work with."*

> *"Low wages, a sector that I do not know anything about or doesn't look interesting."*

> *"Low pay, disinterest in the job, poor reviews about the work environment."*

While the *material* driver is not a dominant theme, the data shows it is a clear consideration for some participants and it is more likely to be linked to operational considerations than developmental considerations.

7.6 Existing interest driver

At Stage One, the *interest* code was allocated 15 times and the *link to degree* code was allocated 11 times. At Stage 2, more detailed analysis of the data revealed a number of underpinning themes, as shown in Appendix 22. At the focused code stage, the *interest* and *link to degree* codes were merged to form the *existing interest* driver as these two things were seen as connected; a student's interest will more than likely lead to their chosen field of study and, in turn, this will lead to the connections they make to careers. In this study, this was seen strongly in relation those participants that identified themselves as Psychology students.

In this analysis, the meaning attached to this code was as follows:

> *A clear link to areas of interest – potentially based on experience to date – and / or aligned to current areas of study, potentially with an explicit or implicit view that anything beyond this will not receive attention.*

In the focused coding stage, the relevance of a degree to an area of work emerged when student participants were asked what attracted them to job opportunities, however it emerged far more strongly when students were asked what might attract them to a job in the digital sector. It reduced in relevance when asked about an unknown sector.

7.6.1 Participant responses in relation to existing interest codes

In relation to this driver and **Question 2 (What sort of information would attract you to consider a job opportunity?)**, student quotes highlight the

notion of ‘point’ or ‘worth’ of their degree in relation to career pathway and the link between degree subject, interests and the notion of a ‘dream job’. This is illustrated as follows:

> *“If the environment was somewhere that my degree would be of use, otherwise it seems pointless.”*

> *“Related to degree so that you can use the skills you've gained over the years to transfer to a graduate job. Degree requirement so that it makes the degree worthwhile as it is a graduate position. Attractive information - flexible hours, or hours that are acceptable for you. Location appropriate for travel.”*

> *“A dream opportunity. Something which suits my interests. Location. A chance to learn on the job. A great company reputation. An opportunity for progression.”*

> *“If the job is related to my degree and will help me to progress further into my dream job.”*

In relation to this driver and **Question 3 (What information might make you consider a graduate job opportunity in the digital and technology sector?)**, participant comments again highlight the ‘straight line’ connections students make between areas of study and potential career pathway, as follows:

> *“Working in an area that I have had a previous interest in or something that links to my course.”*

> *“If it was connected in some way to psychology, since that's what my degree is in.”*

"Experience I have already gained through my studies such as work with Excel and basic programming software."

Similar comments arise in relation to **Question 4 (What sort of information would be helpful in considering a graduate opportunity in an area of work or sector you hadn't considered before?)** but the operational approach to opportunities, highlighted in relation to other drivers, is also present:

"Similar skills and qualities that I have gained from my degree. Detailed description of the sector."

"If my course crosses over in terms of experience. a detailed description of what my day-to-day tasks would be."

In relation to this driver and **Question 5 (What would put you off a job opportunity?)**, student comments were explicit about whether they were interested in, or not interested in, an opportunity but also raise the notion of feeling 'unsure', as follows:

"It being in a sector or area I am unsure about."

"If it doesn't interest me/wouldn't be happy in that job. Poor pay."

That participants were more likely to cite relevance to their degree or chosen career when asked about the digital sector potentially suggests:

- That students react against a 'known unknown' - that is a sector that is specified but unknown to them – and draw clear lines between that and their area of study. This is also illustrated by the number of students who said no amount of information would help them in terms of considering an opportunity in the digital and technology sector. While this only had five mentions, it shows that some participants drew a very clear

boundary when faced with considering a specified sector but one which was unknown to them.

- That in the case of the digital sector, there is insufficient awareness and understanding of the role it plays, potential it offers or the broader role of digital tools and technology and the changing labour market and the opportunities it offers. There is some acknowledgement of this in answers to Question 3, where three student participants acknowledged their lack of understanding of the sector.

These two considerations may sit independently or be interlinked and this is likely to vary from participant to participant, although this study has not addressed the extent to which this might be the case. Exploring this may be a path for future action research.

While only three participants cited the ability to keep developing skills when considering what attracted them to job opportunities (Question 2), it is notable that this was not mentioned in answers in relation to the digital and technology sector or an unknown but unspecified sector. This suggests that awareness of and desire for development opportunities – or developmental thinking – might only emerge when students already have some knowledge, or perceived knowledge around particular interests and career pathways but that this is not 'switched on' when students are dealing with new territory or new areas of the labour market. A consideration for future action research, therefore, is how universities might work with students and employers to inspire – or 'switch on' – this developmental thinking even when students are on unfamiliar ground. These data suggest that consideration may need to be given as to how to develop a stronger discourse around and awareness of transferrable knowledge and skills so that students perceive, understand and utilise their value in the same way they would their subject-specific knowledge and skills.

7.7 Digital perceptions

Question 6 was designed as a 'first reaction' action by asking participants: **If you hear the phrase "digital careers", what things springs to mind and what assumptions do you make?** The answers to this question were viewed in two different ways. Firstly, they were sorted into eight different categories, as shown in Appendix 23 to illustrate the different sorts of considerations that came to mind when students answered this question. These categories were: Working with or in tech; online working; job titles; creative; tasks; repetitive; office and no answer. Secondly, utilizing the final two focused codes, the answers were reviewed through the lens of neutral or negative *digital perceptions*. Out of the 91 participants who answered this question, 81 could be categorized as having neutral digital perceptions. This means they did not indicate any particular positive leaning towards digital, neither did they express any negativity towards it. Ten participants did express what were considered negative perceptions. Three of these were linked to notions that careers in digital would be repetitive or boring. Other negative perceptions included: Worrying about fixing broken computers; having back problems because of being sat at a screen all day; lack of communication; difficulties interacting with others; formal and monotonous; very intellectual.

While the comments in relation to this question did not give the kind of depth of response seen in relation to other questions, they can be seen as functional in their nature as the overwhelming majority of them focus on the how, what and where. This is perhaps not surprising given that participants do not have any significant experience of or interaction with this sector. However, this lack of experience or interaction does not appear to drive high levels of negative digital perceptions. While a number of participants identify the potential for creative opportunities, this is often linked to media-related work and is likely to include answers from students on media-related programmes. None of the participants identify or mention the problem-solving nature of careers in digital and technology. Again, this is not surprising given the lack of experience or

interaction with these areas but is notable and significant given that employers foreground the problem-solving focus of the sector. This, therefore, could provide a key focus for future developments and a means to shape interventions to raise understanding, generate potential interest and connect students with potential opportunities.

7.8 Findings as identified through questions and focused codes

In summarizing this chapter, it is useful to consider the findings as they emerge through each question and then as they emerge through each theme (as illustrated in Appendix 16).

For **Question 2 (What sort of information would attract you to consider a graduate job opportunity?)**, the emerging story saw an overwhelming focus on day-to-day experience and operational and granular detail. While participants might want clear information, there was seen to be a greater balance towards wanting information about day-to-day experience and the working environment, above wanting information about development opportunities. The data suggested that participants find it harder to think about development when they are unfamiliar with something.

This story continued to develop in relation to **Question 3 (What sort of information might make you consider a job opportunity in the digital and technology sector?)** with further emphasis around participants wanting clear information at operational and granular level. This leads to two considerations – that participants find it a challenge to think in terms of development when thinking about an unknown sector; and that participants do not take a 'curiosity' led approach – they want information providing to them so that the opportunity is 'sold' to them.

The notion of a passive and 'sell to me' approach was seen to develop further in relation to **Question 4 (What sort of information would be helpful in**

considering a graduate job opportunity in an area of work or sector you hadn't considered before?) but it is at this point that the data starts to highlight differences in reactions to a specified but unknown sector and an unspecified and unknown sector and raises the notion that the specification of area, whilst unknown, will raise a reaction which may be uninformed but which is instinctive based on the information shared with participants.

The operational and granular approach arises again in **Question 5 (What would put you off a job opportunity?)** and it raises the potential that participants may view all work opportunities to some extent through the lens of their experiences to date. While this study did not gather data on experience to date, it must consider that, as part of this story, a range of considerations may be present for participants who are in their first year of undergraduate study.

Finally, in considering the story emerging through the answers to questions 2 to 6, it is clear that **Question 6 (If you hear the phrase 'digital careers' what things spring to mind and what assumptions do you make?)** provides a level of challenge in that participants are asked about something that is either entirely unknown or not completely understood. The story, in relation to some participants, is shaped in relation to their programme of study as creative and media-related comments were made in a small number of instances. The journey of the participants through their first year of study is also present in this story as almost a third of them associate digital with online working, which was the way they experienced much of their education in their first year of study due to the COVID-19 pandemic.

7.9 Chapter summary

Reviewing the stories which emerged through the questions in the context of the focused codes reinforces the key theme of operational and granular approaches being more dominant than developmental approaches. However, looking at the qualitive data which arises from the student comments alongside

the quantitative data which emerges from the allocation of focused codes, some key considerations are surfaced. These can be taken forward alongside the findings in the next chapter, which looks at the mechanisms for embedding content and / or interventions to support students thinking broadly about graduate job opportunities.

The first consideration is that comments made by participants need to be reflected on in the context of the level of study and can be used to inform on-going development for the cohort in question as well as cohorts who will follow them. The second is that if the emerging stories from these data suggest that students are more likely to react against a specified and unknown sector than they are against an unspecified and unknown sector, then it would seem that universities need to consider the mechanisms they can use to introduce new sectors to students. Thirdly, if such mechanisms can be identified, considerations need to be made about the language used to socialise and familiarise students with that sector.

The labour market is organised into sectors but these are viewed differently by the participants as they are at different levels of maturity in terms of experience and understanding. So, well-established sectors such as the legal or health sectors, are likely to be areas that many students are aware of and have some understanding of, either through family connections, their own work experience or information they have come into contact with (for example, through study, their own research or through the news media). Any of these interactions could have helped to develop an understanding of roles, issues and structures. However, for newer sectors, such as digital and technology, there has been less opportunity for students to be socialized into the language of them or experience them. This suggests that a substantially different approach is needed to introduce students to them. Finally, if operational and granular approaches are seen to dominate over and above developmental approaches, then consideration needs to be given to the processes which can be used and opportunities which can be created to ‘switch on’ developmental thinking in

students.

CHAPTER 8: CORE INSIGHT AND FUTURE INSIGHT: DATA ANALYSIS AND FINDINGS 3

8.1 Introduction

The data analysed in this chapter is that which was designed to capture core insight views and give potential indicators for how future action research and intervention activity might be formulated utilising the findings outlined in Chapters 6 and 7. These findings identified a Key Drivers Model which includes components which potentially inform student approaches to job opportunities and, therefore, open up avenues to approach the employability agenda from a new perspective. The first part of this chapter focuses on the ranking of graduate attributes undertaken by both student and employer participants; the second part of the chapter looks at how employers interacted with students during the data collection; and, finally, the latter part of the chapter considers the data which emerged from questions about future activity for student participants and the findings from this. It ends with a summary of the overall findings from Chapters 6, 7 and 8 as the basis for leading into a discussion of the study and what the findings contribute to the field and suggest for future steps in research.

8.2 Student and employer ranking and categorisation of graduate attributes – overview

The key purpose of the card sorting, ranking and categorisation exercises used in this study was principally to generate engagement and thinking around graduate attributes at an individual and group level for students and employers. This activity was used to lead into and inform participant thinking in additional exercises which prompted them to consider approaches to graduate job opportunities.

Using sorting and ranking activities is an efficient and effective way of engaging people in an activity which is quick and easy to do but facilitates the processing of significant amounts of information, allowing individuals to exercise their

personal choices. Student and employer participants could then use these experiences to inform group discussions and exercises around what is important from their perspectives in terms of graduate attributes and how these perspectives can be combined to inform approaches to graduate job opportunities.

Understanding the similarities and differences between what students and employers believe to be the most important graduate attributes and the reasons underpinning these perspectives was a key foundational focus for this study. The originality of the methodological approach in this study was to utilise both employer and student voices to inform approaches to the employability agenda. This further understanding of both perspectives should then help to facilitate the development of more effective employability and career opportunity activities for students and employers as students progress through their programmes of study in higher education. In particular, it should help to develop an understanding of how to better introduce students to opportunities in digital and technology careers, as well as the ways in which technology is changing many roles in the labour market.

The ranking activity was carried out a number of times during this study utilising a list of 33 attributes drawn from a systematic literature review by Artess, Hooley and Mellors-Bourne (2017) and these are included as Appendix 10. This exercise was first utilised in a pilot study involving three students and three employers and the data were used as a starting point for the main study. The different ranking activities carried out in this study around graduate attributes are detailed in Appendix 24 which shows the Top 10 attributes identified by students in the pilot study and compares this to the different ranking activities in the main study**.** The following findings illustrate the variation in individual and group perspectives on graduate attributes for students and employers and how these have informed the primary focus of this project.

8.3 Student ranking and categorisation of graduate attributes

The top 10 graduate attributes ranked by the three students from the pilot study were compared to the percentage of 52 students who deemed them as essential from an exercise where they independently categorised all graduate attributes as either ‘essential’, ‘important’, ‘desirable’ or ‘not important’. The results of the top 10 comparison are shown in Table 13 below.

Table 13: Student top 10 attributes from pilot study (n=3) and percentage subsequently deemed essential by 52 students, with associated top 10 (n=32 students)

Pilot Study Top 10 attributes (n=3)		**Comparison to larger sample of students rating attributes as essential in pre-workshop activity (n=52)**	**Pre-Workshop Top 10 attributes (n=32) in rank order**
Rank	**Attribute**	**Essential (%)**	**Attribute**
1	Aspiration	21%	Work Ethic
2	Willingness to learn	69%	Time management
3	Work ethic	75%	Communication skills
4	Self-management	35%	Teamwork
5	Positive attitude	58%	Willingness to learn
6	Communication skills	82%	Professional knowledge
7	Initiative and self-direction	36%	Customer awareness
8	Flexibility and adaptability	48%	Critical thinking
9	Interpersonal skills	24%	Efficiency
10	Time management	75%	Flexibility and adaptability

The exercise illustrated in Table 13 above was done via the JISC Online Survey tool prior to participating in the workshops as part of the main study. Students were also asked to rank their own top 10 as part of this pre-workshop exercise.

Thirty-two out of the 52 students who completed the pre-workshop exercise carried out this ranking. Green boxes are used in Table 13 to indicate an attribute that was in the top 10 for both the pilot study and pre the workshops in the main study; 52 students carried out the exercise to rank attributes as essential, important, desirable or not desirable in the pre-workshop questionnaire but only 32 of these students went on to rank their own top 10)

In addition, Figure 5 below illustrates the categorisation of graduate attributes as 'essential', 'important', 'desirable' or 'not important' by 52 students prior to the workshops in the main study.

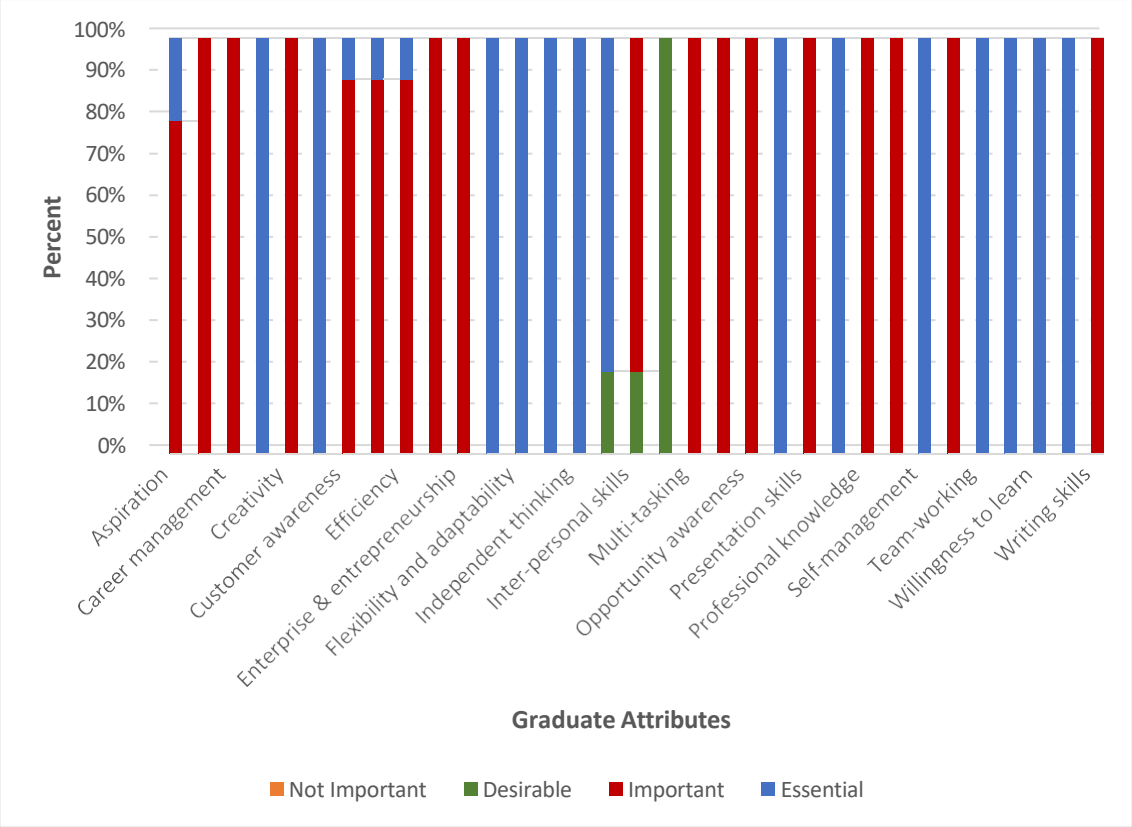

Figure 5: Categorisation of graduate attributes by 52 students prior to the workshops in the main study

Comparing the pilot study top 10 ranking with the JISC Online top 10 ranking shows that in both of these exercises, students identified five attributes they thought should be top 10: Work ethic; time management; communication skills; willingness to learn; flexibility and adaptability.

It is noteworthy that all the attributes in the top 10 from the pilot study were deemed essential by at least 10 (20%) of the larger sample of students. However, the top ranked attribute of *aspiration* in the pilot study was only deemed essential by 11 (21%) of the 52 students. Other attributes not categorised amongst the most essential by the larger sample included self-management (18, 35%), *initiative and self-direction* (19, 36%), *flexibility and adaptability* (25, 48%), and *interpersonal skills* (13, 24%).

In contrast, the remaining top 10 attributes from the pilot study were considered essential by more than 26 (50%) of the larger main study sample of students, including the highest percentages for *willingness to learn* (36, 69%), *work ethic* (39, 75%), *communication* (43, 82%) and *time management* (40, 76%).

The variability in terms of some consistency and some difference between the views of the three students in the pilot study and the larger, more representative sample of 52 students and sub-sample of 32, is to be expected, based on sample size (especially the pilot study) and individual differences in opinion.

8.4 Top 10 graduate attributes from the pilot study ranked by students during the workshops in the main study

As part of the Microsoft Form questionnaire which was utilised in the workshops, students were also asked to carry out a ranking exercise on the top 10 attributes as identified by students in the pilot study. The pilot study top 10 were used for this as the data from the pre workshop rankings exercise undertaken by 52 students was not analysed until after the workshops were completed. As mentioned previously, the main purpose of the ranking and categorising activities was to act as a catalyst to facilitate discussion and a better understanding of

similarities and differences in employer and student perspectives, which in turn will inform the design of future activities and interventions that meet the needs of both key stakeholder groups. The counts for the top 10 attributes from the pilot study as ranked by 92 students during the workshops are shown in Table 14 below.

Table 14: Counts of ranks for top 10 attributes by 92 students during the workshops.

Top 10 attributes	**RANK**									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Work ethic	33	10	8	12	7	10	6	3	0	3
Communication skills	15	16	12	17	10	6	8	4	3	1
Positive attitude	13	16	11	11	5	6	9	12	5	4
Willingness to learn	10	18	8	10	11	9	4	7	11	4
Aspiration	7	6	9	3	6	4	8	13	15	21
Time management	4	5	15	10	12	10	8	11	11	6
Inter-personal skills	4	3	9	6	12	10	10	6	11	21
Initiative and self-direction	2	8	4	8	5	13	16	12	14	10
Flexibility and adaptability	2	5	10	8	14	16	9	13	7	8
Self-management	2	5	6	7	10	8	14	11	15	14

(Note: Attributes are ordered as highest count for rank 1; where count for rank 1 is equal, order is decided on highest count of rank 2 and so on).

Work ethic achieved more than double the count of the next highest attribute at 33 out of 92, followed by *communication*, *positive attitude* and *willingness to learn* for rank 1. *Aspiration* scores the next highest count, with *time management*, *interpersonal skills*, *initiative and self-direction*, *flexibility and adaptability*, and *self-management* all producing very low counts for rank 1, scoring counts

between 4 and 2. The pattern of counts across all 10 rankings of the top 10 attributes is more easily interpreted by a cumulative count diagram which is shown Figure 6 below.

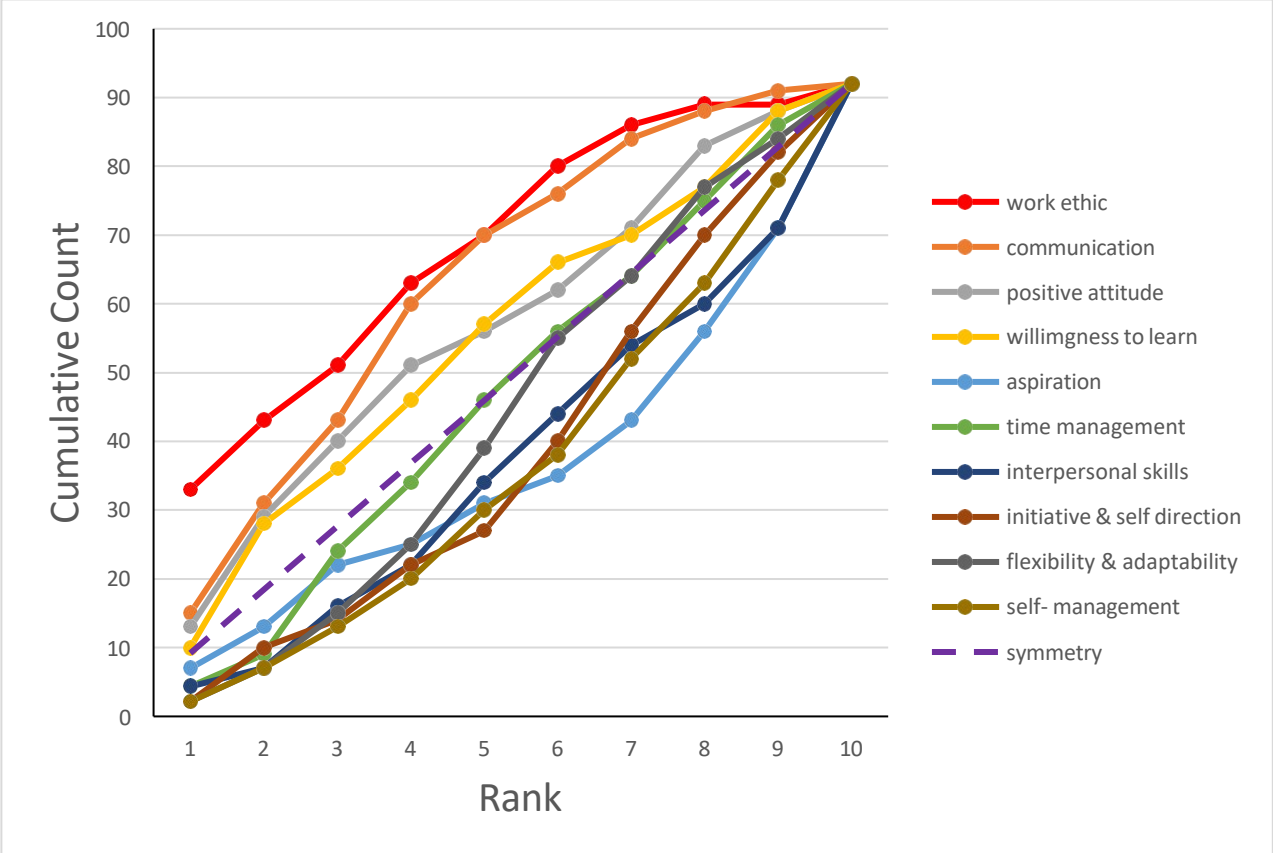

Figure 6: Cumulative counts of top 10 attributes for students (n=92) during the workshops (dotted line on the graph indicates a line of symmetry, i.e., where there is a consistent accumulation of counts across all 10 ranks).

This cumulative count exercise revealed that *work ethic* is not only the clear first choice attribute at rank 1 with a count of 33, but it remains the first choice until rank 9. While *communication* is ranked much lower on rank 1 at a count of 15, by the fifth ranking it achieves the same cumulative count as *work ethic*, with both scoring 70 out of a possible 92. *Positive attitude* and *willingness to learn* show very similar cumulative counts throughout, starting with a similar score at rank 1 and 2 to *communication*, but then maintaining a smaller accumulation of counts for rank 3 and above.

Work ethic, *communication*, *positive attitude* and *willingness to learn* all start with

steeper profiles of cumulative counts than the line of symmetry (dotted line on graph in Figure 5 above, illustrating a consistent accumulation of counts over the 10 ranks), indicating they are clearly the top 4 attributes emerging over all 10 rankings. While *time management* has a shallow gradient of accumulated counts to rank 2, by rank 3 and thereafter it follows the line of symmetry, indicating a generally even spread across the 10 rankings. In contrast, *aspiration*, *interpersonal skills*, *initiative and self-direction*, *flexibility and adaptability*, and *self-management* all start with lower gradients than the line of symmetry indicating they were not ranked highly compared to the other attributes.

8.5 Employer ranking and categorization of graduate attributes throughout the study

A similar set of ranking activities were carried out with employers. The top 10 graduate attributes ranked by the three employers from the pilot study are shown in Table 15 below together with a column showing the count from three other employers that deemed them as essential from an exercise where they independently categorised all graduate attributes as either ‘essential’, ‘important’, ‘desirable’ or ‘not important’ prior to participating in the workshops as part of the main study (this is further illustrated in Figure 7 below).

Table 15: Employer top 10 attributes from pilot study (n=3) and percentage that were subsequently deemed essential by 5 employers, in their top 10.

