An exploration of degree apprentice perspectives: A Q methodology study

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Abstract

Degree apprenticeships have recently been introduced in the UK, representing a significant shift in approaches to degree-level study: from traditional models of higher education to workplaces as locations for learning. As the model matures it is important to hear the under-researched perspectives of apprentices who hold dual roles: as students and employees. Using Q methodology, the study aims to identify the different apprentices' viewpoints of the degree apprenticeship, exploring aspects of belonging, support, challenges and views of the learning experience. Thirty-five second-year computing apprentices at a UK university participated in the study. Centroid factor analysis was conducted to identify different perspectives. Three perspectives of apprentices were revealed: *aligned student-workers*, *busy professionals*, and the *cast adrift*. *Aligned student-workers* were balancing work and study effectively, finding value in both. *Busy professionals* were already consolidated as professionals, using this degree apprenticeship to upskill. Finally, the *cast adrift*, reported a lack of support in the workplace that was affecting their view on the apprenticeship. This exploratory study, resulting in a new research instrument and approach, contributes apprentices' perspectives to research and practice, as apprenticeship models expand in the UK and beyond. Support for individual apprentices is a shared responsibility, between universities and employers. All three parties, including apprentices, benefit from learning more about apprentices' situated experiences, their sense of belonging and identity, and their views on the apprenticeship.

Policymakers also benefit from insight into the shared responsibilities of successful degree apprenticeships, as these apprenticeships evolve.

Keywords: Work-based learning; degree apprenticeships; Q-methodology; computing

Introduction

Degree apprenticeships represent a significant new initiative in post-16 education that transforms the roles of universities and employers and has the potential to disrupt traditional approaches to university degree study. In particular, the model potentially divides learners into two camps: traditional on-campus students and work-based apprentices, raising questions about parity in esteem (Bathmaker 2017). In the UK, degree apprenticeships, whereby an individual is offered the opportunity to study for a degree while in work, were introduced in 2015. The model differs from a part-time degree as the apprentice undertakes a significant part of their course in the workplace, through work-based learning (WBL), under the mentorship of their employer (QAA 2019). This means that the degree can be completed in a similar length of time to a traditional on-campus degree.

Similar models of work-integrated learning, leading to higher education qualifications, include dual systems, in continental Europe, and North America's cooperative education (co-op) model. In both models, apprentices engage in alternate periods of workplace employment and studying with an education institution. In Germany, for example, students alternate periods (e.g., three months) of working with the same company, with periods of block release at university, and an understanding that a graduate job exists on successful completion of the dual degree (Göhringer 2002). The cooperative education model offers similarly rich work experience but is typically undertaken across various employers, so a number of different working environments are experienced. Dual and co-op degrees are generally aimed at young people who have

recently left school (CWIHE 2016), with minimal experience of the workplace (Linn 2015). Whereas, degree apprenticeships in the UK are designed to close skills gaps and increase social mobility (QAA 2019; Taylor-Smith et al. 2019a) and do not have an upper age limit (SDS 2019).

This new model represents a significant financial investment in skills and training, aiming to build a bigger pool of more highly-skilled labour. Backed by considerable investment, it is important that stakeholders (including apprentices, employers, governing bodies, and Higher Education Institutes (HEIs) critically reflect on the benefits and areas for improvement. This prompts a number of questions on best practice, including how the new provision should be implemented, how it is experienced, how it should be evaluated and, for the individual, how to understand the value of undertaking one or another form of study. This timely study uses Q methodology to elicit shared viewpoints among second-year apprentices, representing a new way to consider degree apprenticeships. Through the use of Q methodology, we aim to have a more nuanced understanding of commonalities and diversity in apprentices' viewpoints. By exploring apprentices' work-study experiences, within these new degrees, we can articulate challenges and benefits from the apprentices' situated perspectives.