Pilot Study Top 10 attributes (n=3)		**Comparison to 3 employers rating attributes as essential**	**Pre-Workshop Top 10 attributes (n=3) in rank order**	**Employer list after workshops and included in the 'What Employers Want' briefing sheet for use in student workshops**
Rank	**Attribute**	**Count (n)**	**Attribute**	**Attribute**
1	Work ethic	1	Communication	Positive attitude
2	Willingness to learn	2	Digital literacy	Willingness to learn
3	Positive attitude	1	Critical thinking	Research skills
4	Team working	2	Independent thinking	Team working
5	Flexibility and adaptability	0	Inter-personal skills	Flexibility and adaptability
6	Problem solving	1	Willingness to learn	Problem solving
7	Critical thinking	2	Team working	Critical thinking
8	Digital literacy	3	Time management	Digital literacy
9	Initiative and self-direction	1	Work ethic	Initiative and self-direction
10	Communication	3	=Ethics	Communication
			=Initiative & self-direction	
			=Problem solving	
			=Writing skills	

(Note: Green cells indicate an attribute that was in the top 10 for the pilot study, and in either the pre the workshops or the workshops in the main study)

There was considerable agreement between the top 10 graduate attributes for the three employers in the pilot study and the independent views of three other employers prior to participation in the workshops and this is illustrated in Table

15 above. It is noteworthy that all the attributes in the top 10 from the pilot study, with one exception (*Flexibility and adaptability*), were deemed essential by the three different employers ranking independently of each other.

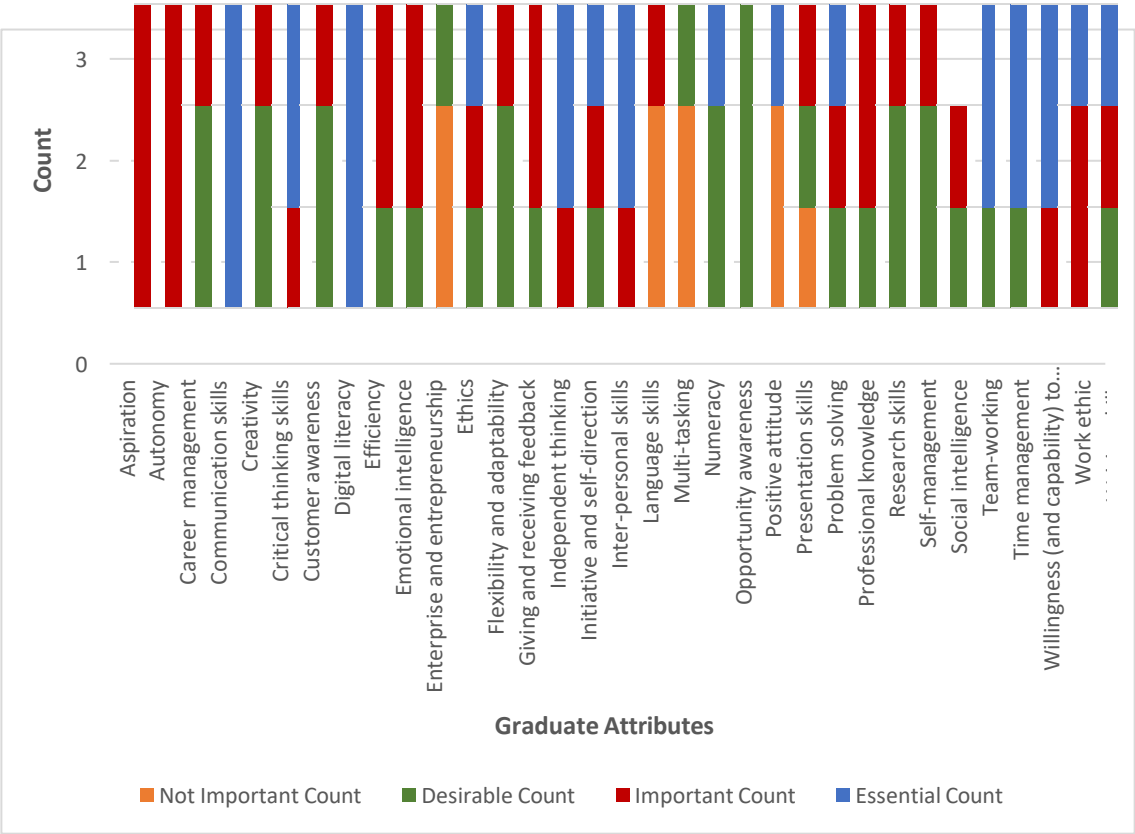

Figure 7: Categorisation of graduate attributes by 3 employers prior to the workshops in the main study

After the workshop with the employers was concluded in the main study an amended version of the top 10 graduate attributes was agreed and included in the 'What employers want' briefing sheet for use in student workshops. The only change made from the top 10 from the pilot study was the inclusion of *research skills*, which replaced *work ethic*. This shows great consistency in the views of employers on their top 10 graduate attributes, which is helpful in providing a clear employer perspective on graduate attributes for students and the university.

8.6 Top 10 graduate attributes from the pilot study ranked independently by 5 employers in the main study

The outcomes of the ranking activities carried out by employers are illustrated in Table 16 below, which shows the counts for the top 10 attributes from the pilot study as ranked by five employers during the workshops. *Willingness to learn*, *problem solving*, *positive attitude* and *communication skills* received counts of 2, 1, 1 and 1 for rank 1 and the cumulative count is further illustrated in Figure 8 below.

Table 16: Counts of ranks for top 10 attributes by 5 employers. Attributes are ordered as highest frequency for rank 1, where frequency for rank 1 is equal, order is decided on highest frequency of rank 2 and so on).

Top 10 attributes	RANK									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Willingness to learn	2	0	0	0	2	1	0	0	0	0
Problem solving	1	1	2	0	1	0	0	0	0	0
Positive attitude	1	1	0	0	0	0	0	1	0	2
Communication skills	1	0	0	1	1	1	1	0	0	0
Critical thinking	0	2	0	2	0	1	0	0	0	0
Team working	0	1	3	0	0	0	0	1	0	0
Work ethic	0	0	0	2	0	0	0	0	3	0
Digital literacy	0	0	0	0	1	1	0	0	1	2
Flexibility and adaptability	0	0	0	0	0	1	2	2	0	0
Initiative and self-direction	0	0	0	0	0	0	2	1	1	1

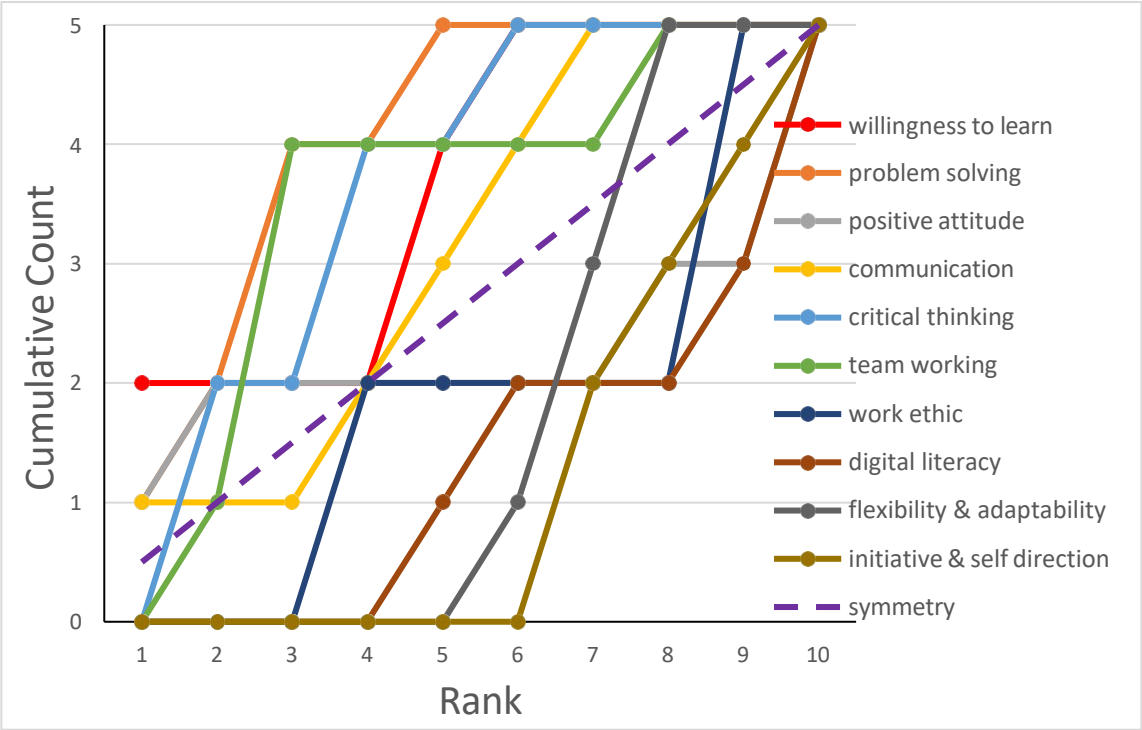

Figure 8: Cumulative counts of top 10 attributes for employers (n=5) from the workshops. The dotted line on the graph indicates a line of symmetry, i.e. where there is a consistent accumulation of counts across all 10 ranks.

Figure 8 above shows that *willingness to learn*, *problem solving*, *positive attitude*, *communication*, *critical thinking* and *teamwork* have steeper gradients of count accumulation than the line of symmetry and achieve the maximum count of 5 between rank 4 and 7. These are the most important of the top 10 graduate attributes for the employers. In contrast, *work ethic*, *digital literacy*, *flexibility and adaptability*, and *initiative and self-direction* have shallow gradients of accumulated counts compared to the line of symmetry, indicating they are the least important of the top 10 graduate attributes to the five employers.

However, when discussed during the employer workshop the five employers agreed the amended list of top 10 graduate attributes from their perspective. As already noted, the only change made from the top 10 from the pilot study was the inclusion of research skills, which replaced work ethic (final column in Table 15 above). As noted at the end of section 8.5, this shows great consistency in the consensus views of employers on their top 10 graduate attributes, which is helpful in providing a clear employer perspective on graduate attributes for students and the university.

8.7 Summary comparison of employer and student approaches to graduate attributes

The most striking difference between the different ranking exercises by employers and students is that the employers are clearer and more consistent on what they consider the essential graduate attributes to be compared with the students. At least one of the three employers considered 15 (45%) of the 33 attributes as essential (see Figure 7 above) whereas every one of the 33 graduate attributes were considered essential by between 1 (2%) and 43 students (82%) (see Table 15 above).

This pattern of greater consistency for the employers was also evident for the selection of top 10 graduate attributes, with only one attribute different between the pilot and main study (see Table 15 above). In contrast the students had 5 out of the top 10 attributes as different between the pilot study and the pre-workshop, noting the difference in sample size with three students in the pilot study and 32 who completed the pre-workshop ranking exercise, with the pre-exercise findings therefore being considered more representative (see Table 14 above).

However, comparing the top 10 attributes from the main study for the employers and the pre-workshop top 10 from the students, there was agreement on five out of 10 attributes (50%): communication skills, teamwork, willingness to learn, critical thinking and flexibility and adaptability.

8.8 Employer presence during workshops

Question 7 asked student participants if an employer was present during their workshops. This question was originally included when it was anticipated that employers would be assigned to breakout rooms and, therefore, there would be clear interaction between some student groups and an employer. However, based on the experience of using breakout rooms in the first student workshop that an employer was due to join, a decision was taken not to assign employers

to breakout rooms. This was because it was challenging to get students to use their camera or microphone or take part in any detailed discussion either verbally or using the chat. Instead, employers were included in the main room when students were called back from breakout rooms.

Employers were included in two out of seven workshops; one workshop included one employer and a second session included two employers. Involving the employers in the main room allowed the staff members facilitating the workshops to use the workshop questions and their understanding of issues which had arisen in the main room or breakout rooms prior to employers joining to prompt discussion and to try to engage students. This proved highly challenging on Microsoft Teams as students were reluctant to directly participate and ask or respond to questions. This experience on Microsoft Teams was not unique to this research and reflected the experience of other staff working with students in this online environment. However, some insights emerged from the data relating to this question. Firstly, students did not accurately respond to this question. 15 out of 92 students recorded that they had been in a workshop with an employer present, but 51 students actually joined one of these workshops. Secondly, there was a low rate of completion of the Microsoft Forms in the workshops with employers present, with five completed in the first workshop and four completed in the second workshop. Across all workshops, out of 141 students who joined the workshops, 92 completed the Microsoft Form, a completion rate of 62%. In the two workshops attended by employers, nine out of 51 students who joined the workshops completed the Microsoft Form, a completion rate of 18%.

A number of considerations and learning points emerge from this. The use of Microsoft Forms proved to be an effective tool for collecting data in an online environment, particularly one in which students were reluctant to participate verbally. It also allowed the collection of data from a larger number of participants than was originally intended through in-person data collection. While in-person data collection would have allowed the potential for teasing out detail and follow-up discussion points, the Microsoft Forms have still generated

a significant volume of data which gives insight into student approaches to careers. In an in-person environment, I would have had very direct awareness of anyone not participating; under the data collection method used, I had no complete picture of whether or not students were making use of the Microsoft Forms. Some awareness did emerge through staging the way the Forms were completed; this led to some students asking questions or others asking if it was appropriate for them to move on to the next section of questions. These are all issues to be aware of for future use of this method of data collection and the key learning point would be to create additional checkpoints for progress and discussion to reinforce the use of the Microsoft Form, although this would still not guarantee completion.

Overall, Question 7 was designed to allow consideration of whether involving employers made any difference to student views on graduate job opportunities. However, in reviewing answers from the small number of Forms which were completed in an employer workshop, there is no notable pattern or theme which emerges which is significantly different to the data from the considerably larger number of Forms completed in workshops where no employer was present. Potentially of greater interest is the lower completion rate for Forms in workshops where employers were present but I can only speculate as to why this occurred rather than have any direct insight to this from students. The students in these workshops were told that an employer / employers would join at some stage. This may have led students to anticipate what might be involved in this and what might be expected from them; it could also have taken their focus away from completing the Form. If this was the case, it would not necessarily be a deterrent in any future data collection but planning may be needed to consider how to involve employers in also discussing the Form completion with student participants as this would probably increase the percentage of students that completed the Form and potentially create more direct engagement and interaction between students and the employer.

8.9 Cluster 2 – Intervention questions (Questions 8 to 15)

The intervention questions were designed to understand what kind of event / content / delivery mode might support students in engaging in consideration of their graduate job opportunities more broadly. It was suggested to participants that they use digital and technology careers as a focus. In this section, only questions 8 to 11 generated open qualitative data; in questions 12 to 15, students were asked to select answers from a series of options.

The questions were as follows, with responses subsequently shown and interpreted in sub-sections for each question:

Q8: If the University was to design and run a session to interest students in broader careers, what would you want to get out of this? It's suggested that you imagine this session is about digital and technology careers.

Q9: Record your ideas for content for such a session, the associated activities and appropriate ways to deliver this (including who should deliver – e.g., University staff, employers, alumni)

Q10: What do you think the best way would be to promote a session like this to students?

Q11: Do you have any thoughts about other activities which might follow an initial session to help students understand and explore broader graduate job opportunities, particularly those in the digital and technology sector?

Q12: What is the ideal length of time for a session about broader graduate job opportunities, such as those in digital and technology, to run? *Participants were given four options to choose from: One hour; two hours; half-day; full day.*

Q13: What is the best way to include a session as part of your course? *Participants were given three options to choose from: As part of your placement*

module; as part of another module on your course; as an extra-curricular activity.

Q14: What is the best venue for such an activity? *Participants were given three options to choose from: At the university; at employer premises; at a city centre venue.*

Q15: What level of study do you think such a session should be aimed at? *Participants were given the options of selecting one Level from 4, 5 and 6, more than one level or selecting a level but specifying that a session should be open to all levels at the same time.*

8.9.1 What students want from a session designed to interest students in broader careers (Question 8)

When asked what was needed from broader careers sessions, by far and away the greatest number of responses in a single category was a need for more information with 52 responses; 35 of these took a broader career and developmental focus in their responses, while the remainder were more focused on granular day-to-day job detail. The dominance of this answer in comparison to others is illustrated in Figure 9 below. In contrast, the nine other categories recorded no more than 10 responses, with skills having 10 responses, which included reference to basic skills, new skills, communication and social skills, transferrable skills and sector-specific skills. There is no single theme here, although answers which focus on new, transferrable and sector-specific skills (seven in total) could be said to show an openness to different opportunities and developmental opportunities.

In contrast, the two mentions of basic skills would raise some concern that students did not understand the potential of graduate careers or the expectations of what a degree should lead to, particularly in the view of policymakers. Other categories received less than 10 responses, but some notable contributions included three answers where students were explicit that

digital and technology was of no interest to them and three answers where students made reference to accessibility and their own particular circumstances, potentially highlighting that they are concerned their needs might not be catered for.

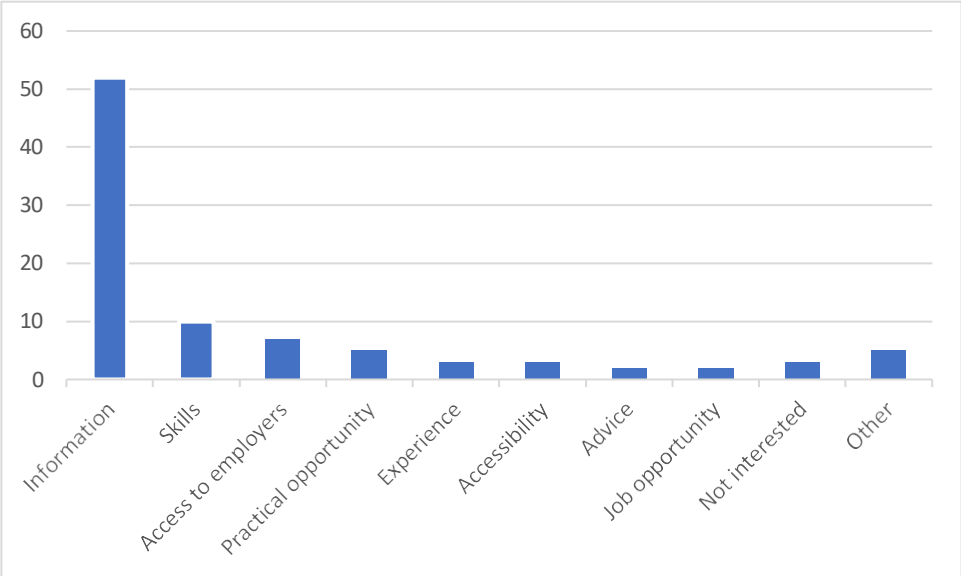

Figure 9: Frequency of desired outcomes for students from broader careers sessions

8.9.2 Content for broader careers session and who should deliver this (Question 9)

There were two components to Q9 and the participants answered in such a way that it was possible to categorise the answers in two sections, one looking at who should deliver the session and one looking at the type of activity the session could include. This is illustrated in Figure 10 and Figure 11 below. However, it is important to note that not all participants included responses to both components of the question, as follows:

- 25 participants only suggested an agent for delivery but no activity
- 10 only suggested an activity but no agent to deliver it
- Nine participants did not answer the question at all

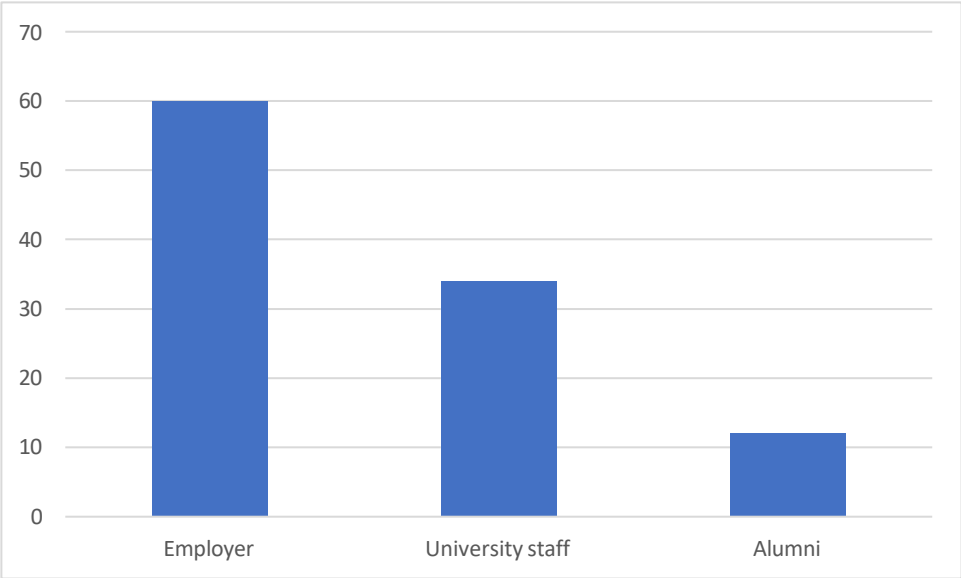

Figure 10: Frequency of student responses as to who should deliver broader career sessions

The value that students place on the involvement of employers and what they could bring to such a session is clearly demonstrated through participant suggestions for who should deliver, with 60 of them citing employers as the best agents to deliver, with 34 suggesting it should be university staff and alumni suggested 12 times (Figure 10 above). It is noteworthy that 30 participants suggested more than one agent should be involved in delivery and that there is also a potential overlap between alumni and employers.

In terms of what kind of activities were suggested for delivery, the data shows that this was a more challenging question as 25 participants did not list any ideas for activity (see Figure 11 below). There were 18 suggestions for presentations and 11 answers which were categorised as ‘industry insight’. This ‘industry insight’ category was used when participants talked about employer input to lessons, talks, sessions and real-life examples. While the suggestions in this category did not explicitly mention presentations, they were seen as leaning more towards receipt of information rather than participation in activities to develop understanding. Viewing these answers collectively, along with those where there was no answer at all, there were 63 answers which either did not engage with suggestions or made suggestions for passive activities.

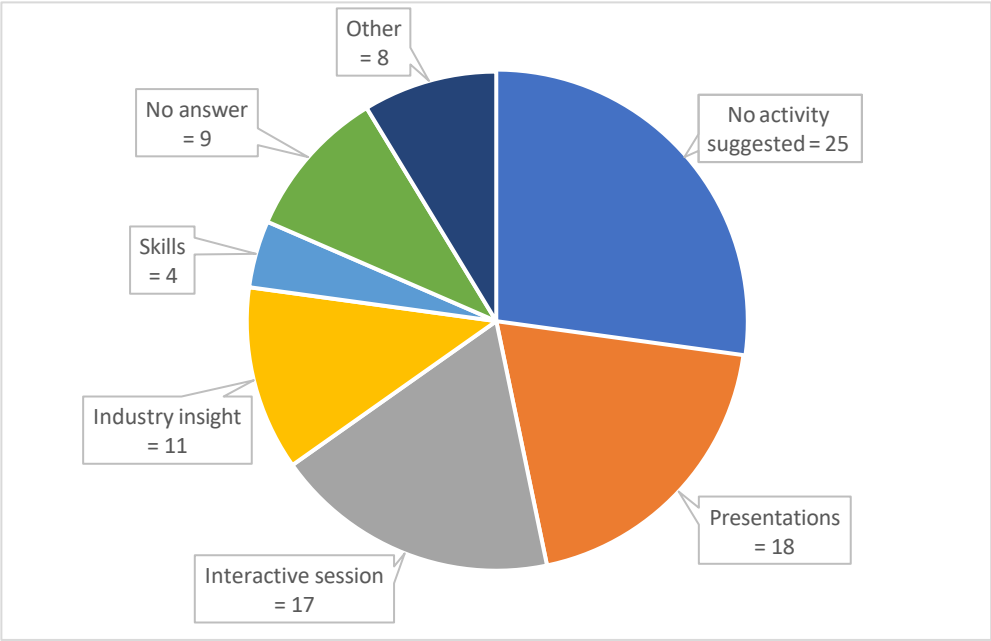

Figure 11: Suggested activities from student responses

8.9.3 Promoting sessions to students (Question 10)

When considering how an employability session for an intervention should be promoted to students, the most frequent suggestion was through email (47 participants), followed by social media (22 participants). Two key points are drawn from this:

- The vast majority of participants want information via a platform or by means which do not involve direct interaction with staff responsible for communicating about / promoting the event. It could, therefore, be inferred that this choice suggests that they want to choose whether to engage with or ignore such information.

- More than a quarter of participants (26) signify that they see employability events as important by suggesting *how* the university can get participants to attend through their comments. In this instance, that is either by making an event compulsory or by incentivising students to attend.

The full range of suggestions is illustrated in Figure 12 below.

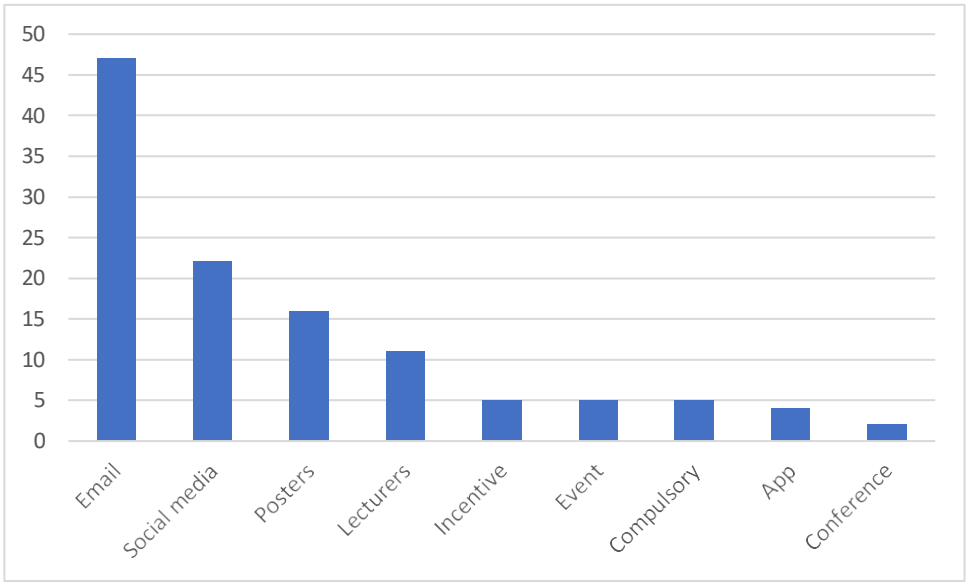

Figure 12: Frequency of students' suggested ways to promote employability session

8.9.4 Activities to follow an initial session (Question 11)

The most commonly suggested activity as a follow-up session to help students think more broadly about career options was a digital activities workshop, and this was suggested by 28 students (as illustrated in Figure 13 below).

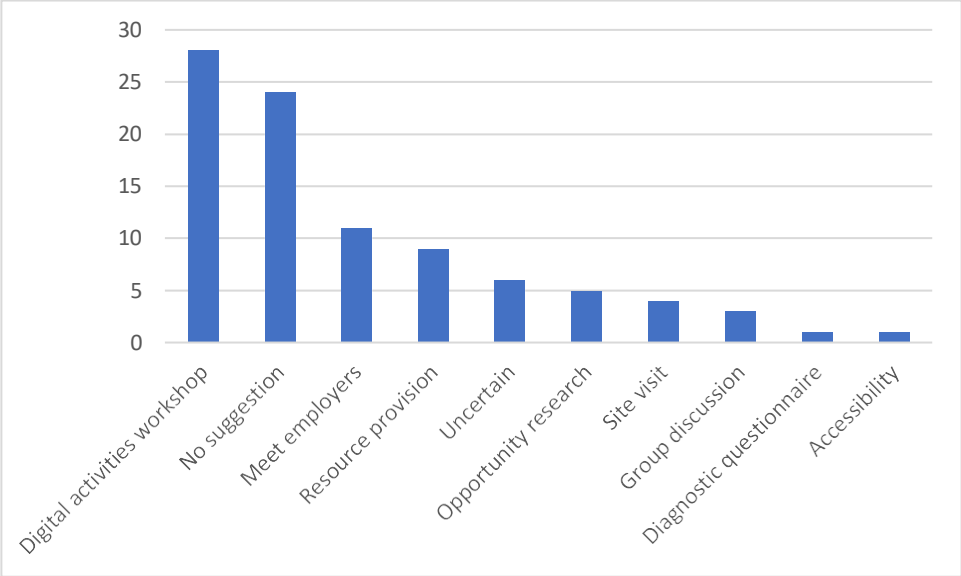

Figure 13: Frequency of students' suggested follow-up activities

Looking collectively at the 'no suggestion' response (24 participants) and the 'uncertain' response (six participants), it is clear that this was a challenging question for a significant number of participants to answer and they perhaps needed guiding more as to the possibilities. Nevertheless, a significant number of participants made suggestions for active participation which involves working with other people (45 participants in total across digital activities workshops, meet employers, site visit, group discussion).

The emerging story is that active participation events are likely to be crucial in supporting students in transitioning from being passive in their approach to broader careers to being active in exploring what they might have to offer. It is also noted that participants had more varied suggestions for follow-up activities than they did for the initial session.

8.9.5 Session length, place, venue and level (Questions 12 to 15)

In considering the view of student participants regarding organisational aspects of a session designed to engage them in broader careers options, the key findings (illustrated in Figures 14, 15 and 16 below) from these questions are:

- The majority of participants are only prepared to invest a limited amount of time in activities designed to engaged them with broader careers, at least initially (Figure 14 below), with 78 of them saying they wanted to spend two hours or less on such an activity.

- In terms of how such a session might be included, 60 participants chose answers that would mean their involvement in these sessions would be part of what they already do (either as part of a placement module or another part of their course), rather than them adding an additional investment of time (Figure 15 below).
- Most participants (74) want sessions to run at the university rather than having to travel elsewhere (Figure 16 below).

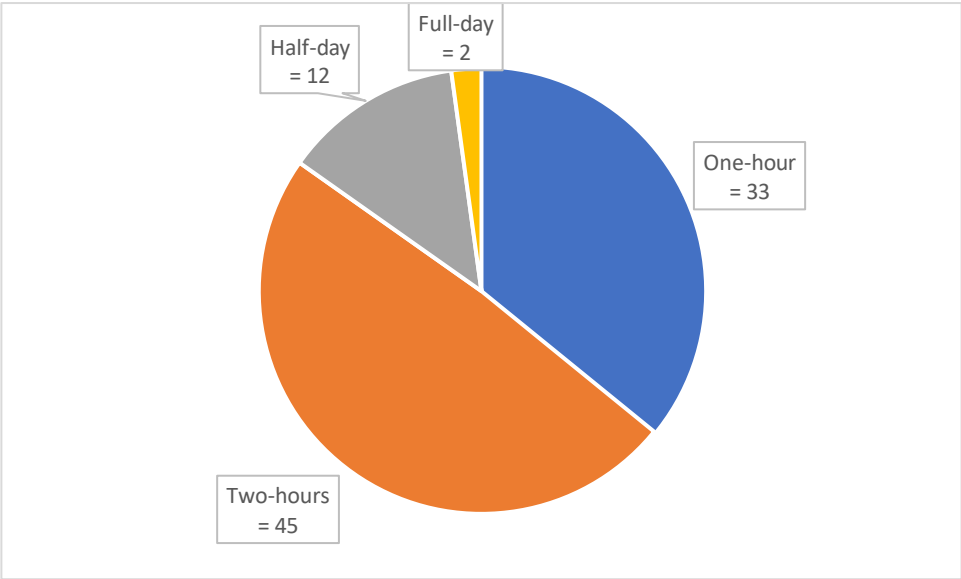

Figure 14: Ideal length of session about broader careers based on student responses

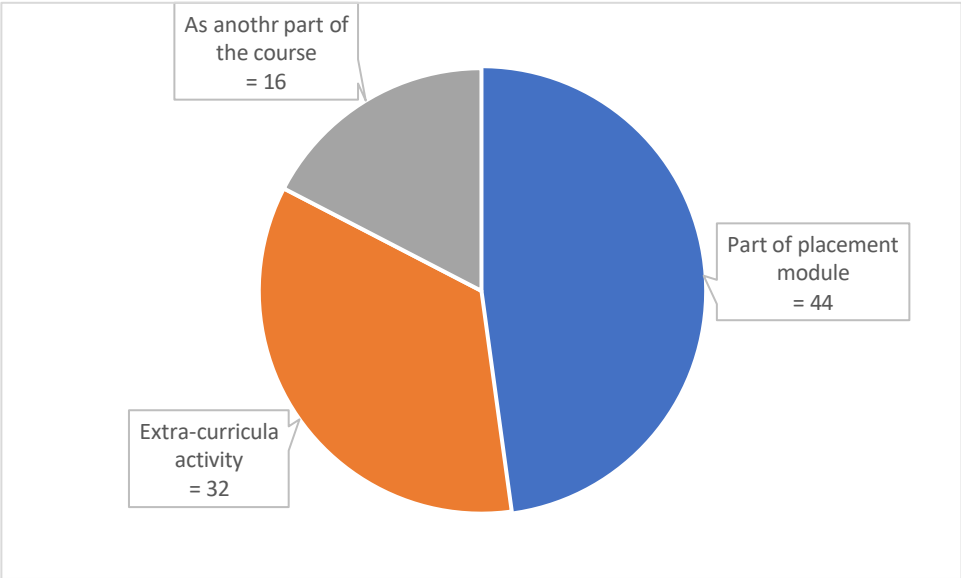

Figure 15: Best way to include session about broader careers based on student responses

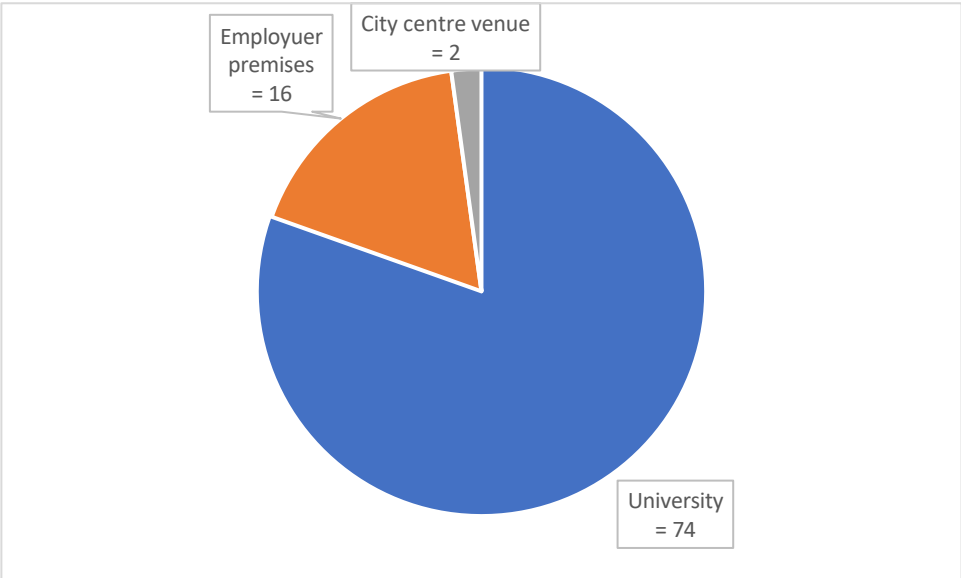

Figure 16: Best venue for session about broader careers based on student responses

Taking a view of responses to these questions collectively, this could suggest that there is an expectation that all aspects of career development and graduate job opportunities should be embedded in a programme and that to be successful in engaging students in a broader range of information and activities, this needs to be 'chunked' into small and accessible / stackable units, in other words content which builds in a cumulative way to build new knowledge and

skills.

However, comparing this to answers for Question 15 about the level at which such activities should be aimed at / embedded in provides something of a challenge as 75% of respondents suggested that such an activity should be open to all levels at the same time. This is illustrated in Figure 17 below.

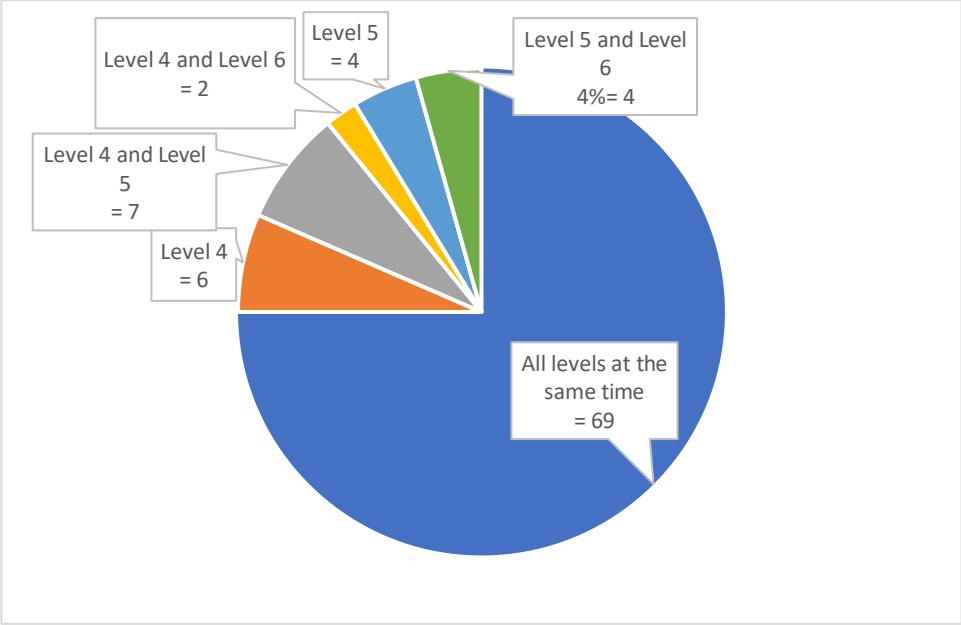

Figure 17: Suggested level(s) at which activity should run based on student responses

While such an approach offers a wealth of opportunities it also brings challenges in terms of how to embed such activities from a practical organisational point of view. In addition, the limited time investment students are willing to make in this area presents significant challenges in terms of ensuring that every activity has a 'wow' factor to engage them.

8.10 Evaluation of study workshops by student participants (Questions 16 to 20)

As well as understanding what student participants thought in relation to graduate job opportunities and potential future input or interventions, it was also important to understand their perspective on the workshops which were central

to this study.

Question 16 asked participants about the extent to which the activity they took part in had increased their understanding of what employers want and of the 92 participants who responded, 70 of them said the activity had either greatly increased (11 participants) or slightly increased (59 participants) their understanding of what employers want, with 15 participants being uncertain whether the activity had increased their understanding and seven stating that it had not increased their understanding. This is illustrated in Figure 18 below.

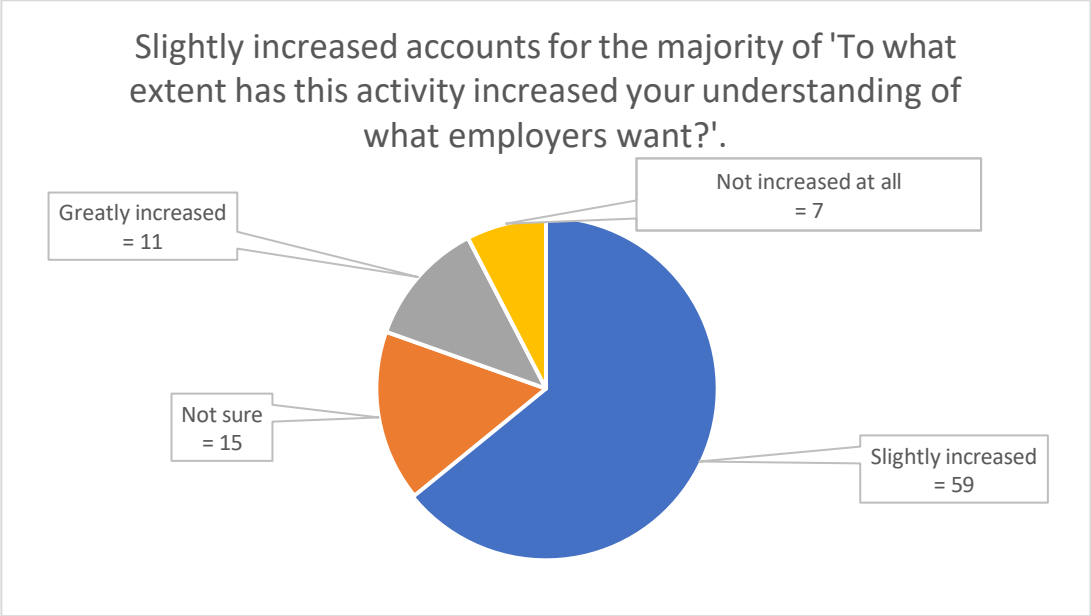

Figure 18: Data illustrating the extent to which student participants (n=92) said the activity had increased their understanding of what employers want (Question 16)

Question 17 then asked participants how useful they found thinking about the content of a careers-focused session and out of a total of 92 responses the two answers which appeared most frequently were ‘extremely useful’ (36 participants) and ‘undecided’ (33 participants). Full responses are provided in Figure 19 below. The number of ‘undecided’ participants could be viewed as negative; however, it could also be viewed that students might not know the answer to this question until they have had a further opportunity to utilise the activities and content of the workshop. This is something which could be

considered in further studies.

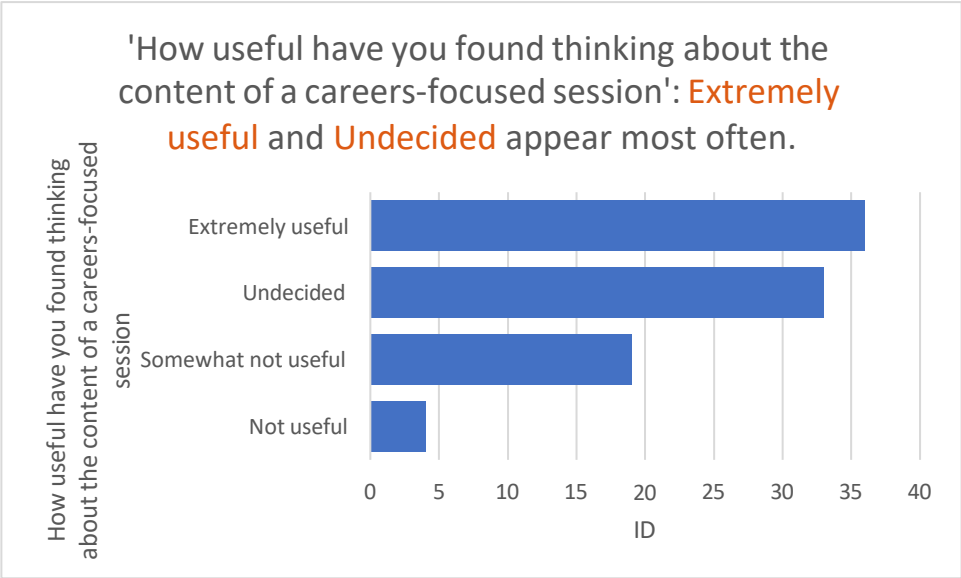

Figure 19: Data illustrating how useful student participants (n=92) found thinking about the contents of a careers session (Question 17)

Question 18 asked participants what they perceived as the most valuable aspect of the activity. This was an open text question and answers were categorised based on comments, resulting in the 13 categories which are fully illustrated in Figure 20 below. The exercise around graduate attributes and what is seen as most important by employers were seen as the most valuable aspects, with a third of student participants (33) citing this. This was followed by the discussion in the workshop, which was noted by 24 participants.

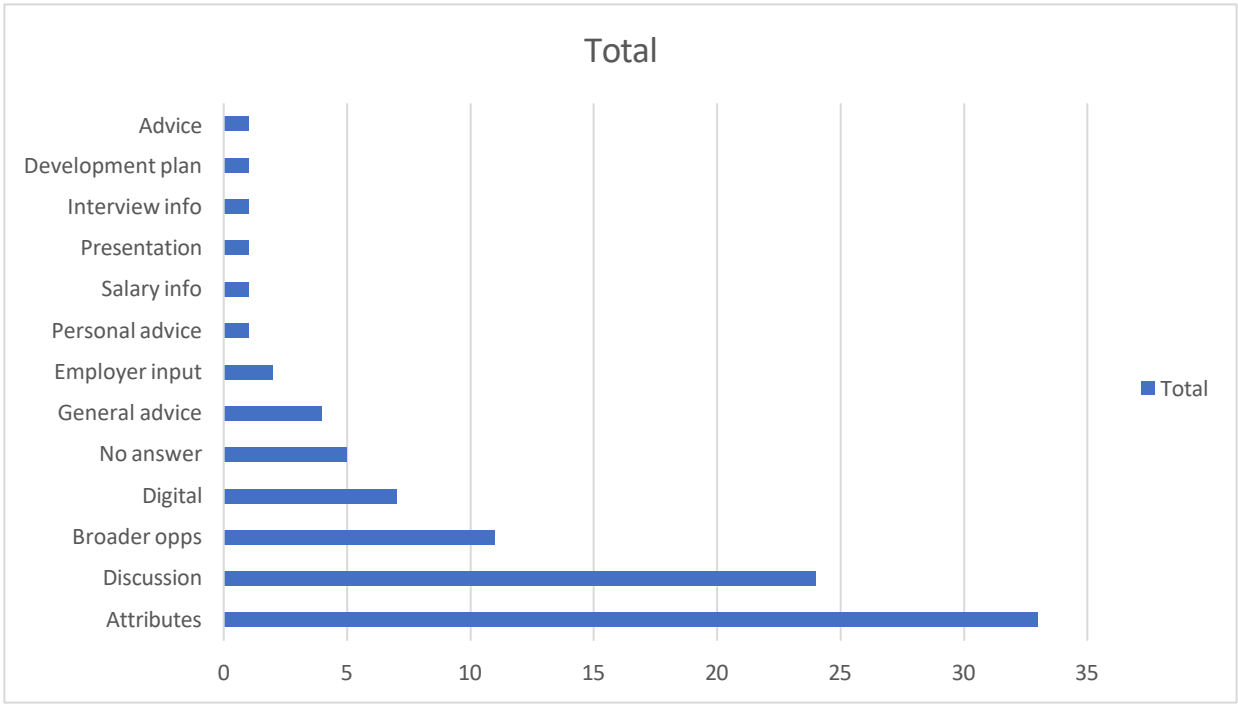

Figure 20: Frequency of participant views on the most useful aspects of workshops run for this study

For Question 19, student participants were asked what they perceived as the least useful activity. The most frequently cited answer was 'all good' (28 participants out of 92 responses) which was interpreted as participants not identifying any part of the activity as not being of use. The use of breakout rooms was identified by 16 participants as being of least use because of the lack of participation in these sessions. It is also noteworthy that nine participants said the focus on the digital and technology sector was the least useful aspect; while six of these answers did not detail why this was the case, one participant said it was of more interest to Computer Science students than Psychology students, two would have liked other career pathways included and one said it was not of interest because they wanted to go into teaching. The detailed answers to this question are illustrated in Figure 21 below.

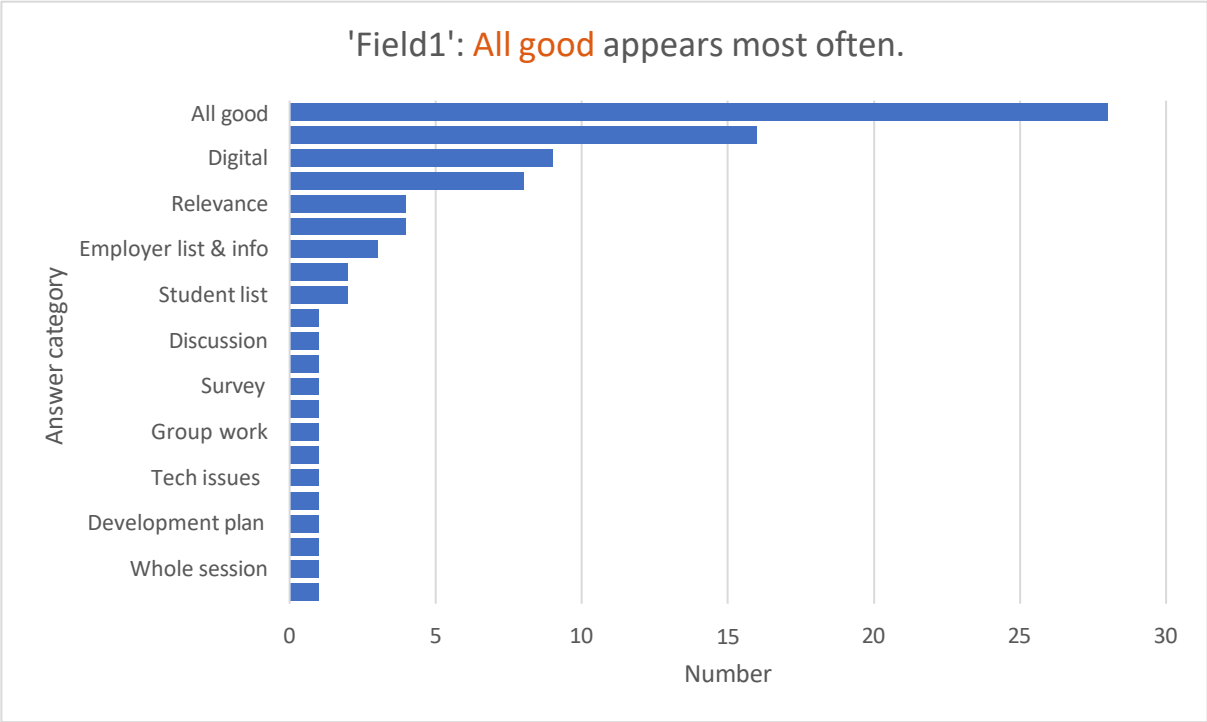

Figure 21: Frequency of responses to aspects of the activity which student participants found least useful

For Question 20, participants were asked: Reflecting on the session, what do you think are the key barriers to overcome to help students understand the wealth of opportunities available to them in the digital and technology sector? For just over a third of participants (33 students), the answer to this was 'initial engagement' (see Figure 22 below). This is of interest given that the feedback to employers on the student data resulted in a range of suggestions for activities which could be used to spark initial engagement. It is also significant given that student participants do not understand that the digital and technology sector is primarily a problem-solving sector, yet this is how employers talked about it. A further cycle of action research would provide an opportunity to explore this dichotomy.

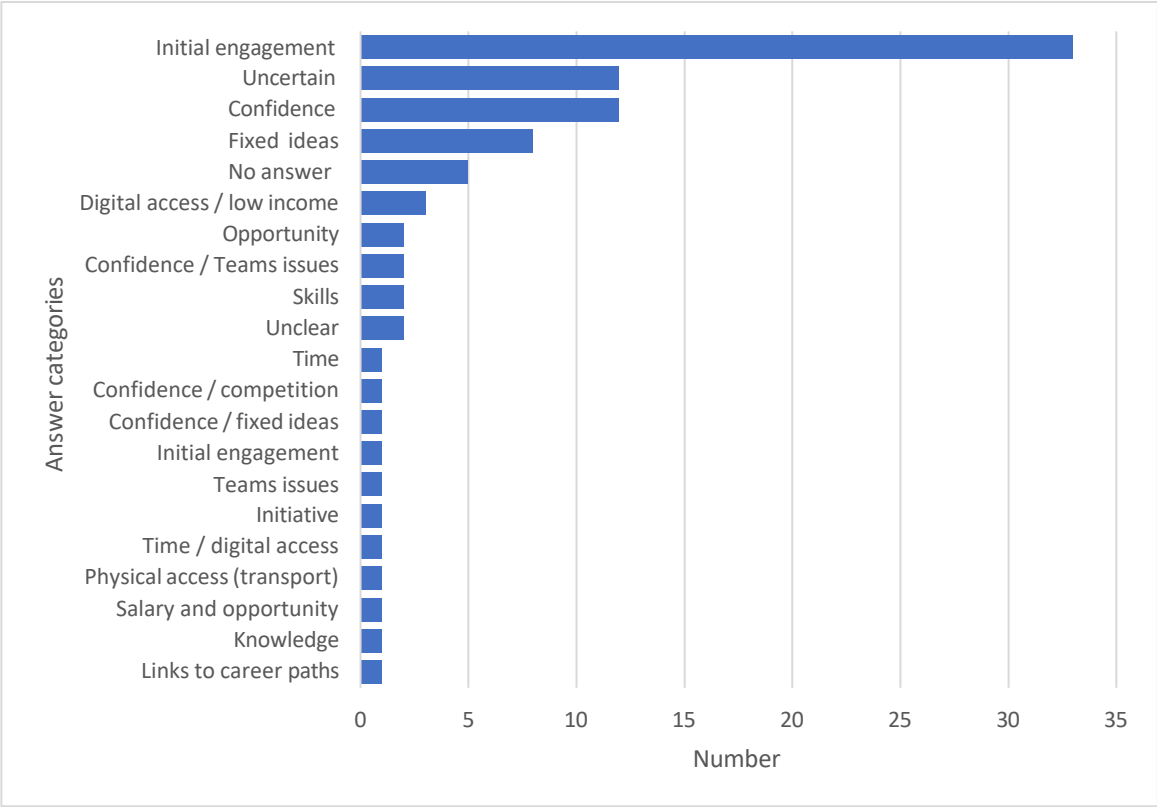

Figure 22: Frequency of responses from participants (n=92) to barriers to overcome to engage students with digital and technology careers

8.11 Overall summary of findings

This chapter, along with Chapters 6 and 7, has detailed how the data in this study was analysed and shared the findings from each component of the study. Before moving forward to the discussion, these findings are summarised.