Literature review

Work-based learning

In the context of further and higher education, WBL can be defined as learning, agreed by the education provider and employer, undertaken in a workplace (Boud and Solomon 2001). Illeris (2004) describes how learning in the workplace takes place at the *interaction between* the individual learner (their identity, history, and learning dynamic)

and the work environment (the organisational and social context). WBL research needs to include approaches which explore this highly contextualised interaction and the experience of those involved. The apprenticeship literature, published before apprenticeships were piloted to degree level, is highly influenced by Lave and Wenger's (1991) accounts of learning situations. Such literature conceives of learning as fundamentally social and learners' host organisations are considered in terms of communities of practice. Within these social learning systems, apprentices learn through participation and participants influence each other's understanding –they negotiate meaning, based on their experiences (Peters et al. 2014). Learning is a process of change, both for the apprentices and the organisation, and a source of identity construction (Lave and Wenger 1991). Fuller and Unwin (2003), building on Lave and Wenger's work, explore the relationship between the work (organisational) context and the apprentices' experience of learning. They summarise the contexts that support workplace learning in the Expansive Restrictive framework, where expansive features are more conducive to employees' learning and development. For example, the expansive characteristic "planned time off-the-job including for knowledge-based courses, and for reflection" (Fuller & Unwin, 2003, 144) is contrasted with the restrictive characteristic in which learning is "virtually all-on-job: limited opportunities for reflection" (144). Aligning these theoretical frameworks with the contexts of the degree apprenticeships, we chose to focus on the themes of work and study, especially work-based learning, and identity (professional, organisational, and student identities). Reflecting the apprentices' learning relationships with both their employer organisation and HEI, we also explored the theme of belonging.

Relationship between workplace and university study

Work-based learning is often presented in terms of a powerful combination of

experience, learning, theory, and practice (e.g., Helyer 2015). The challenge for the researcher is to gather learner perspectives of this mix, along with the necessary information to contextualise and understand. Linn (2015) identifies her graduates' previous workplace learning in terms of "embodied action" (308), as they *realise* their academic learning within workplace doing. This process is often presented as a cycle of: practical experience, gathering related knowledge, and reflecting on their interaction (e.g., Lester and Bravenboer 2016; Linn 2015), especially with reference to Kolb's "experiential learning" cycle (1984). It is recognised that this merger of experience, learning, theory and practice is only really experienced by the students themselves (CWIHE 2016), hence the importance of understanding their perspectives.

The apprenticeship degrees have been specifically developed to meet the needs of industry sectors, integrating the workplace with university study (QAA 2019). The place of employment becomes a credited place of learning (SDS 2016). Nevalainen, Lunkka, and Suhonen's (2018) systematic review of WBL in health care organisations investigates the impact of the workplace context – culture, structures, place, management, and interpersonal relations – on nursing students' propensity to learn. Reflecting Fuller and Unwin's framework (2003), the busy, task-focused working environment makes prioritising time to reflect on learning particularly challenging. Wallin, Nokelainen, and Mikkonen's (2018) suggest that work-based learners need to be supported to self-manage this "context-dependent and individualised process" (359). Hamilton's (2018) study with work-based learners highlights the importance of HEIs maintaining academic perspectives that sit at a tangent to employment, such as critical approaches which promote core values like social justice. Hamilton also reminds us that many work-based students would not be able to attend university without their workplace pay.

Work-based learning processes and actors

Research into cooperative education (e.g., Johnston et al. 2003; Linn 2015) is a rich resource in terms of opening the black box of WBL to investigate how it works: unpacking theoretical perspectives; exploring processes and learners' experiences; working with co-op staff, students, graduates, and employers. Johnston et al. (2003) chose Q methodology to explore the perspectives of both co-op students and practitioners. Their study is an appropriate methodological precedent for this investigation, where we focus on the apprentices' experience of WBL, the relationship between their work and university study, including dual identities, and belonging.

Work-based learning tends to include specific processes to support students/ apprentices across the domains of the university and workplace. Each learner should have: a workplace mentor, who also interacts with university staff (SDS 2016); regular workplace visits from university staff (Johnston et al. 2003); and a tripartite learning plan agreed by the three parties (Basit et al. 2015). In the context of the introduction of degree apprenticeships, there was recognition that workplace mentors require additional training and a suggestion that this should come from universities, to further strengthen the link between organisations (Lester and Bravenboer 2016; Mulkeen et al. 2017). Roberts, Storm, and Flynn (2019) propose a comprehensive model for mentoring degree apprentices: providing induction; setting workplace expectations of professionalism; proactively facilitating learning within and outside of the workplace; encouraging engagement with support networks; and supporting the achievement of the apprenticeship standard. Nevalainen et al. (2018) and Wallin et al. (2018) suggest a somewhat less formal role for mentors, in which they provide crucial opportunities for reflection. This study explores WBL processes and the mentor relationship from the apprentices' perspective.

Dual identities and belonging

Apprentices are salaried employees *and* university students. As identity is entwined with learning (Fuller and Unwin 2003; Hamilton 2018), the apprentices' experience of these dual identities is an essential focus for our research. Hamilton's contrasting case studies of work-based social work students illustrate the dynamic and social elements of their dual identities. Although the students started their degrees with established professional identities, these evolved as they began to succeed academically: their enhanced self-confidence and grounding in theory transformed both their personal and professional identities. Fuller and Unwin (2003) suggest that apprentices' identity development can be specifically supported, through example career trajectories, opportunities for reflection, and boundary crossing, e.g., using their skills beyond the workplace (cf. Wallin et al. 2018).

Meanwhile, engagement with university is restricted by the demands of the job, impeding construction of a traditional student identity and sense of belonging. For example, apprentices who attend university one day a week and spend the other four in their workplace are unlikely to find time to join sports teams or societies and may contrast their student identity with real or imagined full-time students (Taylor-Smith et al 2019a). In Mulkeen et al.'s (2017) investigation of degree apprenticeships, university staff were concerned that apprentices may experience a lack of belonging, with a negative impact on their studies.

Building on this review and the context of degree apprenticeships, this study focuses on the complex intersections of work and study, including questions of identity and belonging, summarised by these questions:

- What are the apprentices' views on their experience of work-based learning?

- What do they see as challenges in their work-based learning context?
- What are their views on support from their employer and the university?
- How do they experience their potentially dual identity and where do they experience belonging?

Methodology

Design

Q methodology is both a data collection and analysis technique, used to identify various perspectives and consensus within a group on a specific topic (Balloo 2018; Watts and Stenner 2005). The method "enables the researcher to take holistic individual perspectives to establish precisely how far and in what ways these perspectives are similar to and different from one another" (Woods 2012, 904). Participants in a Q methodology study begin by doing a Q-sort, which involves sorting statements which present a range of ideas about the topic. These statements are ranked along a standardised ranking distribution (as shown in Figure 1). This ranking process of the statements relative to each other is a holistic task that distinguishes Q methodology from a survey which asks participants to rank each statement separately on a Likert scale. During analysis, these rankings are subjected to a series of statistical processes, which group together Q-sorts that share similarities, into factors (Watts and Stenner 2005).

In this study, statements were compiled based on: a series of interviews with apprentices (Taylor-Smith et al. 2019b); previous Q methodology research on work-based learning (Forister and Chlup 2017; Johnston et al. 2003); the literature above; and discussions with stakeholders involved in the programme delivery. This collection of information and opinions gathered on the subject is called a *concourse*. The statements

are developed from the concourse to represent the "breadth of opinions about the phenomenon being researched" (Johnston et al. 2003, 165). Discussions between a programme leader, lecturers, and researchers narrowed down the initial pool of 69 statements to 46. The instrument was also pilot tested by the same people, who tried to adopt the perspective of an apprentice during the process. From this, the 46 statements listed in Table 3 were derived to form the final set for participants to sort. These statements were distributed across different themes: views on the work-based learning experience (n=14), challenges of doing work-based learning (n=13), views on support from employer and university (n=10), and statements on belonging and identity (n=9).

A paper-based questionnaire was provided for participants to record their sort, including their reasons for choosing the items that they most disagreed/agreed with. These reasons are the source of quotes in the findings section below, providing more information about the apprentices' perspectives. The questionnaire also asked basic demographic questions (gender and age group); how often they met their mentors; and how long they had been with their employer.