Firstly, the workshops with employers showed that digital and technology organisations perceive themselves first and foremost as problem solvers, are open to employing students from any degree discipline and value most highly a key set of graduate attributes which are transferrable rather than sector specific. They are also open to thinking creatively about how to engage students with opportunities in the sector.

Secondly, when asked about job opportunities (Questions 2 to 6 on the Microsoft Form completed by student participants), student comments have been analysed to identify the components of the Key Drivers Models in relation

to the perceptions they have when considering job opportunities. Utilising this analysis, the model sets out:

Experience-driven component – suggests a requirement to understand what the day-to-day experience is like in a role.
Information-driven component – suggests a requirement for detail to consider an opportunity or want an opportunity to be 'sold' to them through the information.
Development-driven component – suggests a focus on training, future opportunities and career pathways.
Interest-driven component – suggests challenges to seeing beyond a 'chosen' pathway (i.e., interest is highly likely to be linked to their degree subject).
Material-driven component – suggests a focus on benefits and salary.

Threading through these drivers is evidence that participants are operational in their focus and, more than likely, focused on the immediate experience or consideration rather than being future-facing and progression focused. The analysis of student comments reveals relatively little aspiration or curiosity around job opportunities, so a key future focus required is how to generate this. This, along with participant reactions to a specified and unknown sector (in this case, digital and technology) and an unspecified and unknown sector, suggests that the lexicon around labour market sectors needs to be considered, particularly with new and emerging sectors as a high-level label for a sector may do little to reveal the reality, breadth or nuances of employment opportunities related to that sector. There is a marked difference in how students respond to a specified but unknown sector and an unspecified and unknown sector. In the case of the former, it appears that naming a sector they are unfamiliar with is more likely to give them something to react against.

The level of study of participants, who were first year undergraduate students, is an important contextual consideration but there is some evidence in the data that programme experience can have an influence on answers. Although programme of study was not captured on the questionnaires, it is revealed in

some of the answers. For example, a small number of Psychology students are explicit about the need for a link between their degree and their future career and a small number of students on media-related course made connections between the creative aspects of their programmes and the digital and technology sector. This indicates the potential for further iterations of this research to incorporate specific means to differentiate responses between programmes and other student characteristics.

While the design of any further cycle of action research and any associated employability intervention would need very careful consideration, responses from student participants as to how interventions might be framed and what they found useful about the action cycle in this study, provide a potential way forward. The data from employers and the data highlighting student understanding and perceptions and their evaluation of the activity in this study, combine to give a clear indication that initial engagement through understanding of the problem-solving nature of digital and technology should be a core focus.

CHAPTER 9: DISCUSSION OF FINDINGS

9.1 Introduction

In this research project, I set out to test an “emergent theory” (Whitehead and McNiff, 2006, p.12) that a skills gap can only be addressed by key stakeholders working together to shape the way forward. This notion was used to shape the following research questions:

Q: How can an evidence-based University-business intervention be tailored to engage students effectively in digital skills gap opportunities?

a) How do digital sector employers view graduate attributes and how does this view differ from that of students?

b) How can an evaluation of the interactions with and between employers and students inform the collaborative design of an intervention to increase student engagement in digital skills gap opportunities?

As this is an action research study, I have approached the data collection, analysis and consideration of findings with a clear view that the richness and value of the study will be as much about the process of the research and the learning from it as it is about the insights offered by the findings (McNiff and Whitehead, 2002; McAteer, 2013). With this in mind, this discussion is set out in four broad sections and includes evaluation against existing literature:

1) A summary of the findings to set the context for the discussion.
2) Consideration of the reflective and focused codes which were at the heart of the findings.

3) Consideration of the findings in the context of the research participants and the scholarly field.
4) Insights offered from and about process – the process of action research itself, the process of co-creation and the processes which sit within the University employability agenda.

In breaking the discussion down in this way, it allows the 'problem' - or the research questions – at the heart of this action research to be considered from data-centric, process-centric and human-centric perspectives. This is important given that the journey to the highly skilled and economically productive graduate outcomes demanded by government policy is not mechanistic. The outcome graduates are expected to arrive at might be defined in policy; but the journey to this is navigated by students with a range of backgrounds, perspectives, talents and ambitions; they in turn are supported by HEPs and stakeholders with their own approaches, perspectives, opportunities and ambitions and a range of relationships with employers who bring their own agendas to this mix.

9.2 Summary of findings

This study gathered data from both employer and student participants, with the largest volume of data being linked to student participants. Drawing on the information in the previous three chapters (6, 7 and 8) which focused on analysis and what emerged from this, the findings of this study can be summarized as follows:

Firstly, employers wish to convey clear messages to students that opportunities in the digital sector are open to graduates from all degree disciplines and they are willing to consider a variety of creative means to engage students in this. They are also set up to provide industry-specific training for graduates from any degree background. This was illustrated through participation in the study to support sharing of information with students to help them understand the opportunities in the digital and technology sector. Through involvement in the

discussions in student workshops and through listening to headlines from other student workshops, participating employers generated new insights and ideas for the development and implementation of further sessions to try to engage students in gaining a better understanding of the opportunities available to them.

Secondly, in reviewing the quantitative data linked to the ranking of graduate attributes, employers were able to use their expertise and experience to focus in on the key attributes which are essential to them when seeking to appoint graduates in the digital sector. In ranking the group of attributes prior to the employer workshop, 16 attributes were seen as essential to some degree by the five employers, although only two – communication skills and digital literacy – were deemed as essential by all five employers. However, every single attribute of the 33 utilised in this study was considered essential by some of the student participants. None were considered essential by all student participants but the attribute which had the highest level of consensus in terms of it being essential was communication skills (42 out of 52 students); time management (39 out of 52 students) and work ethic (38 out of 52 students) were second and third in terms of level of consensus. This suggests that Level 4 students do not have the experience to bring a sharp focus to what is essential for graduate employment – they tend to think “everything” is essential. In contrast, employers identified five of the attributes as very clearly ‘not important’ (aspiration; autonomy; efficiency; emotional intelligence; giving and receiving feedback). Nineteen of the attributes were, at some level, seen as not important by student participants but the number of students who utilised this ranking was very small for all but one attribute – language skills (particularly second language skills) but it was only 12 out of 52 students who deemed this as not important.

Thirdly, in reviewing the qualitative data collected from students via Microsoft Forms, a layered coding and categorisation process has resulted in a set of original reflective and focused categories. These have been further described and defined as a Key Drivers Model consisting of defined components which

can influence thinking when considering graduate jobs. These are shown in Table 17 below. These drivers are dominated by a focus on the operational aspects of jobs and what the experience of a job might feel like. Development opportunities do not feature heavily as a driver.

Fourthly, there is a distinct difference in the way students view opportunities in sectors that they do not know about, and which are not named or defined, and the way they view those in sectors that they do not know which are named (in the case of this study, the digital and technology sector). The quantitative data from the Microsoft Forms evidenced that students were more open to an unknown but unnamed sector. In the case of the unknown but named sector (digital and technology) they appeared to use superficial perceptions of the sector or assumptions about it to react against it. In some instances, this was also linked to their own stated areas of interest or their perceptions of or concerns about their own skills in terms of relevance or level of ability.

Table 17: Reflective and focused categories and their definitions, which form the Key Drivers Model.

CODE	DEFINITION
Code 1a: Experience (operational) driver	*A concern for or focus on the day-to-day experience of undertaking a job and understanding what being in that job might feel like or how it might impact on an individual*.
Code 1b: Experience (opportunity) driver	
Code 1c: Experience (deficit) driver	
Code 2a: Information (operational) driver	*A clearly expressed requirement for detail – often granular rather than 'big picture' - in order to make decisions about potential graduate job opportunities.*
Code 2b: Information (opportunity) driver	
Code 3a: Development (operational / training) driver	*A clear identification with activity, processes and opportunities which would support personal and professional development and career progression.*
Code 3b: Development (progression) driver	
Code 3c: Development (deficit) driver	
Code 5a: Material (operational) driver	*A clear focus on the salary and broader benefits which may be attached a job opportunity*
Code 5b: Material (opportunity) driver	
Code 2: Existing interest driver	*A clear link to areas of interest – potentially based on experience to date – and / or aligned to current areas of study, potentially with an explicit or implicit view that anything beyond this will not receive attention.*
Code 6a: Digital perception (neutral)	*Comments in relation to digital and technology opportunities do not suggest any interest in or push back against sector*

Code 6b: Digital perception (negative)	*Used where comments in relation to opportunities in digital and technology suggest a dislike of or disinterest in the sector or where concerns are expressed about not having the skills required to meet employer requirements in this sector*

9.3 Consideration of reflective and focused categories

The data which led to the identification and definition of the original reflective and focused categories shown in Table 17 above was generated from five questions (see Appendix 8, Questions 2 to 6): what would attract students to job opportunities; what would put them off; their reaction to something unspecified and unknown to them; and their reaction to something specified (digital sector) and unknown to them; and their assumptions about digital. Three of these questions (Q2, 3 and 4) were positive prompts because participants were asked what would attract them to a job; one question (Q5) was a negative prompt as it asked participants what would put them off a job; and one question (Q6) asked for reaction to a sector the participants were not likely to be familiar with. Exploring these components helped to bring the stories in the data to life and this is explored below through discussion of the Key Drivers Model and its components or reflective focused codes which emerged through the analysis process. The stories underneath these reflective and focused categories are viewed by me as fundamental to any considerations as to how my own institution – with the potential for use in other HEPs - might empower (Harvey, 2000) or motivate (Bennett, 2012) its students around the employability agenda.

Looking at these reflective and focused categories collectively, they are weighted heavily towards student participants drawing on the ‘here and now’ (evidenced by the Code 2a Information (operational) being allocated 95 times and Code 1b Experience (operational) being allocated 64 times) at Stage 2. This illustrates participants foregrounding their experience to date and focusing on the immediacy of what they think about an opportunity and what

that opportunity might be like for them now, rather than looking ahead or being future facing.

It is recognised that the components within the Key Drivers Model are not mutually exclusive and disconnected from one another. Rather, their interlinked and interconnected nature and the blurred boundaries between them have been noted throughout the data analysis and are explored further in this discussion. The reflection on cross- cutting themes and issues which are situated in and emerge from this study, draws on academic literature which covers process, identity, values and co- creation but also loops back to the policy context given the current regulatory environment and the emphasis on highly skilled graduate outcomes.

The coding and categorization process identified dominant drivers which form the Key Drivers Model by analysing what student participants foreground in their answers (what they note first) and what underpins this (what they note additionally). It is acknowledged that this is an initial reaction on the part of the participants and on my part as the researcher in the approach taken to analysis. The initial views of participants might have been able to have been further explored had the data collection been able to be carried out in-person or followed up by in-person focus groups, but this was not possible due to the pandemic. However, instinctive reaction responses were seen as an appropriate lead to follow through the questions which were asked of participants and the analysis of the resulting data. It was also useful to consider Blumer's (1969) framework of symbolic interactionism:

- People act towards things based on the meaning they attach to them
- This meaning derives from social interaction
- Meanings are utilized and modified through an interpretative process.

In the case of this research, participants have responded to my questions based on the meaning they attach to them and this meaning will derive from their own interactions through any paid work or work experience to date and

through their interactions at University, within their academic discipline, with placement preparation, co-curricular activity and broader student experience. Through the analysis and this discussion, the impact of the pandemic is recognised as a significant factor influencing interactions during the first year of University for student participants. They had only one Semester of on-campus teaching – and that was carried out in smaller, socially-distanced groups – before national lockdown meant fully remote delivery via Microsoft Teams. Many had part-time jobs that were also impacted by the pandemic and therefore they also did not have their normal work interactions. However, it is also recognised that in the first year of degree study, the extent of career considerations are most likely to be in their infancy if they are not directly related to programme of study and may also be so even if directly linked to their programme of study depending on the level of understanding of graduate routes linked to particular areas. The data have not revealed any findings which suggest deep, informed or sophisticated approaches to specific career paths.

The interpretative process in this research involved a workshop I ran with the participants where they were given a set of information which encouraged them to think broadly about their graduate job opportunities and they were also given an illustrative example of what employers look for in the digital and technology sector. Students were encouraged to take part in a verbal discussion during the Microsoft Teams sessions and were also given access to the student questionnaire on a Microsoft Form. Although the session was designed to pace students through the completion of this Forms questionnaire, there was no absolute control over how quickly students answered the questions. Reflecting back on Byrant's (2017) view of a pragmatic approach to grounded theory, it is important to note that this data and the associated discussion does not signify "once-and-for-all-time-truths" (p.337) with regard to student views linked to broader graduate job opportunities but it does provide information that helps to develop knowledge and understanding of a particular student cohort at a point in time and provide useful information which can be applied to developing activities and interventions to support broader thinking. In other words, it fits

with Bryant's notion of being "useful as the basis of effective action" (p.341) and also provides a framework and process for potential further use.

The ability of HEPs to be able to take any form of effective action in response to a fast-changing labour market by influencing the supply of graduates, and particularly the skills and behaviours of graduates, is challenged in the literature and this provides a focus for deep consideration about the way institutions design and implement provision to address this. In a study involving interviews with 30 hiring managers Finch et al. (2013) noted the importance of the development of soft skills and the need for these to be prioritized. However, in noting the gap between what is taught and the needs of industry, they suggested that the needs of employers were changing faster than institutions could adapt programmes. Responding to this pressure, it would seem calls for flexibility are appropriate in programme design and pedagogic approaches, particularly utilising problem-based learning and co-creation so that course provision achieves a balance between discipline content and flexibility to respond to the external climate. While such an approach might seem like a workable blueprint, it also requires staff knowledge, development and openness to different ways of working and agile, connected approaches to utilising employer intelligence.

In considering how HEPs approach academic provision and broader support for the employability and graduate outcomes agenda, Harvey's (2000) positioning of HE's role in empowering students as "lifelong critical and reflective learners" (p3) is highly relevant to this research. This study connects directly with his notion of institutions moving beyond the simple accommodation of the requirements of the employability agenda and shifts the power dynamic in favour of learners. It has not provided the answer as to how to do this and it would be a mistake to think that any answer in relation to achieving this was fixed as this would ignore the need to be mindful of changing cohorts of students and changing external circumstances. However, one of the underpinning elements in this study design was the idea that connecting students with new and broad opportunities was 'not a tell' but an open, creative

introduction which would allow for exploration and discovery of opportunities but also space for the skills and interests of individuals. The findings show that students have the potential to react negatively to things they perceive as not being of interest, not being linked to their degree or being outside of their skillset but, in terms of the digital sector, there is much to challenge this reaction.

The findings from the employers' inputs in this study show that they are open to employing graduates from any discipline, that they provide training to support the development of specific skills needed in digital sector roles and that the industry includes a rich myriad of roles which do connect directly to degree disciplines involved in this research, as well as the other skills, often referred to as soft and transferrable skills, developed alongside discipline knowledge. There is a barrier, however, in that there is little understanding of the rich array of roles that are situated in digital and technology organisations. Sharing with students the roles and opportunities on offer can only ever be part of the equation but, as a result of this study, it is viewed as an important component because it has the opportunity to address myths and misunderstandings. In addition, the suggestions for 'interventions' which have emerged as part of the shuttle co-creation process provide a way forward for a further cycle of action research but one which puts students in the driving seat in terms of participation in activities and discovery as a result of these activities. Exploring these activities will be a valuable next step but it is not expected to provide the complete answer to addressing this agenda even though the power dynamic will ease towards students through the place of student voice and co-creative practice.

9.3.1 The dominance of an operational focus

The three stages of coding (discussed in Chapter 6, 7 and 8) have revealed a significant dominance for the 'experience' and 'information' components in the Key Drivers Model and the greatest blurring of boundaries between codes could be said to be between the experience and information drivers as both have a

clear focus on granular detail. The distinction between them is derived from the way participants express themselves, with those coded as experience show a focusing on being able to understand what something might feel like rather than simply the acquisition of information in relation to an opportunity. Bearing in mind this subtle distinction, the results of the analysis suggest that a focus on operational and immediate day-to-day issues rather than broader career progression and being 'future-facing' may be something for universities to consider in framing work linked to employability and the labour market. In terms of this study 'future-facing' is seen to be characterized by:

> *A focus which considers personal and professional progression and the potential of opportunities to support on-going career development and is able to see beyond the day-to-day operational experience linked to a place of work.*

It is acknowledged that in this study I did not specifically or explicitly ask student participants about their long-term future. What I did do was set the context of the broad potential of graduate job opportunities and give an example of one potential pathway that students might not have appreciated was open to any degree discipline. Student participants were then asked about their approach to opportunities so, in that regard, the notion of future careers was implicit. However, the definition of 'future facing' is one which is seen to have merits beyond this study, and beyond my own institution, as it could be used as part of the further development of a Graduate Skills and Attributes Framework beyond a range of individual components that would capture an overall approach.

Alongside the volume of code allocations for 'information' (112 in total) and 'experience' (118 in total), a review of the emerging stories (see Appendix 14 for Stage 1 Emerging Stories and Appendix 15 for Stage 2 Emerging Stories) which were drafted at each stage of coding reveals the dominance of the requirement for information – often granular – upon which to take a decision.

At Stage 1, and in relation to Question 1, it was noted that the day-to-day

experience of a potential job appeared to drive student thinking, suggesting that the level of information provided through an initial job advert, and then potentially at interview, would be crucial in attracting interest. This raises the notion that the overall approach of student participants to opportunities would be driven by their personal perceptions, concerns arising in reaction to that information and the meaning they attribute to it, rather than being immersed in opportunities afforded by their educational experience or driven by future-facing and broader opportunities. In addition, in relation to Questions 2 and 3 in the Stage 1 coding, the emerging story was framed around my question: *Does the predominance of the requirement for clear information suggest a passive, "sell to me" approach by participants rather than an active and curiosity-driven approach?* Overall, this resonates with the transactional view of HE, where education is no longer primarily seen as bringing collective value to life, culture and democracy (Kelly, Fair and Evans, 2017) and results in a focus on the final outcome rather than the actual process (McGettigan, 2013.

As noted in Chapter 3, Section 3.2 and Chapter 7, Section 7.1, the views of the group have been treated as homogenous Level 4 views and the study did not collect gender, discipline or other demographic data, although discipline views have naturally emerged in two clear instances. One of these was in relation to Media and Journalism students who made clear links to specific areas of industry when asked about what assumptions might be made about the digital and technology sector. The second was in relation to Psychology students who were most likely to mention their degree discipline in the context of thinking about careers and in wanting to have a specific connection with their area of study and their future career. While it could be considered that the dataset might have been enriched through capturing demographic information, there are clear advantages to having treated the participants as a homogenous Level 4 group. Firstly, this approach connects with the fact that many graduate careers are open to any degree; secondly the study avoids viewing the data through subject silos but has identified potential routes for further exploration through the way subject connectivity has naturally emerged through the data, albeit linked to a relatively low number of answers.

In reflecting across the stories which emerged at Stage 1, the responses to Question 8 and 9 are notable. These questions asked student participants about what they would want out of a session designed to interest them in broader careers, what it might contain and how it might be delivered. The dominant theme was information and only 18 students asked for an interactive session; 25 did not know what activity to suggest and nine did not give an answer. It is recognised that these were potentially challenging questions for Level 4 students who were at the end of their first year of University and whose experience had been dominated by the COVID-19 pandemic, with the second semester of their studies characterized by a national lockdown and a revert back to remote learning. However, the answers given further suggest two potential issues. Firstly, that there is potentially a predominantly reactive approach in that participants want to find something that sparks their interest before they actively pursue an opportunity. And / or, secondly, that they are not yet aware enough to understand the activities which might be beneficial in exploring graduate job opportunities. These are not necessarily mutually exclusive perspectives and reinforce the place and potential value of pro-active stakeholder engagement with students.

As noted at the start of this chapter, there are blurred boundaries between the components of the Key Drivers Model and they do not sit in isolation from one another and this is particularly the case with the information and experience drivers. The meaning given to the ‘experience’ driver was:

> *A concern for or focus on the day-to-day experience of undertaking a job and understanding what being in that job might feel like or how it might impact on an individual*.

And the meaning given to the ‘information’ driver was:

> *A clearly expressed requirement for detail – often granular rather than ‘big picture’ - in order to make decisions about potential graduate job opportunities.*

In reflecting on these drivers further, the information driver is seen as a more distant and clinical approach, with participants seeking detail that might help them consider an opportunity. The experience driver is seen as a more connected and human approach as it is characterized by participants thinking about how an experience might feel and be lived. This could be explored further if the components of the Key Drivers Model were reframed as ‘steps’ around which a process of personal and professional development could be framed. This is further discussed later in this chapter under the section headed “Utilising drivers to evolve practice and drive further co-creation” and is seen as a key original outcome of this study.

9.4 Consideration of participants and their evaluation of the workshop

The participants in this study were first year students who took part in the workshops where data was gathered at the end of their first year and prior to going out on placement. This study was framed around the skills gap in the digital and technology sector and while the highly-skilled nature of the sector may mean that it is also seen as highly-specialist, it recruits graduates from any degree background. This open nature of the sector, along with the fact that the student participants were only a third of their way through their degree programme when they took part in the study and therefore likely to be at an early stage of career thinking, was seen as justification to take this approach. The findings of the study show significant focus on operational detail of opportunities rather than the developmental potential in them. While the educational journey at the University where this study was based is shaped around embedded employability, a developmental placement structure and a clear focus on graduate outcomes, the value the institution places on this does not emerge in the way student participants respond to questions about job opportunities.

Considering the findings from student participants, they place value on their immediate experience rather than their developmental opportunities and broad future focus. This is, perhaps, not surprising given that they are first year

students but it can be seen to reinforce the complexity of career decision making-highlighted by Amir and Gati (2006) and the need for career management resources (Monteiro, Ferreira and Almeida, 2020), along with the relative lack of experience in decision making. With this in mind, it adds a further layer of consideration for HEPs in terms of the breadth of what they need to cover through the employability agenda in order to support students developing attributes, valuing the process of the journey through their degree and into graduate outcomes and developing their competence and confidence around decision-making. This is particularly resonant in a changing labour market where career adaptability (Hamzah, Le and Musa, 2021) will be a feature of their working lives. It is useful to also consider Jackson's (2016) notion of "pre-professional identity" (p.926) which is viewed as the means of connecting skills and qualities with an intended profession. This notion is significant where students have an intended profession but is more challenging where this intent is unknown, where the labour market is changing so rapidly and where there is a requirement, need or desire to connect students with skills gap opportunities, a specific need that has emerged in the labour market and local policy relevant to the geographical location of this study.

With those skills gaps in mind, this study considered student perceptions in relation to the digital and technology sector by asking: If you hear the phrase "digital careers", what springs to mind and what assumptions do you make? (Question 6). The answers were sorted into seven different categories (shown in Appendix 22) and these were then categorised as neutral or negative perceptions related to digital and technology sector opportunities. Two interconnected themes emerge from this. Firstly, 61 of the perceptions were coded as neutral and only 11 as negative and this could suggest that the issue to address is that of understanding of the sector among students rather than any need to 'campaign' to change perceptions. The second is that in order to address understanding of the digital and technology sector, there is significant work to do around the lexicon used in relation to it. As the responses to Question 6 illustrate, where students were able to express anything about the sector, it was functional and task-oriented and did not relate to the creative,

people and problem-solving focus of the sector (as outlined in Chapter 6, Sections 6.3.1. and 6.3.2).

To support thinking in relation to further cycles of action research, participants were asked to evaluate the workshop in which the data collection was included (Questions 16 – 20, with findings discussed in Chapter 8, Section 8.10). In the evaluation questions, 33 students said they found the exercise around graduate attributes most valuable, and 24 students said they found the discussion aspect of the workshop the most valuable. The highest number of responses for 'discussion' were in workshops one and two (20 answers in total) and these were not workshops where employers were present. In contrast, only three students from workshops with employers cited 'discussion' as the most valuable aspect. These findings could be interpreted as suggesting that the discussion was more valuable when employers were *not* present but such a conclusion would not take account of a number of potentially modifying factors – that the Microsoft Teams environment was a barrier to full involvement in discussion so could have influenced answers; that the discussion was framed around attributes and, therefore, there could be some crossover between these two answers and the way the questions were framed did not allow for understanding the extent to which that might be the case. It cannot be assumed that addressing these potentially modifying factors would necessarily result in a higher number of students citing value in discussion with employers but that does not mean to say that serious and on-going attention should not be given to the place and voice of students as stakeholders in the employability agenda, alongside employers.

9.5 Situating the Key Drivers Model within the scholarly field

9.5.1 Participants, process, empowerment and self-identity

In exploring the findings of this study, I am acutely conscious of the myriad of language used in relation to employability and the complexities the literature reveals in terms of how scholars have framed, defined and sought to

understand this field. In addition, I am acutely conscious of the challenge of working through this complexity when engaging stakeholder groups in action research in this arena and addressing the demands of a shifting labour market (Hamilton, Baldwin and Zehner, 2013; Collet, Hine and du Plessis, 2014; Williams, Dodd, Steele and Randall, 2016; and Artess, Hooley and Mellors-Bourne, 2017). In traversing this landscape, there is a balance between the value the institution I work for places on employability as a central part of educational provision and the need to question attitudes, approaches, values, assumptions and actions (Bolton and Delderfield, 2018) when working directly with stakeholders and seeking to understand the impact of real-world practice. In the literature review, I made sense of complexity in the employability field by defining my own typology (see Chapter 4, Section 4.1) and considering what is said about the concept of employability, what is said about attributes and what is said about process, identity and capital. It is appropriate, therefore, to consider how the components of the Key Drivers Model which have emerged through analysis of the data in this study fit within this landscape. Reflecting on the data analysis, it would appear that the Key Drivers Model which emerged as a finding of this study is informed by the *process* (Barrie, 2007 and Holmes, 2013) that students have been through to date, both in terms of education but also their experience of work and that they can be further informed by the *process* of their University education and experiences. In considering the *process* within the University which helps to shape employability and the journey to highly-skilled graduate outcomes, it is important to consider the role of all stakeholders and, in particular, how students are *empowered* (Harvey, 2000) around this agenda. This empowerment can potentially be developed through the educational and broader experience of provision the University puts in place but also how it involves students in what it puts in place, as was the basis of this study.

This study has given due consideration for how students can be empowered around the employability agenda and, in that regard, the study is dealing with individuals and their *identity* (Holmes, 2015; Jackson, 2016) as the students see it as any point in time and how it will emerge over the course of their

educational journey. This links further to the consideration of the development of *self-identity* (Bennett, 2012) and the notion that motivation and interest will be high if students consider an activity to be meaningful and important. Universities, therefore, need to consider carefully both what students perceive as meaningful and important at any given point in time and how they might help students explore and potentially understand what could be meaningful and important for their future development, as well as provide them with opportunities to apply and articulate their experience(s).

9.5.2 Supporting the emergence of graduate identities and capitals

In reflecting on the results of the data analysis, this research shows that notions of graduate or pre-professional identities are most strongly expressed where students relate their consideration of job opportunities aligned to their interests and / or their programme of study. While this alignment to existing interests or areas of study emerged least frequently in the study, the views expressed by students are clear but tend not to be focused on further development. Where this occurs, there is both an indication that students want to follow a particular pathway but also that some consider they are on a particular pathway and, therefore, it should not or cannot be deviated from. For example, in relation to Question 3 (What information might make you consider a graduate job opportunity in the digital and technology sector?), seven answers have alignment to or mention an existing interest; five make particular mention of connection to field of study and two of these are specific to Psychology. While the numbers of students in this study who make an explicit link from course to future career are relatively low, it is nonetheless an important consideration when shaping employability and careers content. Further study could explore this particular driver and its prevalence across different areas of provision which would, in turn, inform the development of approaches to working with students.

For Holmes (2015), the notion of becoming a graduate is aligned to that of an emerging identity which develops through processes and interactions and then, the ability to “warrant their claim” (p.118) to graduate employment. What the

results of this research suggest is that the ability to “warrant a claim” is not a destination that is suddenly arrived at and, with a range of drivers influencing student perceptions, it is a journey that will most likely be different for each student. The process of action research cycles, aligned to an evolving labour market and changing student demographics, is crucial therefore in refining and redefining the processes and interactions to support students to this point. The notion of emergence of identity makes clear the journey that students must go on to arrive at a point where they are ready for the graduate labour market. However, graduate employment should not be viewed as a static endpoint, with the only outcome being that which is the first destination for students after graduation, particularly not in the context of a changing labour market and the challenges of the fourth industrial revolution (Schwab, 2016). It is evidence and findings from research studies such as this one which should be used to inform policy discussions, policy and regulatory consultations and form part of the evidence-based evaluation landscape required by the new approach to Access and Participation (Office for Students, 2023).

Reviewing Key Drivers Model and the associated components identified in this study against the framework of the graduate capitals model (Tomlinson, 2017) helps to shine further light on areas which may need on-going attention in the employability and graduate outcomes agenda. In particular, scrutinising the learning outcomes associated with each of the capitals (Tomlinson and University of Southampton Careers and Employability Service, n.d.) suggests that, in the first year of study at least, students lack experience of and exposure to interactions with labour market opportunities in the context of graduate outcomes. This lack of maturity could be seen to manifest itself in the following abilities or behaviours: to interpret labour market opportunities; to draw on the breadth of their experience to consider the skill and attributes which might apply to different opportunities; to understand how the labour market is changing and what that means for their graduate career generally and their discipline specifically; demonstrating the capacity to be adaptable. However, understanding the potential influences on student thinking at a particular point in time provides an anchor point for a development journey and a means through

which to develop ‘roadmaps’ of developmental opportunities aligned to these drivers. While the Key Drivers Model and the associated components identified in this study have emerged through work with first year students, this is not a barrier to it being utilised in subsequent years of study. Indeed, understanding the way the Key Drivers Model evolves through the different levels of a degree programme would be a useful follow-up piece of action research which may provide a scaffolded profile of the model and its components through the course of an undergraduate degree. The ability to utilise the model and aligned findings of this study to inform action research through the journey of a student cohort is considered a significant outcome of this work.

9.6 Institutional and research process

9.6.1 Consideration of the University and its process

The reinforced regulatory emphasis on graduate outcomes, with institutional performance required to be at a level defined as part of Office for Students Condition B3 of registration, provokes questions and considerations around the process students go through to become graduates capable of transitioning to highly-skilled outcomes and the connectivity of the career development agenda within HE. The puzzle or challenge of connectivity to the labour market and the potential for this to impact on graduate outcomes cannot be discussed without consideration of the policy context and the perceived *value of* HE. As policy currently stands, it suggests that the *value of* degree education is only realized if a graduate achieves a highly-skilled outcome, earns a high-level salary and, therefore, helps to contribute to economic prosperity (Donelan, 2021; Office for Students, March 2022 and July 2022). This research acknowledges the significant body of employability literature that argues the focus on employability and outcomes undermines the fundamental *values in* the system that sees the importance of education in its own right for individual and societal gain. However, it is based on an acceptance of the central place of employability and makes the case that HEPs cannot be distant or afford to be seen as distant (Harland and Pickering, 2011) from this agenda. Consideration has been given

to Collini's (2017) view about the downgrading of academic voice in a system which places contribution to economic growth above social, cultural and intellectual contributions. In reflecting on the findings of this action research study, it is clear that in a challenging and changing labour market there needs to be significant reflection on the place and shape of academic voice, alongside student and employer voice, within this context. This study was designed to consider how these voices might interact differently and, potentially, more impactfully to address these challenges.

This study makes an original contribution in this regard in that it reflects the need to balance these competing tensions; it was designed in such a way that it made institutional academic voice, alongside student voice and employer voice, part of the discussion about how to resolve a labour market issue. It is acknowledged, however, that beyond this project, taking this action research to a further cycle will require consideration of how the academic voice of the disciplines is included. Nevertheless, this study can be said to be giving consideration as to how a University is exercising its societal responsibilities (Maughan Brown, 2016) and taking part in the kind of social engagement which contributes to skills transfer which Abrahams and Fitzgerald (2015) argued should have equal status to research. Walker (2004) argued that teaching and learning at University should raise questions about how to live your life as much as it should raise them about what job you might get and, in reflecting on this study, the case is made that these two things are not separate, particularly in a labour market changing under the influence of technology and recovering from the impact of a global pandemic. Within the local context of Leeds, the issue of inclusive growth is front and centre of considerations about how the city capitalises on its digital growth and specialisms for the good of all. This, as an agenda, would seem to be a key societal issue and piece of social engagement which would fit with the wider context of HE and, at least, the kind of evolutionary (if not revolutionary) development of HE and its contribution to a knowledge economy outlined by Abrahams and Fitzgerald (ibid).

In Chapter 2 (Section 2.4), consideration was given to potential actions by

HEPs and how this might be viewed. It was acknowledged that working with multiple and external stakeholders to address a labour market issue could be seen place value on “trainability” over discipline education. This study did not set out to understand discipline identity in the context of the employability agenda but it did aim to understand how students might be encouraged to think broadly, and therefore beyond subject discipline, about job opportunities. However, some discipline identity has naturally emerged in two particular areas. Firstly, with regard to students studying Psychology there was the emergence of a very strong identity which drew a clear line between degree subject and desired field of employment in a small number of students.

Secondly, with regard to students studying Media and Journalism, there was an apparent ability to identify with what opportunities in digital and technology might look like. In further studies in this area, it would be appropriate to consider whether the notion of discipline identity can be explored and understood further. The tension between competing demands in HE to deliver on required regulatory outcomes is recognised but the case is also made that this tension can be best addressed – and genericism potentially avoided – by setting the conditions for meaningful and impactful interaction, including pedagogic discourse, between all stakeholders, including discipline stakeholders. This will not be achieved through one process or approach but through recognition of the complexities of the sector and the labour market and the need for students and graduates to be able to articulate their experience at different levels, including ‘local’ to discipline and ‘regionally’ to any context or opportunity they made be faced with.

The notion of process within HE and the impact of this as students progress through education and particularly higher education, is a common feature of employability literature (Barrie, 2007; Holmes, 2013; Holmes, 2015) and can be seen as the “process by which someone moves in, through and on from higher education into their post-graduation employment” (Holmes, 2013, p. 549). This ‘movement’ or journey will be complex, multi-faceted, personalised and influenced by context. This study has engaged strongly with what Holmes

(2013) notes as the macro level of national and regional policy and has engaged to an extent with the micro level by looking at how HEPs connect with the agenda of employers, particular around skills gaps. Its significant focus has been on what Holmes (ibid) identifies as the meso level by seeking to understand how to mediate between national policy on the one hand and employer needs on the other, particularly in the context of a skills gap. However, this mediation has been viewed as a space in which the stakeholder view of students should be paramount and, to operationalise this it sought to use a co-creative approach involving students and employers.

As noted in the opening section of this chapter, the process of interaction within and alignment to the University experience for the student participants in this study was limited because of the global pandemic. However, understanding the process for students and how this might impact on their development towards graduate employment is still an important consideration for HEPs – although thought must be given to the process or processes that institutions can control and those which they have little or no control over. So, in relation to employability, HEPs have agency and influence over the following processes and the potential to influence how students engage and interact with them:

- Control curriculum design and its relevance to broader labour market contexts.
- Making assessment authentic and applied so that students are using skills relevant to the workplace when they are being assessed or they are producing assessments which have use beyond the University (e.g., artefacts for creative portfolios, enterprise projects or community engagement projects).
- Embedding employer-led content and assessment into the curriculum to support development of networks and engagement with real-world contexts and issues.
- Providing frameworks and services for developing career pathways
- Providing opportunities for students to engage in co-curricular activities which support development of networks and labour market

understanding and which empower them.

Participation in any one of these activities could be seen as a single process of engagement and a value could be assigned to it. Where there are multiple activities, then the case is made in this research that the process of engagement becomes networked and is, therefore, richer. It is the interaction of processes, such as those outlined above, for each individual student which helps to define the student journey through HE and on to graduate employment. HEPs need to ensure the processes students are subjected to are not shaped and experienced as mechanistic or generic but are made engaging through a student-centred, co-created and contextualised approach. For individual students, interactions could be further enriched (or potentially diminished) by processes which students go through which HEPs cannot control and possibly do not know about, including personal employment, volunteering and general life challenges and opportunities.

Although the activity utilised in this research study was a single timetabled event, it could be said that it encouraged participants to engage in a number of processes, framed around the notion of adaptability to a wide range of careers (Fugate et al., 2004), as follows:

- Engagement with a list of graduate attributes and a requirement to rank them.
- Engagement with a short presentation about labour market opportunities
- Engagement with and reflection on a handout outlining employer requirements in the digital and technology sector; this was by way of an example of a seemingly specialist sector which is open to any degree background.
- In some instances, engagement with a short session to hear from an employer from the digital and technology sector about how open that sector is to any degree background.
- Engagement with a questionnaire which encouraged reflection on approaches to graduate job opportunities and University activities to support engagement with broader graduate job opportunities.

While this study took the digital and technology sector as a focus, the reflection above on processes and student interaction with them does indicate that it has application beyond this specific sector context. The activities were also framed to help students understand their potential agency in broadening their approach to graduate job opportunities, acknowledging Harvey's (2000) assertion that employability is a subset of lifelong learning and requires the balance of power around this to be shifted to learners. This research study can claim to have taken a step towards this shift in power by engaging students in a partially co-creative process towards designing an intervention. In designing this research, I took the view that a co-creative process was a positive way to shift the power dynamic but that it also required the involvement of employers. By encouraging key stakeholder immersion in how to engage students with key labour market opportunities, this research is cognizant of Boden and Nedeva's (2010) concern that the state had assumed responsibility for framing employability discourse. In the current policy climate, the voice of the state cannot be ignored or dampened but, in the context of an evolving labour market and one with skills gaps, HEPs can support other stakeholders (students and employers) in coming to the fore to address requirements in a way that should have more meaning for all key stakeholders but especially the students.

9.6.2 Consideration of the co-creative process

The online data collection environment meant there was a lack of visible presence of student participants in the workshops due to reluctance to use cameras. This impacted on the ability to facilitate discussion and resulted in facilitators leading the discussion with employers, rather than students being directly involved. The discussion was framed in such a way that it could inform the completion of the Microsoft Forms questions by students, but it is not possible to know the actual extent which this informed answers or, potentially, influenced views. The impact of the above three issues changed the nature of the co-creative process. Rather than a shared, collaborative and unified process, the co-creation was facilitated through what I implemented,

experienced and conceptualised as a ***shuttle*** process outlined in Chapter 5, Section 5.9. Co-creation in the context of work-integrated learning is considered by Ruskin and Bilous (2020) but they also note that there is little in the literature around work with community and industry partners. Their notion of "redistributing power" through co-creation is relevant to this study in that the University has stepped into the role of a facilitator to better understand stakeholder views in order to inform its work.

In reflecting back to the way co-creation is defined in the literature, this study has embodied Healey, Flint and Harrington's (2014) notion of working in partnership with students as a process, rather than an outcome and, in this study, the student participants can be said to have been involved with both the scholarship of teaching and learning (because the study was seeking to understand how approaches to teaching and learning can support students in engaging broadly with the labour market) and with curriculum design and pedagogic consultancy (because their views informed decisions on how to run a session to engage students with a broader range of opportunities). As an action research project, however, this study has taken a number of steps to resolve an institutional and sector-wide issue, but it has not completed the process – that will require further action research cycles.

The study has, however, challenged traditional roles and structures (Bergmark and Westman, 2016). It has done this by not simply translating what the institution knows about labour market requirements into content – thereby making engagement with skills gaps and broader opportunities a 'tell'; rather it has used the action research process to try to understand the potential ways that students might understand and engage with such opportunities. Bovill (2014) noted that students involved in co-creative projects are often *selected* by one means or another rather than naturally involved. The pandemic meant that the data collection in the present study was embedded in workshops which students were attending anyway and the selective process at work was that students could opt out. This non-selective sampling is viewed as a strength of this study in that it captured views of a range of students who were taking part

in a workshop as part of placement preparation not just the views of those who actively opted in to participate through specific interest in the study.

9.6.3 Consideration of the action research process

This study was based around the traditional plan, act, observe, reflect cycle of action research. While it was established with a very clear understanding that action research is not necessarily a linear process, it has not broken outside of the boundaries of the traditional four-point cycle (McNiff and Whitehead, 2002). In terms of learning from this process, the key consideration which has emerged from this study is the scale of the action within the cycle against the scale of the issue or problem around which this study was focused. The graduate employment agenda and the associated issues are of national, regional, institutional and individual significance. The agenda is vast, as is the field of literature which accompanies it.

This study was formed around a local issue – a digital skills gap – which connects to this broader agenda. It was always understood that one study would not yield or offer the complete or only answer as to how the skills gap could be bridged, However, this process has made it apparent that the scale of action within one cycle is micro-level in comparison to the issue at hand. While this might be viewed as negative, reflection on the findings from this study reveal that even action at the smaller end of the scale yields significant data and, more importantly, this data offers a rich seam of information to suggest ways forward for further cycles of action research, in any context, as well as directly informing engagement processes through working with students and employers. This is powerful in the context of a sector and a labour market, both of which are subject to constant pressure and change. As significant is that the study has also revealed there is likely to be value in repeating the action step of this cycle as a means of understanding different cohorts of students and as a means of driving forward a more general co-creative approach with students around employability.

Any further action research cycle would need to consider the challenges of bringing the two stakeholder groups (students and employers) in this research together, particularly around lack of visible presence in the sessions on the part of student participants who were largely unwilling to use their cameras and the subsequent impact this had on the ability to facilitate discussion. While the use of Microsoft Teams, required due to the pandemic, is seen as a key factor in addressing these challenges, it cannot be assumed that the challenges would be negated with in-person events between employers and students. With an in-person event, careful consideration would need to be given to the means used to facilitate discussion and other means of participation. A clear outcome of this process is a recognition that some level of facilitation is always likely to be needed in any further cycle of action research involving students and employers, even without restrictions being imposed on the way data is collected.

Part of the nature of the design and implementation of this action research cycle was to define and better understand the contributions of different data components. This provided the first anchor point (Flick, 2006) in surfacing the stories and findings from the data but also identified the role the different components of data played in telling the story. These components (outlined and illustrated in Table 4 in Chapter 5) were: Framing (an activity or process used to frame how the data was obtained or to structure discussion); core student insight (key data which supports and advances understanding of participant views); core supporting (adds understanding of the perspectives of the participants); and future insight (data which informs the practical outputs of this cycle of action research and which can inform future iterations). These components further reflect the non-linear nature of action research. As noted, scholars (McNiff and Whitehead, 2022; McAteer, 2013) are clear that action research cycles (plan, act, observe, reflect) may sometimes run in a different order to address the nuances or complexities in a particular study and this study has shown how those nuances and complexities also sit within each stage of the cycle.

The volume of data for each of the components was very different and by far the greatest volume of data was within the core student insight category. However, the difference in volume should not necessarily be viewed as a difference in significance of the data. The framing components yielded a relatively small volume of data but a set of information which was crucial to the action element of this study and to the co-creative process of drawing together all stakeholders in the employability agenda; this provided an authentic means through which to potentially help students understand the broader opportunities available in the labour market. Reflecting back to the way these components were defined, there are potential merits to them beyond the boundaries of this study. In my approach to the study, its design and aims, I recognised the centrality of stakeholder relationships in delivering on the employability agenda; I also recognised the potential for the University to default to 'mediating' between its students and the labour market as opposed to empowering students through developing connections.

The key framing component which resulted in the production of the briefing sheet to communicate key themes to students provided a means through which to communicate authentic information. It did this in a way which could be easily replicated and frequently repeated to capture the authentic voice of employers from different sectors and at different points in time to reflect and capture the changing nature of the labour market. However, if the exercise is completely disconnected from any activity which seeks to draw together employers and students, then it loses its co-creative value. Through a relatively small amount of student-employer interaction, framed by what I have termed a shuttle co-creation approach, the study has highlighted the potential value of facilitating connection and conversation between students and employers. However, the ways and means of doing this to bring to life the stakeholder voice of students remains an area for additional exploration. Any exploration will need to take account of an evolving labour market and the changing nature of student cohorts. However, as evidenced by this study, a relatively small amount of interaction can yield significant data which, in this case, has helped to address the research questions posed.

As detailed in the Methodology (Chapter 5), it was seen as valuable to this study to enrich the action research process by utilising a grounded theory approach to inform the data analysis process. This was seen as valuable as a means to avoid arriving at answers too quickly and ensuring that the stories and emerging theory were truly drawn from the data through interpretive acts by me as the researcher. A range of grounded theory scholars offer rich and detailed walk-throughs of the process of analysis central to this method and particular attention was given to the work of Charmaz (2006). I do not claim to have taken a purist or strict approach to the use of grounded theory; rather I have utilised its key principles (Appendix 11) to put into place depth of analysis and reflection to support my interpretation of data to arrive at stories. Looking back at notes and memos written during the analysis process gives some insight as to the value of the process that was worked through. Without the use of grounded theory, particularly the emphasis on constant comparison, I could have stopped at the first analysis point which, although early in the process, provided rich detail about the operational and granular approach of many student participants to job opportunities. I could have considered the impact of this and potential ways forward for the University to connect this approach with the policy agenda. But without the second and third rounds of analysis, I would not have arrived at the notion of the Key Drivers Model and the way its components identify potential influences on student thinking or the nuances within this, as discussed below. These second and third rounds of analysis essentially supported a greater depth of reflection on the data and a more substantial and layered approach to the interpretative acts which helped me arrive at and identify stories in the data. These findings and reflections support the case that a more nuanced understanding is key to on-going cycles of action research if the human rather than the mechanistic approach to achieving highly-skilled graduate outcomes is to be achieved. This example shows how the application of grounded theory within an action research study has provided more informed findings, demonstrating the value of a pragmatic approach to analysis, combining the strengths of two forms of methodology. In addition, grounded theory is a potentially powerful tool to use across a number of action research cycles to allow for broader comparison.

9.7 Utilising the Key Drivers Model to evolve practice and drive further co-creation

The findings of this study are seen as original and significant in that they identify two potential ways to carry out further research. Firstly, the student question set could be used with further cohorts to understand approaches to job opportunities across different cohorts and disciplines, with significant potential for identifying similarities, differences and trends. In addition, the Key Driver Model which emerged as a key finding could also be used to frame further work to understand influences on student thinking. So, rather than a means to define views on careers, the components of the model could be seen as steps in a process to develop greater awareness of influences on student thinking and as a platform for future co-creation and to frame interventions. This flexibility to utilise the components in the Key Drivers Model as steps is seen as powerful and significant and could work as follows:

- Information – provide detail in a way to encourage open, curious connection with opportunities.
- Experience – build on information to engage in activity to support students in understanding what being part of a particular employment sector or in a particular role might feel like.
- Development – provide a framework which helps students understand how their development to date can be applied, how they might need to further develop, not just within the University environment but also within whichever career path they take, and the particular processes and attributes which might be involved in this development.

What could be said to be central to the use of the Key Drivers Model as outlined here is the notion of vison – or future vision of self (Bennett, 2012). The findings of this study suggest that the vision of self that students may hold in their first year of study is rooted in the here and now and the context of their experiences (inside and outside of University) to date. This future vision of self is unlikely to be a fixed picture or position and it can certainly be argued that in the context of a changing labour market, HEPs should work in such way as to allow an

evolution of that vision. So, if the first year of study supports an initial future vision of self, subsequent levels of study should support the re-envisioning of this.

9.8 Answering the research questions

This discussion has considered the findings of this study in relation to the data, the participants and multiple processes which are all elements either implicit or explicit to the research questions of the study – an overarching question and two sub-questions:

Q: How can an evidence-based University-business intervention be tailored to engage students effectively in digital skills gap opportunities?

a) How do digital sector employers view graduate attributes and how does this view differ from that of students?

b) How can an evaluation of the interactions with and between employers and students inform the collaborative design of an intervention to increase student engagement in digital skills gap opportunities?

In pulling together how the findings address these questions, the two sub-questions will be addressed first. In terms of part (a), ***How do digital sector employers view graduate attributes and how does this view differ from that of students?,*** the findings of the study address this as follows:

Employers are able to focus on and identify what they genuinely see as important. In contrast, students are likely to see that everything is important, but this is likely due to their relative lack of experience and insight and, at Level 4, that they are relatively new to the attributes discussion. There are some distinct differences in views on certain attributes. For example, work ethic was taken out of the top 10 by employers based on their discussion and some concerns were

expressed that it was a ‘toxic’ concept, but it is seen as highly important by students. Differences in experience and insight mean the views of stakeholders will never be exactly the same but opportunities for joint discussion, conversation and exploration should develop a shared understanding, particularly but not only on the part of students. As much as the labour market may require students to have certain attributes, it is just as important that they are ‘attributes literate’ - so they understand what they are, why they might be important and how they are able to develop, articulate and apply them.

In terms of part (b), ***How can an evaluation of the interactions with and between employers and students inform the collaborative design of an intervention to increase student engagement in digital skills gap opportunities?***, the findings of the study address this as follows:

Evaluating the process and findings of this study shows that there were – and potentially would be in other circumstances – challenges in facilitating interaction between students and employers. Employers have clear interest in and openness to working with HEPs and their students, particularly when there are skills gaps; however, this openness and interest cannot be assumed in students – it needs to be sparked. There is clear student interest in hearing from employers – but they are not open to different venues which take them away from the University, with 74 out of 92 saying they would like to stay at the University for employer-led events. They are also not open to committing greater amounts of time to such input; 78 out of 92 students would only be willing to commit one or two hours to such an activity. Students do, however, want such inputs at all levels of study.

Any intervention with students needs to consider the potential for personal and discipline interests as blockers to anything new or different. Additionally, the design of interventions needs to recognise that students may not necessarily be *future-facing* – they may be rooted in the here and now - but any interventions need to consider how to support them to be *future-facing*.

And in terms of the overarching research question, ***How can an evidence-based university-business intervention be tailored to engage students effectively in digital skills gap opportunities?*****,** the findings of the study address this as follows:

The starting point in terms of tailoring an evidence-based University-business intervention is consideration of the use of language and recognition that sector-specific language may not help students understand the opportunity. So, in the case of this research, it has been shown that referring to the rich opportunities in the digital sector does not break down barriers or spark interest itself but referring to the problem-solving nature of the sector may spark interest. Such an intervention would need to consider how to create connectivity and interaction between students and employers, but it would also need to recognise that discussion on its own may not necessarily flow, help understanding or generate interest but creative activity could spark interest which can, in turn, generate discussion. While there are clearly considerations which indicate the need for careful activity design and nuancing of messages, the fact that student participants have shown strong interest in further activity linked to broader careers across all levels of study offers rich scope for a range of interventions to support a developmental and *future-facing* journey. Any student-business interaction linked to digital and technology careers should not treat the sector as an exclusive and independent component of the labour market. Rather, it needs to utilise the cross-cutting and all-encompassing role of digital and technology across every labour market sector and capitalize on the way discipline perspectives and developments can be used to bridge across to this fast-growing sector.

9.9 Discussion summary

The findings of this research study can be viewed from the perspective of Holmes (2013) as the “temporary relationship which arises between an individual graduate and the field of employment opportunities” (p.550). The data collection could be viewed as an initial point of contact in this emerging

relationship and the findings provide an indication of how to move forward and further develop a temporary relationship – or series of temporary relationships by way of a networked process - between students and broader graduate job opportunities beyond those normally connected with their field of study. As Barrie (2007) noted, there is a distinction between what is learned and how it is learned. It is the latter which is significant in this research, which recognises the importance of multiple and interacting University processes, not just as a one-off event but as an on-going and "interactional" (Holmes, 2013; p.548) process which is interwoven throughout a programme of study. As noted earlier in this chapter the *process* of this research was embedded as educational and the *process* of co-creation was introduced as a means of working differently around this agenda and as a means of disruption to the norm. The disruptive element was that of trying to bring student and employer stakeholders much more closely into the equation to support arriving at an answer, a solution or a design for an appropriate intervention.

Such an intervention would support students in looking at careers much more broadly and could encourage them to be open to digital and technology opportunities even if their programme of study might not be obviously connected with that field of work. The process as followed in this research was not necessarily as disruptive to the norm as it might have been, due to the impact of the pandemic, but can be seen to have provided the foundation for disruption in the way that students can be encouraged to think about graduate job opportunities. It can also be seen to have highlighted particular areas that the University might need to focus that disruption on; that is the operational and granular thinking of students encountered in this study. The challenge in a further action research cycle, it would seem, would be to consider how to disrupt this operational and granular approach and encourage in its place, or at the very least alongside it, a 'big picture' and *future-facing* approach that might benefit students in their assessment and understanding of graduate job opportunities.

CHAPTER 10: CONCLUSION

10.1 Concluding outcomes from the study

This study has identified five specific and original components which potentially influence student thinking in terms of how they might approach future job opportunities and which form the Key Drivers Model. The findings from this study and the reflection in the discussion show that employers have an openness to working with HEPs and their students, particularly where there are labour market skills gaps. However, an openness to taking advantage of skills gaps cannot be assumed in the student population.
Instead, HEPs need to frame their work to spark that openness. In sparking this openness, graduate attributes provide a useful anchor point for discussion between employers and students and for understanding the differences and similarities in perspectives of key stakeholder groups in the field of employability, although it is clear the different positionality of these stakeholder groups means they bring a different focus to how they view attributes. While the study sought to bring these groups together co-creatively, it is a clear outcome that further action research cycles will require some level of facilitation. This might not be to the extent required in this study through shuttle co-creation but there is a clear role for HEPs in this process, particularly so if further action research cycles are to avoid mechanistic approaches.