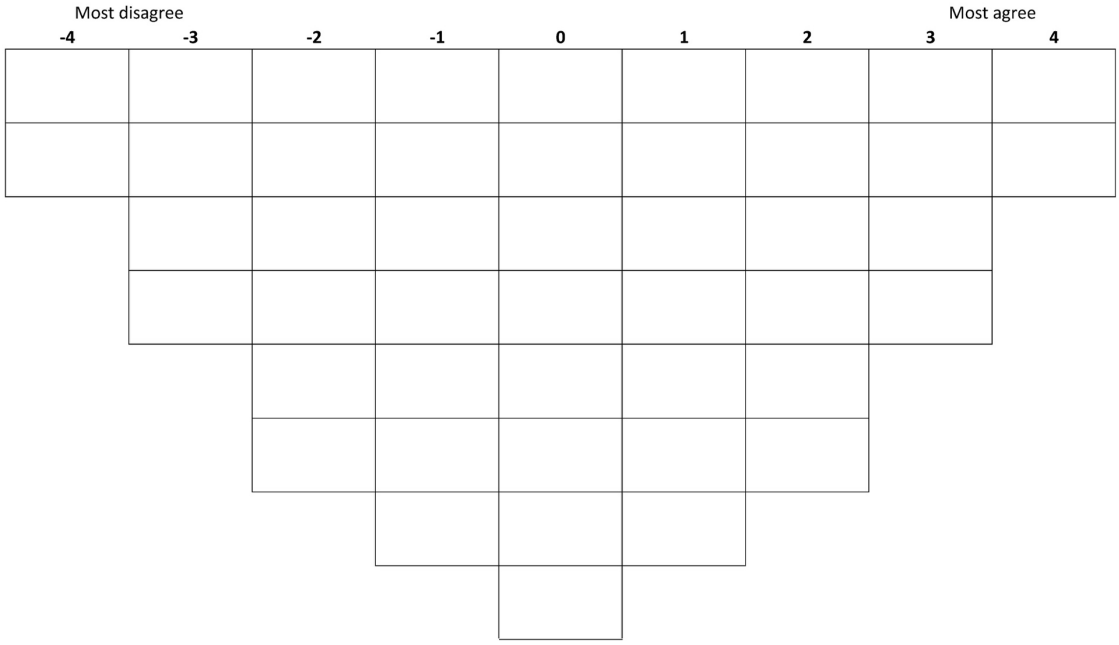

Fig 1. Q sorting grid.

Participants

All second-year apprentices studying computing at a post-1992 UK university were invited to participate in the study. The invitation was limited to second-year apprentices to ensure that participants had experience of the degree apprenticeship, rather than rating the statements based on, for example, an idealised perspective. A total of 35 participated from a total population of 65. Relatively small sample sizes are adequate for Q methodology since the focus is on "identifying a range of perspectives rather than statistical generalisation of every viewpoint" (Balloo 2018, 2253). Table 1 shows the distribution of the participants in the study.

Table 1. Demographic information

Demographic Information	**Count (%)**
Gender:	
Male	26 (74%)
Female	8 (23%)
Not specified	1 (3%)
Age Group:	
Below 25	21 (60%)
25 and above	14 (40%)
Recruited for degree apprenticeship:	
No	22 (63%)
Yes	13 (37%)

Procedure

Participants were given a short introduction and invited to sign informed consent forms. They were each given a set of cards, a sorting grid, and a questionnaire. Participants grouped the cards into statements they agreed with, statements they disagreed with, and statements that they were either unsure of or felt neutral about. The participants were asked to place the statements in the grid, starting with the statements that they most disagreed with (-4), working towards the middle of the grid. They then moved on to sort the statements they most agreed with (+4), working back towards the middle of the grid. Finally, the cards from the neutral group were placed in the remaining places on the grid. Once all cards were completely sorted, participants were allowed to re-arrange their sort before recording their sort on the questionnaire. Finally, participants

completed the questionnaire, including some justifications for their choices.

Data analysis was conducted using Banasick's (2018) online application for Q methodology. The application first scores the intercorrelation of each of the participants' Q-sort. Factors were then extracted using centroid factor analysis with varimax rotation to maximise the variation between factors. The factor analysis conducted here is by-participant to group together Q-sorts with similar rankings. Thus, factors here are groups of responses (Q-sorts) which reveal a common perspective, based on ranking statements similarly within the factor and in contrast to the other factors. While there are no firm rules in terms of how many factors to retain, Coogan and Herrington (2011) suggested that "the number of factors extracted from the data is based an evaluation of eigenvalues, distinguishing statements and the number of participants loading on all factors" (26). Banasick's application produces a composite Q-sort (called *factor array)* for each factor based on the average of the *factor exemplars* (Q sorts that have loaded on a particular factor). Factor arrays (similar to the one shown in Table 3), are thus "best-estimate Q-sorts" that represent the exemplars (Watts and Stenner, 2005, 82). The process also identifies the distinguishing and consensus statements across the factors. Distinguishing statements are statements within a factor whose score is significantly different from the other factors. For example, in Table 3, Factor C's score of -4 on the item *the things I learned at work are useful for coursework* is a distinguishing statement because it significantly differs with Factor A and Factor B. Consensus statements are those that represent agreement across all factors. To analyse fully the viewpoints expressed by the factor arrays, the accounts presented are constructed by reference to the positioning and overall configuration of the statements in the composite Q sort, and in relation to the distinguishing and consensus statements and how these compare with the other factors (Watts and Stenner 2005).