Connecting students with skills gap opportunities needs to go beyond the provision of information and consider the means through which to make creative and engaging connections with the academic disciplines. The opportunities for this linked to the digital and technology sector are vast given the cross-cutting nature of the way digital tools and platforms are changing every aspect of the labour market. This study focused on first year students but there is the potential for it its methods to be applied in a longitudinal approach to provide an understanding of student perspectives on graduate job opportunities at multiple points in their journey. In addition, further action research studies need to consider how to explore and address any personal or discipline interests which

students might hold as blockers to new or different thinking around graduate career pathways and support them to be *future-facing* rather than assume that they are *future-facing* just because they are participating in degree education.

10.2 Contribution to field

This study has provided an original contribution to the field of employability in a number of ways. Firstly, in the context of its findings, it has identified five components – experience, information, development, material and existing interest - which form the Key Drivers Model and which potentially influence student perceptions in relation to job opportunities. The model provides a means through which my own institution could further utilise and seek to understand student perceptions. While this study was developed out of a particular labour market issue, the workshop approach, the study questionnaire and the Key Drivers Model could be utilised outside of this labour market context, both inside my own institution but also more broadly in the sector.

The research has shown that employability development needs to encourage students to be *future facing*, i.e., open to all opportunities and development (my phrase and definition); universities need to be *future focused, i.e.,* have an educational and curriculum approach which is open, exploratory and applied (my phrase and definition). It has also indicated that there is value in shifting away from talking about graduates navigating the labour market (fixed end point) and moving to the concept of orientation to the labour market as this allows individuals to bring their own aims and interests to the fore and for these to flex with their understanding of what opportunities exist for them. A specific approach to co-creation – shuttle co-creation – was defined and utilised in this study. It emerged from necessity given the need to use Microsoft Teams for data gathering but it illustrates the flexibility of the co-creative process in supporting a shift in the balance of power as to how things are normally done.

In terms of the research process, this study combined an action research study

with a grounded theory framework to guide the analysis process. What has emerged from this methodological approach was my own framework that highlighted the power of defining data components (framing, core insight and future insight) to understand the stories in data. In addition, considering the data as made up of a range of different stories supports keeping a human focus rather than a mechanistic focus on the themes which emerge.

10.3 Limitations of study

It is important to recognise the limitations to this study. It was conducted within the framework – or constraints - of the knowledge, behaviours and interactions of the stakeholders involved. While the employers involved represented a range of organisations and the number of students was higher than originally anticipated, the study was limited to these participants and, therefore, provides a snapshot of views at a moment in time. This has considerable impact on the ability to generalize (Gomm, Hammersley & Foster, 2000) and the results of the study therefore have to be recognised for providing insight into a labour market issue at a particular point in time and through the eyes of a particular set of participants in the context of one university. This study worked with Level 4 students as a homogenous group, an approach that was informed by the University's educational approach of embedding credit-bearing placements in all programmes of study. It did not address specific disciplinary perspectives, including those of academics undertaking teaching on the programmes the student participants were studying as that was not within the scope of the research. This does not mean that the methodology and methods are flawed but that careful thought would need to be given to how the findings are used going forward and what the learning is from the study in terms of its relevance to other similar contexts and the field of study. However, the significance of this study is that it provides a means to repeat data collection and compare results across cohorts and between different cohorts using grounded theory.

At the time the study was initially designed, it was put together as an in-person,

co-creative event which, through normal classroom interactions and activities, would have allowed collaborative exploration of employer and student views around approaches to graduate job opportunities. The in-person co-creative format, which would have allowed each group to surface and present their views, was seen as a means through which to encourage the different stakeholder groups to get to know each other, with support from a university facilitator. Following the January 2021 lockdown and on-going requirement for remote delivery, the ethics application for the study was updated to permit data collection via Microsoft Teams. The impacts were a lack of visible presence in the sessions because students, in the main, were reluctant to use their cameras and this reflects the experience of teaching staff across the sector during that period; this lack of visible presence impacted on the ability to facilitate discussion and draw in all participants. Given the impact of the first two issues, facilitators had to lead the discussion with employers.

The issues outlined above impacted on the process of data collection, the nature of co-creation and the nature of the data collected, particularly in terms of the depth of comments given in answer to the questions on the Microsoft Form utilised by students. It is not considered that these issues impacted on the quality of the data available for analysis or the ability to draw some conclusions from this analysis. However, the way the data was collected meant that aspects of student views could not be probed and explored in depth because they were recorded in a static format rather than through a live conversation. Nevertheless, the Microsoft Forms have captured a range of student views at a moment in time across different levels of study and a range of disciplines.

In reflecting on these data, it is important to consider validity and, as McCaig (2010) notes, ask the question as to how I might be wrong. It is considered that the methods used have been clearly mapped out and have taken a transparent and layered approach to drawing out the stories in the data and testing these through multiple stages of coding. It is accepted that there is some level of interpretation in this work and arriving at stories and codes was essentially a series of interpretive acts on my part arising from my grounded theory approach

to analysis. Indeed, another researcher may potentially have used different words to describe the codes, however it is not considered that they would be so different they would result in focused codes far removed from those arrived at in this analysis. In reflecting on this, it is also important to note that the academic field related to employability has a significant amount of literature which shows that researchers constantly reshape and redefine the field in order to try to arrive at 'perfect' answers. The case is made here that the field is dynamic and, therefore, this ebb and flow around terms, frameworks and theoretical underpinning is to be expected and embraced given that all stakeholders in this agenda – researchers included – have to work within the shifting sands of the labour market and the changing HE sector, particularly the regulatory environment being shaped by the Office for Students.

This study has generated a significant amount of qualitative data arising out of asking for the views of particular participants in relation to a set of questions defined by an institutional and sector issue at a specific point in time. It is, therefore, to be expected, that it has yielded its own answers which arise out of an action research approach. This, however, is viewed as significant in that it allows the study outcomes to be considered against a range of internal and external contexts. In the case of this study, the context of the internal work of the university and the external experience of the participants were both impacted by the global COVID-19 pandemic. It would certainly be interesting to see the extent of difference or similarity in results were the study to be repeated without the impact of the pandemic.

10.4 Identification of potential for further study

A number of opportunities emerge for further study – or action research cycles – as a result of this work. Firstly, a repetition of this workshop and data gathering process would have benefits if carried out with another group of first year students as this would allow consideration of data gathering during COVID-19 restrictions and post-COVID restrictions. By carrying out the same research process with second and final- year students, there is the potential for

comparison across levels. Additionally, data collection could be carried out across all three years of a degree to obtain a longitudinal view of cohorts. There would be the potential to code any data against the components in the Key Drivers Model in this research but also for the identification of further components to enhance the model. There would also be the potential to gather data by discipline and compare results across disciplines and, potentially include the views discipline specific academics, something which was outside of the scope of this study. To support this, a toolkit for researchers could be developed to support repetition of the work.

As noted, the study generated information to inform the design of an intervention with students to support and develop interests in broader graduate job opportunities but designing this intervention was outside of the scope of this study. The core data from this study could be utilised to inform the full design and evaluation of this intervention.

In addition to these two broad areas of further study, three specific areas have emerged which offer research potential, and these are as follows:

- The opportunity to understand the level of explicit or tacit knowledge students might have about careers opportunities.
- The prevalence of different components of the Key Drivers Model across academic disciplines, with particular consideration as to whether the existing interest driver emerges more frequently in some academic disciplines compared to others.
- The opportunity to understand why developmental thinking does not seem to naturally emerge from a group of people who are undertaking study which is intended to lead to further progression.

This significant further potential is viewed as a key strength of this action research study and its contribution to the employability agenda.

Appendices

Appendix 1: Confirmation of Ethical Approval, May 2020

From: <converis@shu.ac.uk>
Date: Wed, 27 May 2020 at 11:53
Subject: Converis - Ethics Review - Approval
To: Oconnor, Catherine <Catherine.Oconnor@student.shu.ac.uk>
Dear Catherine
Title of Ethics Review: Evaluation of employer-student co-creation activities to address
the digital skills gap
Ethic Review ID: ER24160335
The University has reviewed your ethics application named above and can confirm that the project has been approved.
You are expected to deliver the project in accordance with the University's research ethics and integrity policies and procedures: https://www.shu.ac.uk/research/ethics-integrity-andpractice.
As the Principal Investigator you are responsible for monitoring the project on an ongoing basis and ensuring that the approved documentation is used. The project may be audited by the University during or after its lifetime.
Should any changes to the delivery of the project be required, you are required to submit an amendment for review.
Wishing you success you with your study
Kind regards,
Ethics Research Support
*** This is an automatically generated email, please do not reply **

Appendix 2: Leeds Trinity Self-Assessment Form

Research Ethics Self Assessment Form for Staff and Postgraduate
(Version 1, 12 July 2019)

Project Title: Evaluation of employer-student co-creation activities to address the digital skills gap	
Principal Investigator: Catherine O'Connor	Ethics App. ref: Sheffield Hallam Ethical Approval - Ethics Review ID: ER24160335
Date: 11-9-20	

Project details:

Staff research project/grant	yes
Postgraduate research (PGR) project/grant	no
Postgraduate taught (PGT) project	no

Postgraduate researcher/PGT student details:

Name:

Email:

Name of Principal Investigator (staff projects) or Academic Supervisor (PGR student projects or module lead/project supervisor (PGT projects or modules): Catherine O'Connor

Title of project (research projects) or module title (PGT projects):

Evaluation of employer-student co-creation activities to address the digital skills gap

Name of funding body including if internally funded:

1. Research involving the NHS

Does the research involve:

a. NHS patients or staff, their tissue/materials or data, or NHS facilities?	no
b. Social care clients?	no
c. A medical intervention or clinical trial outside of the UK?	no

If you have answered yes to (a) or (b), you require ethics approval from the NHS through the Health Research Authority (HRA) https://www.hra.nhs.uk/ before you can begin this programme of work.

Do you have HRA approval? yes / no

If yes:

Name of NHS Research Ethics Committee (REC):

NHS REC reference no:

Approval start & end dates:

If you have ethical approval from an NHS REC, no further approval is required. Please submit a copy of your NHS REC approval letter to your School/Institute Ethics Committee.

If you have answered yes to (c), you require approval from a University Research Ethics Committee (REC) before starting the programme of work. You should **submit a research ethics application to your School or Institute**.

2. Research regulated by the Human Tissue Act (2004)

Does your research constitute a scheduled purpose under the Human Tissue Act no

If you have answered yes contact the Chair of the University Research Ethics and Integrity Committee for further advice.

3. Research involving other Institutions or Organisations

d. Will the research be undertaken at another Institution or Organisation within the UK (excluding the NHS)? Yes

e. Will the research be undertaken at another Institution or Organisation outside of the UK? no

f. Are there any Intellectual Property or Copyright[1] issues? no

If you have answered yes to (a) or (b), you require approval from that Institution/Organisation's Research Ethics Committee before you can begin this programme of work.

Do you have approval from their REC? Yes

If yes:

Name of REC: Sheffield Hallam University

REC reference no: ID: ER24160335

Approval start & end dates: Start: October 5, 2020; End: September 30, 2021

Please submit a copy of the above ethics approval letter to your School/Institute Ethics Committee.

AND if you have answered yes to (b), you **ALSO** require approval from an LTU REC before starting the programme of work. You should **submit a research ethics application to your School or Institute**.

4. Research involving animals

a. Does the research involve the use of animals within the UK, with this research being undertaken under the Animal (Scientific Procedures) Act 1986? no

If yes,

Name of Establishment where research will be conducted:

---

[1] For copyright information, guidance and support see:

https://lib.leedstrinity.ac.uk/iguana/www.main.cls?surl=UsingLibraryCopyright

PPL no:

PIL no:

b. Does the research involve the use of animals which is not regulated by Animal (Scientific Procedures) Act 1986? no

c. Does the project involve the use of animals outside of the UK no

If you have answered yes to (a), no further ethical review is required. If you have answered yes to either (b) or (c), contact the Chair of the University Research Ethics and Integrity Committee for further advice

5. Other research undertaken at the University

a. Will the research involve humans as participants with or without their knowledge or consent at any time? yes

b. Will the research expose participants to physical or psychological harm? no

c. Will the research expose researchers to physical or psychological harm? no

d. Will you have access to personal information that allows you to identify individuals, or to corporate or company confidential information (that is not covered by confidentiality terms within an agreement or by a separate confidentiality agreement) no

e. Does the research present a significant risk to the environment or society? no

f. Does the research present a significant risk to the reputation (*e.g. substantial adverse press, negative impact on day to day business or loss of external trust*) of the University? no

g. Are there any other ethical issues that, in the opinion of the Principal Investigator, require ethical review? No – Ethical Approval has been granted by Sheffield Hallam, the institution where I am registered as a doctorate student

If you have answered yes to any questions (a-g) within Section 5, then you require approval from a University REC before starting the programme of work. You should **submit a research ethics application to your School or Institute**.

If you have answered no to all questions within the Section 5, ethical review is not required for your programme of research.

This self-assessment form should be submitted by the Principal Investigator (staff projects), Academic Supervisor (PGR) or PGT project supervisor/module lead (PGT) and to the Chair of your School or Institute Research Ethics Committee before beginning the programme of work, irrespective of whether completion of it has indicated that further ethical review is or is not required.

Declaration

In completing and submitting this form, I declare that I:

- Have answered all the questions truthfully and to the best of my knowledge, and that I take full responsibility for these responses.
- Undertake to observe ethical principles throughout the programme of research and report any changes affecting the ethical issues arising from the project to my School or Institute Research Ethics Committee.
- Agree to abide by the UK Research Integrity Office's code of practice for research, the University's research ethics policy and any other policies, procedures or guidance related to research conduct or integrity issued by the University.

PI/Supervisor/module lead signature: Date: 23-4-21

Name: Catherine O'Connor

Postgraduate Researcher/PGT student signature: Date

Appendix 3: Approval of amendment to Ethics Application, April 2021

Converis - Ethics Review - Amendment Outcome
External
Inbox
converis@shu.ac.uk 27 Apr 2021,
16:54
to Catherine
Dear Catherine
Title of Ethics Review: Evaluation of employer-student co-creation activities to address the digital skills gap
Ethic Review ID: ER24160335
Amendment 2 Title: Change to recruitment process
The amendment to the Ethics Review named above has been reviewed and the outcome is:
Amendment Approved
Please log back into the P12 tab to see any feedback.
If you have a query regarding this, please contact your Faculty Ethics Administrator in the first instance.
HWB - hwbethics@shu.ac.uk
STA - STAfrec@shu.ac.uk
SBS - sbsethics@shu.ac.uk
SSH - SSH-ResearchEthics@shu.ac.uk
Kind regards,
Ethics Research Support
*** This is an automatically generated email, please do not reply **

Appendix 4: Participant Consent Form (Employers)

PARTICIPANT CONSENT FORM (EMPLOYERS)

TITLE OF RESEARCH STUDY: Evaluation of employer-student co-creation activities to address the digital skills gap

Please answer the following questions by ticking the response that applies

	YES	NO
1. I have read the Information Sheet for this study and have had details of the study explained to me.	☐	☐
2. My questions about the study have been answered to my satisfaction and I understand that I may ask further questions at any point.	☐	☐
3. I understand that I am free to withdraw from the study as outlined in the Information Sheet, without giving a reason for my withdrawal or to decline to answer any particular questions in the study without any consequences to my future treatment by the researcher.	☐	☐
4. I agree to provide information to the researchers under the conditions of confidentiality set out in the Information Sheet.	☐	☐
5. I wish to participate in the study under the conditions set out in the Information Sheet.	☐	☐
6. I consent to the information collected for the purposes of this research study, once anonymised (so that I cannot be identified), to be used for any other research purposes.	☐	☐

Participant's Signature: _____ Date: _____

Participant's Name (Printed): _____

Contact details:

_____

Researcher's Name (Printed): _____

Researcher's Signature: _____

Researcher's contact details:
(Name, address, contact number of investigator)

Please keep your copy of the consent form and the information sheet together.

Appendix 5: Invite to student participants (with opt-out)

Email Title – Details about your Developing Employability Skills session: Please respond to confirm your participation and complete your questionnaire

Hello,
This Teams invitation gives you details of your Developing Employability Skills session which is due to take place on XXX at XXX. The session will help you think about student and employer perceptions of the skills and behaviours which are looked for in the recruitment process, about how the university designs sessions to interest students in a range of career opportunities and how you are developing the skills and behaviours employers are looking for through your studies.
Please take the time to read this message carefully. There are two tasks associated with this invitation prior to attending the Developing Employability Skills session:

1) Read the attached participant information sheet and accept the invite if you are happy to be in a group for this session which is part of a research project. If you do not wish to be part of the research project, please turn down this invitation and you will receive a second invite to the same activity which will not be part of the research project.
2) Completing an online questionnaire which can be found by clicking on this embedded link

What is this session about?
This session is designed to help you understand more about student and employer perspectives of the graduate skills and behaviours which are looked for during recruitment processes, as well as some of the very broad career opportunities which are open to graduates from any course but which employers can often struggle to recruit to.
The session is shaped to help you think about the things that might help students consider more broadly their potential career opportunities and to give you the opportunity to suggest how the university might design a Professional Development and Placement session for students to support them in understanding more about career opportunities they might not have thought were open to them.
The session is also part of a research project being run by a member of staff at Leeds Trinity University, who is also a doctoral researcher at Sheffield Hallam University. The attached participant information sheet gives you more details about the project. Please read this information. The data from the study will help Leeds Trinity develop its understanding of student and employer views but the data will be anonymous and none of the students or employers who take part will be identified in any way. If you agree to take part, you will be kept up to date with the analysis of the data and findings and you will have a chance to comment on this. Your participation in the group session will be used to shape how we develop sessions about employability and career opportunities in the future.
What do I need to do before the session?
Once you have read the attached participant information sheet, you need to either:
Accept this Teams invite – this means you are voting 'Yes – I am happy to participate in this session as part of a research project'

Decline this Teams invite if you do not wish to be part of the research project. You will then be sent an alternative invite so you can still take part in the activities but not as part of the research project.

What voting 'Yes' means

Voting 'yes' and accepting the Teams invite means that the anonymised data (results of discussions and activities during the session you take part in) will be used in a research project and that:

- You have read the attached Information Sheet for this study and have had the opportunity to have any details of the study explained to you via email if you requested this
- You understand that you are free to withdraw from the study within the time limits outlined in the Information Sheet, without giving a reason for your withdrawal or to decline to answer any particular questions in the study without any consequences to your future treatment by the researcher or the university.
- You agree to provide information to the researchers under the conditions of confidentiality set out in the Information Sheet.
- You wish to participate in the study under the conditions set out in the Information Sheet
- You consent to the information collected for the purposes of this research study, once anonymised (so that you cannot be identified), to be used for any other research purposes.

What voting 'No' by declining this information means

You will be organised into a group which will take part in the same activities but the data from the group will not be part of the research project. You do not have to provide any reason if you do not wish to participate and this will not affect any other aspect of your studies or your treatment by the university.

Many thanks for your time reading this. We are looking forward to working with you in the Developing Employability Skills sessions.

Appendix 6: Briefing sheet produced for students after preparatory workshop with employers

WHAT EMPLOYERS LOOK FOR

These skills and behaviours are seen as important by employers in the digital and technology sectors:

1) Positive attitude to work
2) Willingness (and capability to learn)
3) Research skills
4) Team working
5) Flexibility and adaptability
6) Problem Solving
7) Critical thinking
8) Digital literacy
9) Initiative and self-direction
10) Communication skills

Key messages from employers

- There are organisations which can be said to be in the 'digital and technology sector' because of the particular focus of their work but all jobs increasingly require digital skills – whatever sector they are in – so don't be put off by the notion of a specialist sector
- Roles in digital and technology organisations are often open to anyone from any degree discipline
- Teams in digital and technology organisations are multidisciplinary – they include designers, problem solvers, software developers, testers, policy experts, behavioural scientists and anthropologists among their roles
- There are structures within digital and technology companies to help you learn specific skills and provide you with support to develop and access different roles
- Organisations work to remove barriers to roles, to support those who are bright and willing to learn to enter the sector and to access different roles within it
- Diversity of ideas and backgrounds is important
- There's a significant focus on problem solving in the digital and technology sector – and lots of opportunities to work in teams to solve those problems, build close bonds with your team and get real job satisfaction from doing this
- Lots of the problems being tackled in the digital and technology sector are about how to improve key everyday experiences for people – such as accessing healthcare and other services
- There's a real community spirit – and it's fun
- There's a chance to be involved with things that are changing the world

The skills required by digital and technology roles are in demand – which means the pay and benefits are good

Appendix 7: Employer questionnaire completed as part of preparatory workshop on 5-5-21

Addressing the digital skills gap (employer questionnaire
You'll be asked to answer these questions during the employer group discussion. You don't need to write perfectly crafted answers - please just aim to get as many of your thoughts down as you can

Required

1. How many people does your organization employ?

- Up to 10 people
- 11 - 30 people
- 31 - 60 people
- 61 - 150 people
- 151 - 500 people
- More than 500 people

2. Please use the arrows to move these graduate skills and behaviours into rank order, with the most important at the top. Your ranking should be based on your own individual view rather than the group discussion

Digital literacy

Initiative and self-direction

Communication skills

Critical thinking

Flexibility and adaptability

Work ethic

Willingness (and capability) to learn

Team working

Problem solving

Positive attitude

3. Looking at your ranking above, summarise briefly your thinking and, particularly, why you have chosen your top 3 skills and behaviours

4. What are the key messages to get across to students in helping them understand why many digital careers are open to people from any degree discipline?

5. What would you say to students are the positives of working in digital sector careers and roles which require digital skills?

6. What are the challenges of working in the digital sector and roles which require digital skills?

7. What are the key messages students need to understand about digital careers and roles which require digital skills?

Appendix 8: Questions answered via Microsoft Forms by students during workshops

1) Place the following graduate skills and behaviours in order of importance, placing the one you think is most important at the top of the list, moving down until you reach the one you think is least important at the bottom of the list. Make sure you rank all the attributes.

    - Aspiration
    - Communication Skills
    - Flexibility and adaptability
    - Initiative and self-direction
    - Interpersonal skills
    - Positive attitude
    - Self-management
    - Time management
    - Willingness and capability to learn
    - Work ethic

    There are 10 questions to respond to here. You're not expected to record perfectly crafted answers - just get as much information down on the form as you can from the discussion with your peers. These activities are not about right and wrong answers - they are about ideas! Everyone's ideas will be different and that is fine - we want to record as much information as possible from your group.

2) What sort of information would attract you to considering a graduate job opportunity?

3) What information might make you consider a graduate job opportunity in the digital sector?

4) What sort of information would be helpful in considering a graduate opportunity in an area of work or sector you hadn't considered before?

5) What would put you off a job opportunity?

6) If you hear the phrase "digital careers" what things spring to mind and what assumptions do you make?

For the following 5 questions, you need to make use of the employer briefing sheet you have been given. The first section of this shows you the way employers have ranked graduate attributes in order of importance (and also reminds you of the student ranking). Record your thoughts on reasons for any differences in the student versus employer rankings and any reasons for similarities.

7) Did your discussion group / breakout room involve an employer?

8) If the University was to design and run a session to interest students in broader careers, what would you want to get out of this? It's suggested that you imagine this session is about digital careers and you focus your discussion and ideas around this

9) Record your ideas for content for such a session, the associated activities and appropriate ways to deliver this (including who should deliver - eg University staff, employers, alumni)

10) What do you think the best way would be to promote a session like this to students?

11) Do you have any thoughts about other activities which might follow an initial session to help students understand and explore broader opportunities, particularly those in the digital sector?

12) What is the ideal length of time for a session about broader career opportunities, such as those in digital, to run?
    - One hour
    - Two hours
    - Half-day
    - Full-day
    - Other (please state length of time you think would work best)
    -

13) What is the best way to include such a session in different programmes?
    - As part of placement module
    - As part of another module in my course
    - As an extra curricula activity

14) What do you think is the best venue to run a session?
    - At the university
    - At employer premises
    - At a city centre venue

15) What level of study do you think such a session should be aimed at? Please tick more than one option if you think such sessions should run at more than one level
    - Level 4
    - Level 5
    - Level 6
    - Sessions should be open to students at all levels at the same time

16) To what extent has this activity increased your understanding of what employers want?
    - Greatly increased
    - Slightly increased
    - Not sure
    - Not increased at all

17) How useful have you found thinking about the content of a careers-focused session
    - Extremely useful
    - Somewhat useful
    - Undecided

- Not useful

18) The most useful aspect of this activity was

19) The least useful aspect of this activity was

20) What do you think are the key barriers to overcome to help students understand the wealth of opportunities in the digital sector?