Findings

Three factors were retained following a centroid factor analysis with varimax rotation. All three factors had an eigenvalue in excess of 1.00 and had at least two Q-sorts that loaded significantly on that factor alone, meeting Watts and Stenner's (2005) criteria for factors to include in factor interpretation. These three factors accounted for 28 out of the 35 (80%) Q-sorts and explained 44% of the study variance, within the acceptable values of 40% (Watts and Stenner 2005). The other seven Q-sorts are those who may have low factor loading on the three factors or those who loaded on more than one factor. The three factors that emerged and their factor loadings are presented in Table 2. Table 3 shows the ranking of each statement in each of the factors.

Table 2. Factor loadings

Participant	Factor A: Aligned student workers	Factor B: Busy professionals	Factor C: Cast-adrift
P1	0.793X		
P2	0.753X		
P3	0.723X		
P4	0.646X		
P5	0.593X	0.451	
P6	0.584X		
P7	0.575X	0.469	
P8	0.548X		
P9	0.534X		
P10	0.534X		
P11	0.522X	0.457	
P12	0.514X	0.462	
P13	0.514X		
P14	0.509X		
P15	0.487X		
P16		0.816X	
P17		0.714X	
P18		0.668X	
P19		0.667X	
P20		0.662X	
P21		0.639X	
P22		0.531X	
P23		0.464X	
P24		0.445X	
P25		0.435X	
P26			0.572X
P27			0.534X
P28			0.524X
Eigenvalue	10.54	3.09	1.55
Explained variance	19%	18%	7%
Number of factor examplars	15	10	3

X denotes a significant correlation ($p<.05$) between the Q-sort and the factor. Factor loadings <.4 are suppressed.

Table 3. Q Sort statements with factor arrays for each factor

	Statements		Factor A	Factor B	Factor C
S1	I am enjoying the apprenticeship experience	Views	4	4	2 [D]
S2	The things learned at work are useful for coursework	Views	0	1	-4 [D]
S3	The things taught in the classroom are applicable to work	Views	1 [D]	2 [D]	-2 [D]
S4	There should be a continuity between the tools/code used at work and those taught at university	Views	1 [C]	0 [C]	1 [C]
S5	One day a week for classes at university is not enough time	Views	-1 [D]	0	1
S6	Academic tutor visits at work are an important aspect of my learning	Views	0	-2	-1
S7	Writing reflective logs about the work I do is useful	Views	0	1	-3 [D]
S8	Discussing aspects of my job in class helps me feel more professional	Views	-1	0	0
S9	Students don't learn anything new in the modules, everything is learned at work	Views	-4	-4	-1 [D]
S10	The apprenticeship programme has helped me to strengthen or expand my professional network	Views	2	1	2
S11	I've developed confidence at work because of the apprenticeship	Views	1	-1	1
S12	Completing the apprenticeship degree will provide me with what I need to be successful after graduation	Views	3	1	2
S13	There is a strong relationship between student grades and job performance	Views	-1 [C]	-1 [C]	0 [C]
S14	Work commitments are more important than study commitments.	Views	0	3 [D]	0
S15	Learning to learn again is a challenge	Challenges	-2 [D]	2 [D]	0 [D]
S16	I feel bored in class	Challenges	0	-2	-2
S17	I feel bored at work	Challenges	-3 [D]	-1 [D]	2 [D]
S18	I have a good work-life-study balance	Challenges	2 [D]	-2	-2
S19	I need to learn more to be able to do my role at work	Challenges	0 [C]	0 [C]	-1 [C]
S20	It is difficult to link theory (coursework) to practice (work)	Challenges	0 [D]	-2 [D]	2 [D]
S21	Staying with the same employer for four years is daunting	Challenges	-3 [D]	0	0
S22	The apprenticeship adversely affects the quality of my work (job)	Challenges	-4	-3	-1 [D]
S23	My mentor /manager is not aware of the pressures of university work	Challenges	-3 [D]	1 [D]	4 [D]