Appendix 9: Questionnaire produced after student workshops

Ideas for placement module content

These questions are a follow-up to the feedback received in the Developing Employability Skills session and designed to get your thoughts on possible content to introduce students to

1.A number of students said they would like to see social media being used to communicate messages about employability and graduate job opportunities. To help us think about this, please tell us which social media platforms you regularly use and would use for this purpose:

- Tik Tok
- Instagram
- You Tube
- LinkedIn
- Twitter
- Facebook

2. If we were to offer you the chance to talk employers and people who work in a range of jobs in the digital sector through a social media event, would you:

- Definitely take part and be confident about asking questions
- Consider taking part but be nervous about asking questions
- Definitely not take part

3. If we were able to create a virtual office which allowed you to explore the wide range of different roles in a digital sector organisation, would you be:

- Very interested in exploring
- Quite interested in exploring
- Not sure about exploring
- Not interested in exploring

4. If we were to use game-based approaches to introduce you to the kind of skills used in the digital sector, would you be:

- Very keen to get involved
- Quite keen to get involved
- Not sure about getting involved
- Not interested in getting involved

5. If we were to set you an every day problem and support you to sketch out on paper an idea for an app to address this problem, would you be:

- Very interested to take part and see what is involved in the process
- Quite interested to take part and see what is involved in the process

- Not sure about getting involved
- Not interested in getting involved

6. Lots of jobs in the digital sector involve research skills, including research into how people might use apps and other products. Would a taster session designed to help you understand one of these jobs be:

- Of great interest
- Of some interest
- Not sure
- Of no interest

7. If we were to offer you the chance to visit companies who work in digital and technology, would you be:

Very interested to find out what it is like to work there

Quite interested to find out what it is like to work there

Not sure about finding out what it is like to work there

Not interested in finding out what it is like to work there

ChoiceText	Rating	Date
	1	

Appendix 10: List of graduate attributes used in study

Aspiration
Autonomy
Career management
Communication skills
Creativity
Critical thinking skills
Customer awareness
Digital Literacy
Efficiency
Emotional intelligence
Enterprise and entrepreneurship
Ethics
Flexibility and adaptability
Giving and receiving feedback
Independent thinking
Initiative and self-direction
Interpersonal skills
Language skills (particularly second language skills)
Multi-tasking
Numeracy
Opportunity awareness
Positive attitude
Presentation skills
Problem solving
Professional knowledge
Research skills
Self-management
Social intelligence
Team-working
Time management
Willingness (and capability) to learn
Work ethic
Writing skills

Adapted from Artess, Hooley and Mellors-Bourne (2017)

Appendix 11: Features of grounded theory as outlined by Charmaz (2006) and operationalised in this study

Feature (as noted by Charmaz, 2006, pp.6-7)	Operationalisation in this study	Perceived value to this study
Simultaneous involvement in data collection and analysis	The shuttle co-creation process is core to this – analysing the data from employers was essential to run the workshops which resulted in student data	Central to the study and to bringing all stakeholders into the study.
Constructing analytic codes and categories from the data, not from preconceived logically deduced hypotheses	Data components were used to frame the data; three rounds of coding were used, starting with instinctive coding to ensure the analysis was constructed from what the data said	The layers of coding and the resulting focused codes were essential to drawing the stories from the data.
Using the constant comparative methods, which involves making comparisons during each stage of analysis	Done through three rounds of coding – instinctive; exploratory; reflective and focused. Stories emerging from the data were also read vertically and horizontally through the questions to allow a further layer of comparison	This was the means through which the components of the Key Drivers Model and their underpinning definitions were identified
Advancing theory development during each step of data collection and analysis	By noting emerging and overarching stories for each code used during the analysis of Questions 2 to 6 and then overarching stories for each question	Central to comparative process and for firming up ideas which emerged during comparative stages
Memo-writing to elaborate categories, specify their properties, define relationships between categories and identify gaps	Notes additional to emerging stories and overarching stories which have fed into discussion	Informed findings and discussion

Sampling aimed toward theory construction, not for population representativeness	My sample used employers from a particular sector and Level 4 (first year students) broadly; it did not seek to group / select participants beyond this	The study is able to provide a 'general' insight into the perceptions of Level 4 students. While multiple cases could be made for the way the data could be split or grouped, there is merit in a general view given that policy could be said to take a 'generalist' approach in its view that all graduates should achieve employment at a certain level
Conducting the literature review *after* developing an independent analysis	This was not done; a literature view was carried out prior to the analysis as this study was preceded by a pilot study. However, a significant update on the literature review was carried out after the data collection and analysis.	

Appendix 12: Illustration of coding process at work

Illustration from Excel spreadsheet used for instinctive coding for Question 2

Experience / career dev	responsibilities within job, opportunities given
Experience / salary	New experiences and opportunities as well as a good salary.
Experience / salary	what kind of people i would work with and were the establishment is placed. Of course the money and wages are important.
Experience / salary	If i would enjoy it Whether id be happy doing it Money to an extent but id rather be happy in my job
Experience / salary / interest	Experience of the job, payment, interests
Experience / salary / location	Flexibility, wage, training, location

Illustration from Excel spreadsheet used for instinctive coding for Question 2
Below is an illustration of instinctive coding process notes and story for Question 2, generated after coding was carried out on Excel spreadsheet

QUESTION 2: What sort of information would attract you to consider a graduate job opportunity?
CODES: Experience (day-to-day experience; other staff; company ethos); clear information (detail provided to allow understanding of expectations); career development (opportunity to develop and progress); interest (their own level of interest in the role in the first instance); reviews (what other people say); salary; support (outside of career development); link to degree (to subject); location;

11 x experience; 5 x experience and career development; 3 x experience and salary; 2 x career development, salary and experience; 2 x experience, salary and location; 1 x Experience, salary and interest

7 x career development and experience; 6 x career development; 5 x career development and salary; 1 x career development and support; 1 x career development and interest

5 x clear information; 4 x clear info, career development and experience; 2 x clear information and salary; 2 x clear information and career development; 1 x clear information and interest;
4 x support

3 x salary and experience; 2 x salary and clear information; 2 x salary and career development; 1 x salary, career development and experience; 1 x salary, experience and career development; 1 x salary, experience, reviews; 1 x salary and location; 1 x salary and reviews;

2 x interest and career development; 2 x interest and experience; 1 x interest; 1 x interest, experience and career development; 1 x interest, career development and info;

2 x link to degree; 1 x link to degree and career development; 1 x link to degree and experience; 1 x link to degree and skills;

1 x location, salary and experience; 1 x location, salary and clear info; 1 x location, salary and experience;

1 x no answer; 1 x reviews; 1 x taster;

STORY: Day-to-day experience of the job appears to drive student thinking; clear info code suggests that information provided through job ads is crucial to attracting interest. Overall approach more likely to be driven by personal perceptions and concerns rather than broader opportunity

The table below illustrates the emerging stories for Question 2 after first two stages of coding

Initial instinctive coding – emerging story	**Initial exploratory coding – emerging story**
Day-to-day experience of the job appears to drive student thinking; Clear information code suggests that information provided through job ads is crucial to attracting interest. Overall approach more likely to be driven by personal perceptions and concerns rather than broader opportunity	Half of the answers are related to needing operational / granular detail or explicit about lack of interest or uncertain what would interest them. Suggests that with an unfamiliar sector, it is more challenging for students to think in developmental terms

The below gives an example of how reflective and focused codes were analysed in relation to one coding family:

FINAL REFLECTIVE AND FOCUSED CODE: Information (operational) driven; information (opportunity) driven					
Clear information family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**
Information (operational) driven: Working environment, including hours, atmosphere, conditions, variety, job description; skills required clients; understanding of	14	18	35	28	0

technology; use of existing skills; childcare					
Information (opportunity) driven: Development opportunities, including training; opportunity for taster	5	2	9	1	0

Appendix 13: Frequency of allocation of codes in the initial (instinctive) coding exercise

Green indicates codes of significance based on the number of times a code was assigned. Those with 25 or more responses were considered significant.

Code family	Q2	Q3	Q4	Q5	Q6		Total
Career development	22	9	7	5	0		43
Clear information (or lack of)	15	21	43		0		79
Creative	0	0	0	0	7		7
Experience	22	10	19	43	0		94
Hours	0	0	0	10	0		10
In tech	0	0	0	0	7		7
Interest	7	2	1	5	0		15
Job titles	0	0	0	0	12		12
Link to degree	5	4	2	0	0		11
Location	2	2	1	7	0		12
None	0	11	0	0	0		11
Online working	0	0	0	0	28		28
Progression	0	9	0	0	0		9
Repetitive	0	0	0	0	3		3
Reviews	1	0	0	2	0		3
Salary	12	9	4	7	0		32
Skills	0	1	0	0	0		1
Support	4	0	2	1	0		7
Task	0	0	0	0	4		4
Taster	1	3	1	0	0		5
Tech use	0	7	0	0	0		7
Training	0	7	8	1	0		16
With tech	0	0	0	3	20		23
Other	0	5	3	0	11		23
No answer	1	1	1	0	0		3
Total	**92**	**92**	**92**	**92**	**92**		

Appendix 14: Detailed coding tables for initial (exploratory) coding phase

Experience family – additional codes	Q2 (attract)	Q3 (attract - digital)	Q4 (attract - unknown)	Q5 (put off)	Q6 (assumptions)	Horizontal emerging theme
Opportunities, development and skills	7	2	5	0	0	The relatively low number of participants who cite this in their answers suggests that they are grounded in the immediacy of what they have to do at work, rather than being future-facing. Most answers in general 'what attracts' question and 'what attracts to unknown' question; lower answers where asked to comment on digital and tech specifically. Could suggest that applicants are more prepared to be curious about general unknowns but may make more definite judgements where specific examples of unknowns are given.
Team and people	6	0	0	0	0	Positive draw for some participants – possibly add to working environment at stage 3
Working environment, including hours, atmosphere, conditions, variety, job	5	7	1	8 (hours) 8 (poor environment	0	Environment and detailed operation of job are important in being attracted

description				)		to a job and in being put off a job
Equality and diversity	2	0	0	0	0	Possibly add to working environment at stage 3
Culture, positive attitude, enjoyment and social opportunities	1	0	7	0	0	Possibly add to working environment at stage 3
Job security	1	0	0	0	0	Possibly add to working environment at stage 3
Remote working	0	3	0	0	0	Possibly add to working environment at stage 3

Benefits (including pay)	0	0	3	9	0	Benefits are potentially a factor in motivating participants to be interested in sectors that they don't know about – but this is more significant when participants are asked about what would put them off a job opportunity.
Job satisfaction	0	0	3	0	0	Only a factor when thinking about a named unknown sector
Lack of progression, learning opportunities or growth opportunities	0	0	7	0	0	Only a factor when thinking about a named unknown sector
Lack of care for staff (including feeling disrespected or undermined)	0	0	0	10	0	Participants want to be treated well.
Lack of teamwork	0	0	0	2	0	Participants can be put off a job if they perceive things to be lacking or if too much is expected.
Lack of communication	0	0	0	1	0	Linked to behaviours seen / perceived at company – this line not significant in its own right but there are a collection of these
Lack of flexibility	0	0	0	1	0	Linked to behaviours seen / perceived at company – this line not significant in its own right but there are a collection of these

Lack of professionalism	0	0	0	1	0	Linked to behaviours seen / perceived at company – this line not significant in its own right but there are a collection of these
Lack of interest	0	0	0	4	0	This is about the participants own motivation rather than what they see from the opportunity
Too much flexibility expected	0	0	0	5	0	Level of expectations from an employer is one of more significant factors in terms of what would put participants off a job.

'Too much' expected	0	0	0	7	0	Level of expectations from an employer is one of more significant factors in terms of what would put participants off a job.
Location	0	0	0	2	0	Not significant in its own right
Vertical emerging theme	24 notes for Q2 Overwhelming focus of answers is around work environment and day-to-day experience	12 notes for Q3 Day-to-day work environment also significant – though not as much for general Q2	26 notes for Q4 Overwhelming focus of answers is around work environment and day-to-day experience	58 notes for Q5 Overwhelming focus of answers is around work environment and day-to-day experience but greater focus towards 'deficit' approaches (what is not there)	Nothing to note	

Interest family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**	**Horizontal emerging theme**
Relevance to degree / chosen career	4	0	0	0	0	Important in basic attraction to a career. Only mentioned in question

						about what would attract students
Able to keep developing skills	3	0	0	0	0	Fits with other categories which suggest relatively low number of students have a future-facing approach
‘Dream job’	2	0	0	0	0	Low number but might connect with future facing; however could also connect with ‘idealised’ and narrow approach. This would need further exploration in follow-up project

Vertical emerging theme	9 notes for Q2 More detail from participants when thinking about opportunities generally	No emerging theme	No emerging theme	No emerging theme	No emerging theme	

Career development family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**	**Horizontal emerging theme**
Training	10	0	0	0	0	Need to consider whether training fits with career development and opportunities or whether it suggests a more transactional and immediate focus which is about support to do the job in the first instance

Opportunities for learning	4	0	0	0	0	The relatively low number of participants who cite this in their answers suggests that they are grounded in the immediacy of what they have to do at work, rather than being future-facing. Most answers in general ‘what attracts’ question and ‘what attracts to unknown’ question; lower answers where asked to comment on digital and tech specifically. Could suggest that applicants are more prepared to be curious about general unknowns but may make more definite judgements where specific examples of unknowns are given.

Opportunities for progression	9	0	0	0	0	The relatively low number of participants who cite this in their answers suggests that they are grounded in the immediacy of what they have to do at work, rather than being future-facing. Most answers in general 'what attracts' question and 'what attracts to unknown' question; lower answers where asked to comment on digital and tech specifically. Could suggest that applicants are more prepared to be curious about general unknowns but may make more definite judgements where specific examples of unknowns are given.
Culture and well-being (includes people and ethics)	6	0	0	0	0	Across the data, there is an indication that working environment and factors associated with this are important to participants
Skills development	0	0	4	0	0	Issue of skills development arises when participants are thinking about jobs in unknown sectors
Support	2	0	0	0	0	Not significant in its own right

Future opportunities	0	0	3	0	0	Issue of future opportunities arises when participants are thinking about jobs in unknown sectors
Hands-on work	2	0	0	0	0	Not significant in its own right
Lack of development and progression opportunities	0	0	0	5	0	Small number of participants cite this when thinking about what would put them off job opportunity; need to consider in broader context of consideration / lack of consideration
Off-putting environment	0	0	0	1	0	Not significant in its own right but consider in broader context of environment

Job not interesting	0	0	0	1	0	Not significant in its own right but consider in broader context of environment
Location	0	0	0	1	0	Not significant in its own right but consider in broader context of environment
Vertical emerging theme	33 notes for Q2 When thinking about opportunities generally, participants have a focus on development and progress	No emerging theme	7 notes for Q4 Shows some consideration of skills development and future opportunity	8 notes for Q5 Shows concern about lack of development / environment	No emerging theme	

Clear information family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**	**Horizontal emerging theme**

Working environment, including hours, atmosphere, conditions, variety, job description	12	5	17	0	0	This is most significant when participants are thinking about what would attract them to a job generally and what would attract them to a job in a sector they hadn't considered before. Data suggests they are less willing to consider this when thinking about a specific but unfamiliar sector
Development opportunities	5	0	9	0	0	This has some significance when participants are thinking about what would attract them to a job generally and increases in significance further when

						considering what would attract them to a job in a sector they hadn't considered before
Skills required	1	8	11	0	0	This has some significance when considering a job in digital and technology but greater significance when considering a job in an unknown sector. This suggests there is slightly increased inclination to think about skills when the sector is unknown but less when it specific (digital)
Clients	1	0	0	0	0	Not significant in its own right
Relevance	0	2	5	0	0	Slight significance when considering digital; slightly increased significance when thinking about jobs in unknown sectors
Understanding of technology	0	3	0	0	0	Only relevant to question about jobs in digital
Use of existing skills	0	0	2	0	0	One relevant to jobs in unknown sector

Vertical emerging theme	19 notes for Q2 Working environment is most significant consideration, followed by development opportunities	18 notes for Q3 Skills is biggest consideration for specified unknown, followed by working environment	44 notes for Q4 Working environment is biggest single category; followed by skills required; then development opportunities. For unspecified unknown, operational	No emerging theme	No emerging theme	

			comes first, followed by whether can do job and whether there will be developme nt			

Salary family – additional codes	Q2 (attract)	Q3 (attract -digital)	Q4 (attract - unknown)	Q5 (put off)	Q6 (assumption s)	Horizontal emerging theme
Working environment, including hours, atmosphere, conditions, variety, job description	6	0	0	6	0	Only significant when considering jobs generally or what would put participants off jobs generally; suggests other factors are much more significant when considering jobs in digital or unknown sectors
Good / substantial pay	5	0	0	0	0	Only arises when participants are thinking about what would attract them to a job
Opinions about company	2	0	0	1	0	Only arises in general consideration about jobs attract to / not attracted
Opportunities to progress	2	0	0	0	0	Not significant in its own right

Support	1	0	0	0	0	Not significant in its own right
Team	1	0	0	0	0	Not significant in its own right
Benefits	1	0	0	0	0	Not significant in its own right
Mentoring	1	0	0	0	0	Not significant in its own right
Location	1	0	0	1	0	Not significant in its own right
Social aspects of job	0	0	1	0	0	Not significant in its own right
Interest in sector	0	0	1	1	0	Not significant in its own right
Vertical emerging themes	19 notes for Q2	No emerging themes	2 notes for Q4	6 notes for Q5	No emerging themes	

	Environment and pay are dominating themes; links to operational view of jobs		But no emerging theme	Work environment is dominating theme		

Support family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**	**Horizontal emerging theme**
Variety of support	1	0	2	0	0	Not significant in its own right
Training	1	0	0	0	0	Not significant in its own right
Resources	1	0	0	0	0	Not significant in its own right
Support with application	1	0	0	0	0	Not significant in its own right
Vertical emerging theme	4 notes for Q2 but no dominant theme	No emerging theme	2 notes for Q4 No emerging theme	No emerging theme	No emerging theme	

Not interested / uncertain family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**	**Horizontal emerging theme**
No amount of information would help	0	5	0	0	0	Only arises in digital – supports notion that participants are more likely to

						react against a specified unknown (digital) than an unspecified unknown
Put off by technology	0	1	0	0	0	Not significant in its own right
Relevance	0	1	0	0	0	Not significant in its own right
Social aspects of job	0	1	0	0	0	Not significant in its own right
Lack of understanding of sector	0	3	0	0	0	Only arises in consideration of digital
Vertical emerging theme	No emerging theme	11 notes for Q5 Most dominant	No emerging theme	No emerging theme	No emerging theme	

		theme is lack of interest in sector; second is lack of understanding. Consider if these two things could be connected				

Progression family – additional codes	Q2 (attract)	Q3 (attract - digital)	Q4 (attract - unknown)	Q5 (put off)	Q6 (assumptions)	Horizontal emerging theme
Professional development	0	3	0	0	0	Only rises in question about digital – but in light of other answers there is a potential theme that participants would be willing to think about digital if they knew about developmental opportunities generally
Skills development	0	5	0	0	0	Only rises in question about digital – but in light of other answers there is a potential theme that participants would be willing to think about digital

						if they knew about developmental opportunities generally
Good opportunities	0	1	0	0	0	Only rises in question about digital – but in light of other answers there is a potential theme that participants would be willing to think about digital if they knew about developmental opportunities generally
Future outlook	0	4	0	0	0	Only rises in question about digital – but in light of other answers there is a potential theme that participants would be willing to think about digital if they

						knew about developmental opportunities generally
Vertical emerging theme	No emerging theme	13 notes for Q3 Skills development is most dominant	No emerging theme	No emerging theme	No emerging theme	

Tech use family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**	**Horizontal emerging theme**
Use of tech	0	5	0	0	0	Number of times cited suggests this is not of huge significance but it does suggest that participants thinking about the use technology rather than the broader sector. Could suggest that limited knowledge gives an operational view
Up to date equipment	0	2	0	0	0	Not of significance in its own right but could connect to the notion of operational thinking influencing answers

Vertical emerging theme	No emerging theme	7 notes for Q3 Most are focused on use of tech	No emerging theme	No emerging theme	No emerging theme	

Training family – additional codes	Q2 (attract)	Q3 (attract - digital)	Q4 (attract - unknown)	Q5 (put off)	Q6 (assumptions)	Horizontal emerging theme
Required / expectations too high	0	3	0	0	0	Consider if the participants see this sector as demanding because they lack confidence in their own skills
Availability	0	0	8	0	0	Arises when participants are thinking about unknown sectors. Consider whether this means that participants are more willing to think about training when considering an unspecified and unfamiliar sector than they are when consider a specified but unknown sector (see development opportunities below)
Training process	0	0	1	0	0	Not significant in its own right
Development opportunities	0	0	3	0	0	Consider whether this means that participants are more willing to think about training when considering an unspecified and unfamiliar sector than they are when consider a specified but unknown sector (see availability above)

Lack of training	0	0	0	2	0	Consider whether this means that participants are more willing to think about training when considering an unspecified and unfamiliar sector than they are when consider a specified but unknown sector
Vertical emerging theme	No emerging theme	3 notes for Q3 – concerns about expectations being too high when considering a specified	12 notes for Q4 Availability of training is a key concern when considering a unspecified unknown sector	2 notes for Q5 – Lack of training would put some participants off job opportunity	No emerging theme	

		unknown sector				

Link to degree family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**	**Horizontal emerging theme**
Link to course and skills developed as part of this	0	5	2	0	0	Important link to being able to see use of skills developed in degree
Technology use linked to degree	0	2	0	0	0	Important link to being able to see use of skills developed in degree
Previous interest in area	0	1	0	0	0	Not significant in their own right
Vertical emerging theme	No emerging theme	8 notes for Q3 Participants make link between job and course skills more strongly when thinking about a specified unknown sector that they do when	2 notes for Q4 – Link between course and skills	No emerging theme	No emerging theme	

		thinking about an unspecified unknown				

Skills family – additional codes	Q2 (attract)	Q3 (attract - digital)	Q4 (attract - unknown)	Q5 (put off)	Q6 (assumptions)	Horizontal emerging theme
Developed skills in pandemic	0	1	0	0	0	Not significant in its own right
Role navigating tech would be attract (not programming)	0	1	0	0	0	Not significant in its own right
Vertical emerging theme	No emerging theme	2 notes for Q2 More detail in answers where participants thinking about a specified unknown than an unspecified unknown	No emerging theme	No emerging theme	No emerging theme	

Taster family – additional codes	Q2 (attract)	Q3 (attract - digital)	Q4 (attract - unknown)	Q5 (put off)	Q6 (assumptions)	Horizontal emerging theme
To help make mind up	0	2	0	0	0	Only arises linked to specified unknown

Vertical emerging theme	No emerging theme	2 notes for Q3 Detail when asked about specified unknown rather than unspecified unknown	No emerging theme	No emerging theme	No emerging theme	

Hours family – additional codes	Q2 (attract)	Q3 (attract - digital)	Q4 (attract - unknown)	Q5 (put off)	Q6 (assumptions)	Horizontal emerging theme
Salary	0	0	0	4	0	Link between hours and salary suggests granular and operational approach
Location / travel	0	0	0	3	0	Link between hours and location suggests granular and operational approach
Environment	0	0	0	3	0	Link between hours and environment suggests granular and operational approach
Expectations too high	0	0	0	1	0	May tie in with environment
Personal circumstances (childcare)	0	0	0	1	0	Across the data personal considerations arise in relation to disability and childcare
Vertical emerging theme	No emerging theme	No emerging theme	No emerging theme	12 notes for Q5 Clear definition of things what would put candidates off a job	No emerging theme	

Limited details family – additional codes	Q2 (attract)	Q3 (attract - digital)	Q4 (attract - unknown)	Q5 (put off)	Q6 (assumptions)	Horizontal emerging theme
Poor salary	0	0	0	3	0	For a small number of

						participants, poor salary is important.
Location	0	0	0	1	0	Not significant in its own right but all codes in this family are operational in nature
Training	0	0	0	1	0	Not significant in its own right but all codes in this family are operational in nature

Environment	0	0	0	2	0	Not significant in its own right but all codes in this family are operational in nature
Vertical emerging theme	No emerging theme	No emerging theme	No emerging theme	7 notes for Q5 Concern about poor salary is most frequent secondary code	No emerging theme	

Location family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**	**Horizontal emerging theme**
Distance to workplace	0	0	0	4	0	Distance is the key consideration linked to location; rather than actual location itself – although it is recognised that this might arise if
Hours	0	0	0	2	0	Not significant in its own right but all codes in this family are operational in nature
Salary	0	0	0	2	0	Not significant in its own right but all codes in this family are operational in nature

Reviews / information about company	0	0	0	2	0	Not significant in its own right but all codes in this family are operational in nature
Vertical emerging theme	No emerging theme	No emerging theme	No emerging theme	10 notes for Q5 Worry about distance is most mentioned; other items mentioned	No emerging theme	

				support operational perspective		

Interest family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**	**Horizontal emerging theme**
Career path	0	0	0	2	0	Not significant in its own right
Potential for stress	0	0	0	1	0	Not significant in its own right
Vertical emerging theme	No emerging theme	No emerging theme	No emerging theme	3 notes for Q5 but no emerging theme	No emerging theme	

With tech family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**	**Horizontal emerging theme**
Use of tech equipment	0	0	0	0	21	Along with 'tasks using tech', this suggests operational approach to assumptions. Problem-solving nature of sector is either unknown or does not figure prominently in thinking
Tasks using tech	0	0	0	0	13	Along with 'use of tech equipment', this suggests operational approach to assumptions. Problem-solving nature of the sector is either unknown or does not figure

						prominently in thinking
Technician role	0	0	0	0	3	Not significant in its own right
Media-specific roles	0	0	0	0	10	Creative / media strand of answers likely to be from related programmes
Unsociable	0	0	0	0	1	Not significant in its own right
Vertical emerging theme	No emerging theme	No emerging theme	No emerging theme	No emerging theme	48 notes for Q6; 3 key themes. 2 linked to tech use & 1 around	

					media/creative. Latter likely influenced by students on specific programmes	

Online working family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**	**Horizontal emerging theme**
Working from home	0	0	0	0	7	Assumption linked to experience of pandemic?
Working online	0	0	0	0	22	Assumption linked to experience of pandemic?
Remote working	0	0	0	0	3	Assumption linked to experience of pandemic?
Creative industries link	0	0	0	0	3	Likely to be linked to specific students
Lack of communication / interaction	0	0	0	0	2	Assumption linked to experience of pandemic?
Opportunity for flexibility	0	0	0	0	2	Assumption linked to experience of pandemic?
Parallel with online teaching	0	0	0	0	1	Assumption linked to experience of pandemic?
Vertical emerging theme	No emerging theme	No emerging theme	No emerging theme	No emerging theme	40 notes for Q6 All could be seen to be linked to experience of	

					pandemic and working online	

Creative family – additional codes	Q2 (attract)	Q3 (attract - digital)	Q4 (attract - unknown)	Q5 (put off)	Q6 (assumptions)	Horizontal emerging theme
Social media	0	0	0	0	6	Answer could be linked to programme / modules studied by participant
Marketing	0	0	0	0	9	Answer could be linked to programme / modules studied by participant
Broadcast media and film	0	0	0	0	2	Answer could be linked to programme / modules studied by participant
Design / art	0	0	0	0	4	Answer could be linked to programme / modules studied by participant
Influence / influencer	0	0	0	0	3	Answer could be linked to programme / modules studied by participant
Sales	0	0	0	0	2	Answer could be linked to programme / modules studied by participant
Content	0	0	0	0	2	Answer could be linked to programme / modules studied by participant
Adverts	0	0	0	0	1	Answer could be linked to programme / modules studied by participant
Programming	0	0	0	0	1	Answer could be linked to programme / modules studied by participant
Animation	0	0	0	0	1	Answer could be linked to programme / modules studied

						by participant
Web	0	0	0	0	1	Answer could be linked to programme / modules studied by participant
Vertical emerging theme	No emerging theme	No emerging theme	No emerging theme	No emerging theme	32 notes for Q6 Social media and marketing are most dominant theme, which fits which dominant themes in	

					media programmes	

Repetitive family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**	**Horizontal emerging theme**
Boredom	0	0	0	0	1	Not significant in its own right
Screen time	0	0	0	0	1	Not significant in its own right
Vertical emerging theme	No emerging theme	No emerging theme	No emerging theme	No emerging theme	No emerging theme	

Appendix 15: Stage One stories compiled

Question	Emerging story
Q2: What sort of information would attract you to consider a graduation job opportunity?	**STORY:** Day-to-day experience of the job appears to drive student thinking; clear info code suggests that information provided through job ads is crucial to attracting interest. Overall approach more likely to be driven by personal perceptions and concerns rather than broader opportunity
Q3: What information might make you consider a graduate job opportunity in the digital and technology sector?	**STORY:** Does predominance of 'clear info' suggest a passive ('sell to me') approach rather than an active / curiosity-driven approach?
Q4: What sort of information would be helpful in considering a graduate job opportunity in an area of work or sector you hadn't considered before?	**STORY:** Does predominance of 'clear info' suggest a passive ('sell to me') approach rather than an active / curiosity-driven approach?
Q5: What would put you off a job opportunity?	**STORY:** Perceptions / concerns about 'lived experience' of a role are biggest driver
Q6: If you hear the phrase "digital careers" what things spring to mind and what assumptions do you make?	**STORY:** Potential for these answers to be driven by pandemic experience? Assumption that digital and tech = online working. The labour market is traditionally discussed in sectors – that does not work for digital / tech. May not work for others but with a 'newer' and fast developing sector there is no understanding of the sector absorbed through day-to-day experience. Participants surrounded by technology but limited understanding of its workplace impact.
Q8: If the university was to design and run a session to interest students in broader careers, what would you want to get out of this? It's suggested that you imagine this session is about digital and technology careers	**STORY:** Does number asking for info suggest predominance of 'passive' approach – want to find something that sparks interest before doing anything active?
Q9: Record your ideas for content for such a session, the associated activities and appropriate ways to deliver this (including who should	**STORY:** Challenging question – perhaps students needed examples? See value of employers; less so of alumni. Out of activities presentations and industry insight are viewed as passive / listening events; interactive and skills as active so follows potential 'passive' approach

deliver – eg University staff, employers, alumni)	
Q10: What do you think the best way would be to promote a session like this to students?	**STORY:** Predominant suggestion is for platform which can choose to engage with or ignore
Q11: Do you have any thoughts about other activities which might follow an initial session to help students understand and explore broader opportunities, particularly those in the digital and technology sector?	**STORY:** Workshops crucial in supporting transition from passive to active approaches to broader opportunities
Q12: What is the ideal length of time for a session about broader career opportunities, such as those in digital and technology, to run?	**STORY:** Most chose shorter sessions; suggests that in the first instance, at least, students want to limit time they invest in exploring something. Note that pressures of work / part-time jobs did emerge in some answers
Q13: What is the best way to include such a session as part of your course?	**STORY:** First and third answers mean that 60 students want this includes as part of timetabled content. Extra-curricula could suggest students want more content or it could suggest they want the choice whether to engage
Q14: What is the best venue for such an activity?	**STORY**: Is university a safe space? Responsible for providing access as part of a course? Seen as 'easy' as it does not require any additional effort? Possible area for further research
Q15: What level of study do you think such a session should be aimed at? Please select more than one option if you think such sessions should run at more than one level	**STORY:** Could be seen at odds with providing as part of course – tricky logistics of timetabling all levels together but not impossible; does provide opportunity for peer delivery / learning and for L5 and L6 students to share experience
OVERARCHING STORY: Challenge of switching from passive engagement to active engagement with all career / labour market opportunities	

Appendix 16: Stage Two stories compiled

Question	Emerging stories
Q2: What sort of information would attract you to consider a graduation job opportunity?	**CLEAR INFO SUB-STORY**: Interesting split in the way the students talk about skills. Could be seen as coming back to an operational perspective as none of these answers are about development. **NONE / NOT INTERESTED SUB-STORY:** Answers in this theme were largely categorical and did not reveal detail underpinning the answer, although two students mentioned lack of interest in digital / technology. **EXPERIENCE SUB STORY**: Answers suggest a focus on granular details rather than big picture opportunities. Need to consider that answers with regard to home-working have only arisen because of the pandemic. **PROGRESSION SUB STORY:** There is a small group of participants who would potentially be interested in digital technology if they could see a clear view of how they would develop their skills / how their professional development would benefit. **SALARY SUB STORY:** Underneath salary, no cohesive theme. Perhaps because these participants are looking at a sector they do not believe they are interested in but would see salary as a potential way of being attracted to it. **TECH-USE SUB STORY:** There is a focus on how to use technology; not clear how participants would be equipped to judge if equipment was up to date. **TRAINING SUB STORY:** Recognition that training may be required after university by a small number of participants; answer by one participant suggests that some job ads can seem to have insurmountable requirements. **LINK TO DEGREE SUB STORY**: The direct link to degree programme is clearly significant to some participants. Only one participant identifies links to skills in course (Excel and basic software programming). Question arises about the extent to which students think and bring to the fore the rich and broad range of skills they develop during their degree. **UNCERTAIN SUB STORY**: For some participants, an unfamiliar sector meant they were unable to understand what might make the role attractive. **SKILLS SUB STORY**: For some participants, an unfamiliar sector meant they were unable to understand what might make the role attractive. **TASTER SUB STORY**: For some participants, an unfamiliar sector meant they were unable to understand what might make the role attractive.

QUESTION 2 OVERARCHING STORY: Half of the answers are related to needing operational / granular detail or explicit about lack of interest or uncertain what would interest them. Suggests that with an unfamiliar sector, it is more challenging for students to think in developmental terms	
Q3: What information might make you consider a graduate job opportunity in the digital and technology sector?	**CLEAR INFO SUB-STORY**: Interesting split in the way the students talk about skills. Could be seen as coming back to an operational perspective as none of these answers are about development. **NONE / NOT INTERESTED SUB STORY:** Answers in this theme were largely categorical and did not reveal detail underpinning the answer, although two students mentioned lack of interest in digital / technology. **EXPERIENCE SUB-STORY**: Answers suggest a focus on granular details rather than big picture opportunities. Need to consider that answers with regard to home-working have only arisen because of the pandemic. **PROGRESSION SUB-STORY:** There is a small group of participants who would potentially be interested in digital technology if they could see a clear view of how they would develop their skills / how their professional development would benefit. **SALARY SUB-STORY**: Underneath salary, no cohesive theme. Perhaps because these participants are looking at a sector they do not believe they are interested in but would see salary as a potential way of being attracted to it. **TECH USE SUB-STORY:** There is a focus on how to use technology; not clear how participants would be equipped to judge if equipment was up to date. **TRAINING SUB-STORY:** Recognition that training may be required after university by a small number of participants; answer by one participant suggests that some job ads can seem to have insurmountable requirements. **LINK TO DEGREE SUB-STORY**: The direct link to degree programme is clearly significant to some participants. Only one participant identifies links to skills in course (Excel and basic software programming). Question arises about the extent to which students think and bring to the fore the rich and broad range of skills they develop during their degree.

	UNCERTAIN SUB-STORY: For some participants, an unfamiliar sector meant they were unable to understand what might make the role attractive. **SKILLS SUB-STORY**: For some participants, an unfamiliar sector meant they were unable to understand what might make the role attractive. **TASTER SUB-STORY**: For some participants, an unfamiliar sector meant they were unable to understand what might make the role attractive.
QUESTION 3 OVERARCHING STORY: Half of the answers are related to needing operational / granular detail or explicit about lack of interest or uncertain what would interest them. Suggests that with an unfamiliar sector, it is more challenging for students to think in developmental terms.	
Q4: What sort of information would be helpful in considering a graduate job opportunity in an area of work or sector you hadn't considered before?	**CLEAR INFO SUB-STORY:** This was a large group of answers. More participants thinks about what the job needs rather than what the job might help them develop (could be a ranking order here). Some evidence that a degree is outlined a single, contained component with a specific application, rather than as a multifaceted 'thing' which as many benefits. **CAREER DEVELOPMENT SUB-STORY**: It is interesting that a relative low number of participants think in term of career development when a degree is a developmental stage in their life and should be the starting point for a career 'journey'. **EXPEREINCE SUB-STORY:** This category more about the 'feelings' associated with being in a role; participants would have to perceive /image these, rather than know them. Different to clear info category where information participants are seeking is more granular and based on hard 'facts'. **TRAINING SUB-STORY**: Participants mainly focusing on the offer; potentially want to know how accessible a role is based on the training. **LINK TO DEGREE SUB-STORY**: Participants mainly focusing on the offer; potentially want to know how accessible a role is based on the training. **SUPPORT SUB STORY**: Participants mainly focusing on the offer; potentially want to know how accessible a role is based on the training.

	SALARY SUB-STORY: Participants mainly focusing on the offer; potentially want to know how accessible a role is based on the training. **ACCESS / TRAINING SUB-STORY**: Participants mainly focusing on the offer; potentially want to know how accessible a role is based on the training.
QUESTION 4 OVERARCHING STORY: This question was about an unknown sector but not a specific section (unlike question 3 which was specifically about digital and tech). It is interesting that themes from the stage 1 coding are in much larger groupings. Being specific about the sector seems to have splintered the themes.	
Q5: What would put you off a job opportunity?	**EXPEREINCE SUB-STORY:** There is a contrast between answers which suggest a job lacking something is an issue and answers which suggest that unreasonable / unrealistic expectations is an issue. The weight of answers suggests many of these participants are concerned about negative treatment at work. Is this because they view work through the lens of part-time jobs where they have had a negative experience? **HOURS SUB-STORY:** Participants who had this has their overarching theme were concerned both about 'odd' or poor work hours and long hours. The view of working hours comes across as negative, rather than something potentially new and to be explored. Suggests that these participants have fixed views about what they consider to be acceptable hours. **LIMITED DETAILS SUB-STORY**: Being put off by limited details suggests a potentially passive approach, with participants not necessarily being proactive in seeking additional information before making their mind up about an opportunity. **CAREER DEVELOPMENT SUB-STORY**: Most participants took a 'generic' view of lack of progress; only 1 mentioned lack of progress towards 'dream job. **LOCATION SUB-STORY:** For some participants, travel (or relocation) is a barrier. **SALARY SUB-STORY:** Salary along does not seem to be a driver but it is associated with other potential negatives. **INTEREST SUB-STORY:** Divide between interest per se and link to career path; suggests that some participants might look outside particular fields if the information was appropriately engaging.

	LACK OF TRAINING SUB-STORY: Balance between confidence in capability / expectations and provision of training is an issue for some participants
QUESTION 5 OVERARCHING STORY: Balance between what a job is lacking and unreasonable expectations. Overwhelming focus on day-to-day granular detail rather than overarching focus on potential.	
Q 6: If you hear the phrase "digital careers" what things spring to mind and what assumptions do you make?	**WITH TECH SUB-STORY:** Lack of understanding of sector means that answers are high level and associated with hardware / platforms that participants are familiar with. But there is also a link back in some answers to what participants are familiar with – media platforms and outlets. **ONLINE WORKING SUB-STORY:** Is experience of using tech for online learning during the pandemic influencing the answers here? Participants could be viewing their experience through the lens of the pandemic to make assumption that technology means lack of human contact. **CREATIVE SUB-STORY:** Students who use digital and technology platforms and equipment can see application in jobs but don't necessarily think as broadly as they might. **REPETITIVE SUB-STORY:** For some participants, there is a clear associated between technology meaning working at a screen and this being repetitive / boring.
QUESTION 6 OVERARCHNG STORY: Assumptions limited by experience and potentially influenced through lens of pandemic.	
Q8: If the university was to design and run a session to interest students in broader careers, what would you want to get out of this? It's suggested that you imagine this session is about digital and technology careers	**ACCESSIBILITY SUB-STORY:** Arises mainly where students have particular needs that require consideration. **ADVICE SUB-STORY:** Distinction in analysis between advice and information; two things could potentially be seen as similar but comments about advice suggest an expectation around (and openness to?) being guided and 'coached'. Eg "I would want advice on getting a job in that sector". **EMPLOYER SUB-STORY:** While there is very strong theme about access to further information and to detail, for some participants, the value of hearing direct from employers is foregrounded. It appears that some participants perceive it 'easier' to make judgements about opportunities when hearing direct from those involved and with first-hand experience. **INFORMATION SUB-STORY:** Broader career information is a prominent theme but for some participants the granular job detail and the specific link to their degree are

	a stronger focus. A question for future consideration might be around understanding what motivates students to think in terms of career opportunities rather than granular detail. **SKILLS SUB-STORY:** Answers suggest there is work to do around the language of skills to develop students so that they think in terms of transferrable first and foremost and have the confidence to consider different applications of these skills. **PRACTICAL SUB-STORY:** This is not a strong theme but practical sessions could be designed to share information and to support participants in discovering information as well as providing experience and developing understanding of particular areas if work
QUESTION 8 OVERARCHING STORY: Many answers suggestion quite narrow thinking about skills and opportunities. The answers and the sub-stories prompt consideration of the role of practical sessions in terms of information discovery, developing the language of skills and understanding of their application and broader thinking about where a degree can lead. They potentially have the ability to achieve far more than simply letting students 'have a go'. **CODING NOTE:** *Emergence of theme about accessing information and using information. Students Know they need information but perhaps need to better understand how to define that information, how to navigate it, how it expand on it and how to follow it up.*	
Q9: Record your ideas for content for such a session, the associated activities and appropriate ways to deliver this (including who should deliver – eg University staff, employers, alumni)	**ALUMNI SUB-STORY:** Recognition of importance of inputs from multiple stakeholders. **EMPLOYERS SUB-STORY:** Recognition of importance of inputs from multiple stakeholders; clear recognition of the value of employers. **INDUSTRY INSIGHT SUB-STORY:** Recognition of importance of inputs from multiple stakeholders; clear recognition of the value of employers; some recognition of the potential value of interactive sessions. **INTERACTIVE SUB-STORY:** Recognition of importance of inputs from multiple stakeholders; participants viewed the interactive sessions in several ways – as a means to understand what it is like working in the industry, as a means to develop skills and as a means for employers to understand the strengths and weaknesses of students. **PRESENTATIONS SUB-STORY:** Clear recognition of information being needed to develop understanding; further recognition of role of multiple stakeholders.

	SKILLS SUB-STORY: Communication skills, in particular, emerge as important.
QUESTION 9 OVERARCHING STORY: There appears to be genuine recognition of the value of hearing from multiple stakeholders and clear recognition of the value of employers in this mix and the insight and expertise they can bring. Evidence that students see value in a variety of delivery / participation approaches.	
Q10: What do you think the best way would be to promote a session like this to students?	No stage 2 coding required
Q11: Do you have any thoughts about other activities which might follow an initial session to help students understand and explore broader opportunities, particularly those in the digital and technology sector?	No stage 2 coding required
Q12: What is the ideal length of time for a session about broader career opportunities, such as those in digital and technology, to run?	No stage 2 coding required
Q13: What is the best way to include such a session as part of your course?	
Q14: What is the best venue for such an activity?	
Q15: What level of study do you think such a session should be aimed at? Please select more than one option if you think such sessions should run at more than one level	

Appendix 17: Emerging stories compared

Question 2	Initial instinctive coding – emerging story	Initial exploratory coding – emerging story	Vertical themes from exploratory coding
What sort of information would attract you to consider a graduate job opportunity?	Day-to-day experience of the job appears to drive student thinking; clear info code suggests that information provided through job ads is crucial to attracting interest. Overall approach more likely to be driven by personal perceptions and concerns rather than broader opportunity	Half of the answers are related to needing operational / granular detail or explicit about lack of interest or uncertain what would interest them. Suggests that with an unfamiliar sector, it is more challenging for students to think in developmental terms	**Experience family (24 notes):** Overwhelming focus of answers is around work environment and day-to-day experience **Interest family (9 notes):** There is more detail from participants when thinking about opportunities generally, rather than specifically **Career development family (33 notes):** When thinking about opportunities generally, participants have a focus on development and progress. **Clear Information family (19 notes):** Working environment is the most significant consideration, followed by development opportunities. **Salary family (19 notes):** Environment and pay are dominant themes; potentially links to operational view of jobs. No emerging themes for other code families

Findings: There is an overwhelming focus on day-to-day experience and operational and granular detail. While participants might want clear information,

there is a greater balance towards wanting information about day-to-day experience and the working environment, above wanting information about development opportunities. The data suggests that participants find it harder to think in about development when they are unfamiliar with something.

Question 3	Initial instinctive coding – emerging story	Initial exploratory coding – emerging story	Vertical themes from exploratory coding
What information might make you consider a graduate job opportunity in the digital and technology sector?	Does predominance of 'clear info' suggest a passive ('sell to me') approach rather than an active / curiosity-driven approach?	Half of the answers are related to needing operational / granular detail or explicit about lack of interest or being uncertain what would interest them. Suggests that with an unfamiliar sector, it is more challenging for students to think in developmental terms.	**Experience family (12 notes):** Day-to-day work environment also significant – though not as much for Q2 **Clear information family (18 notes):** Skills is biggest consideration for a specified but unknown sector, followed by working environment. **Not interested / uncertain family (11 notes):** Most dominant theme is lack of interest in sector; second is lack of understanding. Consider of these two things could be connected? **Progression family (13 notes):** Skills development dominates **Tech use family (7 notes):** Most are focused on use of tech **Training family (3 notes):** Concerns raised about expectations being too high when considering a specified but unknown sector

			Link to degree family (8 notes): Participants make link between job and curse skills more strongly when thinking about a specified but unknown sector than they do when thinking about an unspecified and unknown sector. **Skills family (notes):** There is more detail on the answers where participants are thinking about a specified but unknown sector rather than an unspecified and unknown sector. **Taster family (2 notes):** This detail emerges when participants are asked about a specified but unknown sector rather than an unspecified and unknown sector. No emerging theme for other families
FINDINGS: There is a dominant theme around participants wanting clear information at operational and granular level. This leads to two considerations – that participants finding it challenge to think in terms of development when think about an unknown sector; and that participants do not take a 'curiosity' leads approach – they want information providing to them so that the opportunity is 'sold' to them.			

Question 4	Initial instinctive coding – emerging story	Initial exploratory coding – emerging story	Vertical themes from exploratory coding
What sort of information would be	Does predominance of 'clear info' suggest a passive ('sell to	This question was about an unknown sector but not a	**Experience family (26 notes):** Overwhelming focus

helpful in considering a graduate job opportunity in an area of work or sector you hadn't considered before?	me') approach rather than an active / curiosity-driven approach?	specific sector (unlike question 3 which was specifically about digital and tech). It is interesting that themes from the stage 1 coding are in much larger groupings. Being specific about the sector seems to have splintered the themes.	of answers is around work environment and day-to-day experience **Career development family (7 notes):** Shows some consideration of skills development and future opportunities **Clear information family (44 notes):** Working environment is biggest single category; followed by skills required; then development opportunities. For an unspecified and unknown sector, operational comes first, followed by whether a participant can do the job and whether there will be development **Training family (12 notes):** Availability of training is a key concern when considering an unspecified and unknown sector **Link to degree family (2 notes):** Link between course and skills No emerging themes for other code families
FINDINGS: The issue of passive / 'sell to me' approaches arises again. Start to see differences between reactions to specified but unknown sector and unspecified and unknown sector.			

Question 5	Initial instinctive coding – emerging story	Initial exploratory coding – emerging story	Vertical themes from exploratory coding
What would put you off a job opportunity?	Perceptions / concerns about 'lived experience' of a role are biggest driver	Balance between what a job is lacking and unreasonable expectations. Overwhelming focus on day-to-day granular detail rather than overarching focus on potential.	**Experience family (58 notes):** Overwhelming focus of answers is around work environment and day-to-day experience but greater focus towards 'deficit' views (what is not there) **Career development family (8 notes):** Shows concern about lack of development / environment **Hours family (12 notes):** Clear definition of things that would put candidates off a job **Limited details family (7 notes):** Concern about poor salary is most frequent secondary code **Location family (10 notes):** Concern about distance is most mentioned; other items mentioned support emerging story about operational perspective of participants. No emerging themes for other code families
FINDINGS: Operational and granular details; one consideration is whether participants view all opportunities through the lens of their part-time jobs.			

Question 6	Initial instinctive coding – emerging story	Initial exploratory coding – emerging story	Vertical themes from exploratory coding
If you hear the phrase "digital careers" what things spring to mind and what assumptions do you make?	Potential for these answers to be driven by pandemic experience? Assumption that digital and tech = online working. The labour market is traditionally discussed in sectors – that does not work for digital / tech. May not work for others but with a 'newer' and fast developing sector there is no understanding of the sector absorbed through day-to-day experience. Participants surrounded by technology but limited understanding of its workplace impact.	Assumptions limited by experience and potentially influenced through lens of pandemic.	**With tech family (48 notes):** Three key themes – two linked to use of technology and one around media / creative. The latter is likely to be influenced by students on specific programmes. **Online working family (40 notes):** All comments could be seen to be linked to experience of pandemic and working online **Creative family (32 notes):** Social media and marketing are the most dominant themes, which fits with core components in programmes studied by some participants
FINDINGS: Pandemic influence. Challenge of considering a sector that is not known or understood. Limited understanding of technological impact in workplace. Experience of participants generally and their experience in the pandemic. The programme students are on influences their answers. Does this suggest need for digital baseline across all programmes.			

Appendix 18: Illustration of allocation of final reflective and focused categories for Experience code

Green boxes indicate questions which were positive prompts about job opportunities.

FINAL FOCUSED CODE: 1a. Experience (opportunity) driven; 1b. Experience (operational) driven; 1c. Experience (deficit) driven					
Experience codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**
1a. Experience (opportunity) driven Includes development and skills	7	2	5	0	0
1b. Experience (operational) driven Includes: Working environment, including hours, atmosphere, conditions, variety, job description, team, equality and diversity, culture, social opportunities, job security, remote working, benefits and job satisfaction	15	10	14	25	0
1c. Experience (deficit) driven Includes: Lack of progression, learning opportunities or growth opportunities; lack of care for staff; lack of teamwork; lack of communication; lack of flexibility; lack of professionalism; lack of interest; too much expected; location	0	0	7	33	0

Appendix 19: Illustration of final reflective and focused categories for Information code

Green boxes highlight questions which were seen as positive prompts.

FINAL REFLECTIVE AND FOCUSED CODE: Information (operational) driven; information (opportunity) driven					
Clear information family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**
Information (operational) driven: Working environment, including hours, atmosphere, conditions, variety, job description; skills required clients; understanding of technology; use of existing skills; childcare	14	18	35	28	0
Information (opportunity) driven: Development opportunities, including training; opportunity for taster	5	2	9	1	0

Appendix 20: Illustration of allocation of final reflective and focused categories for Development code

Green boxes indicate questions which were positive prompts.

FINAL FOCUSED CODE: 3a. Development (training) driven; 3b. Development (progression) driven; 3c. Development (deficit) driven Stage 1 and 2 codes Support, Progression,					
Development family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**
3a. Development (training) driven: Including training, opportunities for learning, skills development, well-being, support, hands-on learning, using skills developed in pandemic	28	5	18	2	0
3b. Development (progression) driven: Including opportunities for progression and future opportunities	9	13	3		
3c. Development (deficit) driven: Including lack of development and progression opportunities, environment, job not being interesting and location	0	0	0	8	0

Appendix 21: Illustration of allocation of final reflective and focused categories for Material code

Green boxes indicate questions which were positive prompts.

FINAL FOCUSED CODE: 5a. Material (operational) driven; 5b. Material (opportunity) driven					
Material family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**
5a. Material (operational) driven: Working environment, including hours, atmosphere, conditions, variety, job description, good pay, opinions about company, team, benefits, location, social aspects, interest in sector	16	7	2	7	0
5b. Material (opportunity) driven: Including opportunities to progress, support and mentoring	4	2	2	0	0

Appendix 22: Illustration of allocation of final and reflective focused categories for Existing Interest code

Green boxes indicate positive prompt questions.

FINAL FOCUSED CODE: 2. Existing interest driver					
Interest family – additional codes	**Q2 (attract)**	**Q3 (attract - digital)**	**Q4 (attract - unknown)**	**Q5 (put off)**	**Q6 (assumptions)**
Relevance to degree / chosen career driver	4	9	2	2	0
Able to keep developing skills driver	3	0	0	0	0
'Dream job' driver	2	0	0	0	0
Potential for stress / put off by technology driver	0	1	0	1	0
No amount of information would help driver	0	5	0	0	0
Lack of understanding of sector driver	0	3	0	0	0

Appendix 23: Categories identified when students were asked about the digital sector

Category	Definition	Number of answers	Code
With or in tech	Participants identified working with hardware, platforms and technology equipment or in a technology rich environment.	32	6a (neutral)
Online working	Participants identified working remotely	29	6a (neutral)
Job titles	Participants noted particular jobs, such as digital designer or IT technician	11	6a (neutral)
Creative	Participants identified the creation of ideas or content, influencing and media related opportunities, including film and photography and advertising	9	6a (neutral)
Tasks	Participants noted what they might do, including coding and fixing broken computers	5	6b (negative)
Repetitive	Participants either used this particular word, boredom or too much screen time	3	6b (negative)
Office	Participants made an assumption that roles would be based in an office	2	6b (negative)
No answer	N/A	1	

Appendix 24: Graduate attribute ranking exercises in chronological order of completion

Order	Ranking activity	Participants	Use in research study
1	Pilot study	Three students Three employers	Top 10 attributes as ranked by pilot study employers were used to inform discussion in employer workshop in main study
2	Top 10 attributes as ranked by employer workshop in main study	Five employers	Used as part of Microsoft Teams workshops with students to help illustrate what employers are looking for
3a	JISC online ranking activity – students Full list of attributes – categorises as *essential, important, desirable, not important*	52 students	Activity carried out via JISC Online Survey prior to student workshops in Microsoft Teams. Analysed after workshops and used to compare against other ranking activities
3a(i)	JISC online ranking activity – students After completing the categorisation of all graduate attributes, 32 of the students completed the final part of the exercise - ranking the graduate attributes that they considered essential	32 students	Activity carried out via JISC Online Survey prior to student workshops in Microsoft Teams. Analysed after workshops and used to compare against other ranking activities
3b	JISC online ranking activity – employers Full list of attributes – categorises as '*essential', 'important', 'desirable', 'not important'*	Three employers (two of the five employer participants did not access and carryout this activity)	Activity carried out via JISC Online Survey prior to student workshops in Microsoft Teams. Analysed after workshops and used to compare

	Attributes categorised as *'essential'* the ranked in order of importance		against other ranking activities
4a	Microsoft Forms – students Top 10 attributes as ranked by students in the pilot study were listed in alphabetical order and participants were asked to rank them in order	92 students	Activity carried out during student workshops. Allows for comparison back to pilot study and for comparison to JISC data. Allows for consideration as to whether discussion of attributes and career opportunities potentially influenced any different thinking about attributes
4b	Microsoft Forms – employers Top 10 attributes as ranked by employers in the pilot study were listed in alphabetical order and participants were asked to rank them in order	5 employers	Activity carried out during employer workshop. Allows for comparison back to pilot study and for comparison to JISC data. Allows for consideration as to whether discussion of attributes and career opportunities potentially influenced any different thinking about attributes

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