S24	I find myself having to catch up with work after being at university for the day	Challenges	-2[D]	3	2
S25	I am overwhelmed by the things I have to do at university	Challenges	-1	-1	3[D]
S26	I am overwhelmed by the things I have to do at work (job)	Challenges	-2[D]	0	0
S27	I have to take full responsibility for my own development at work	Challenges	0[D]	2[D]	4[D]
S28	I am not getting enough feedback about my performance at work	Support	-1[D]	0[D]	3[D]
S29	Regular communication between mentor/ manager and myself is essential	Support	2	0	1
S30	Employers should provide us with some time to do coursework at work	Support	3[C]	1[C]	3[C]
S31	My mentor/ manager should know my course progression at university	Support	3[D]	1	1
S32	The university should only be concerned about my studies, not my work	Support	-2[C]	-2[C]	-2[C]
S33	My mentor/ manager is supportive about my studies	Support	3	2	-3[D]
S34	My co-workers help me with my coursework	Support	1[D]	-1	-3
S35	There is no support from university in developing me as an IT professional	Support	-2[C]	-3[C]	-2[C]
S36	My work provides me with opportunities to develop as an IT professional	Support	4[D]	3[D]	-4[D]
S37	I don't feel part of the university	Belonging	-1	-3[D]	-1
S38	I think of myself as a part- time student	Belonging	2	-1[D]	1
S39	The university does not respond to the issues that graduate apprentices have	Support	-3	-3	0[D]
S40	I identify myself as an IT professional	Belonging	1[D]	4[D]	-1[D]
S41	I prefer days at work	Belonging	1[D]	-2	-3
S42	I look forward to my day at university	Belonging	1	3[D]	1
S43	I feel part of the organisation I'm working at	Belonging	2	2	-1[D]
S44	I am making a positive contribution at work	Belonging	2	2	0[D]
S45	I think of myself as an apprentice at work.	Belonging	-1	-4[D]	-2
S46	I see work as secondary. My priority is my studies.	Belonging	-2	-1	3[D]

Note: The numbers represent the rank for that particular statement
[D] distinguishing statements
[C] consensus statements

Factor interpretation

The three factors (A-C) are described below. Factors are named, to enhance understanding (Forister and Chlup 2017). Within the narrative, the statements and their rank within that factor are noted as *statement number: rank*. For example, where the first statement (on student enjoyment of the apprenticeship) is ranked as four, this is noted as (S1: +4). We provide the statements and their ranking to help illustrate the views represented by a factor, but ultimately, the analysis of each factor is a holistic one, looking past the consensus and distinguishing statements towards the overall themes supported by the qualitative statements provided by the participants whose Q-sorts loaded on to that specific factor.

Factor A: Aligned student-workers

Factor A explained 19% of the study variance. It had 15 Q-sorts loading on it and these consisted of eleven male and four female apprentices; 14 were below 25 years old. Ten were recruited to do the apprenticeship, while the other five noted that they had been with the company for at least a year or longer, when they started the apprenticeship. All had regular mentor meetings, ranging from weekly to monthly meetings.

This viewpoint sees work-based learning as a continuation of work where support is expected from both employer and university. As such we have termed this factor *aligned student-workers*. Statements relating to support from employers (S36: +4; S33: +3; S31: +3; S34: +1) were ranked higher in comparison to other factors. For example, they agreed that employers should provide time for them to do coursework at work (S30: +3). This quote from the questionnaire help to situate this preference:

> Your employer should let you have the time to allow you to study as they are making a commitment to letting you be an apprentice (Participant 1).

Communication between work and university was also seen as an important aspect of the apprenticeship degree. Regular communication with mentors is essential (S29: +2); employers should be kept up-to-date about course progression (S31: +3) and mentors should be made aware about the pressures of university work (S23: -3). The other two factors rated these statements lower. One of the apprentice explained:

> my mentor/manager is essentially in control of my development so I should know about development opportunities [at work] and they should know about my progress (Participant 6).

It is possible that because of this support, their views about the things they have to do at work (S26: -2), at university (S25: -1), and the balancing act they have to do between the two (S18: +2), were more favourable overall. They also rated the items relating to challenges experienced by apprentices lower than the other factors: for example, boredom at work (S:17: -3); mentor issues (S23: -3); and catching up with work after days at university (S24: -2).

Apprentices who loaded on this factor self-identify as students (S38: +2) higher than the other factors. They feel part of their organisation (S43: +2) and consider themselves to be making a positive contribution to work (S44: +2); this is the same ranking as Factor B who have been working with their employers longer. However, unlike Factor B, they see themselves as professionals to a lesser degree (S40: +1). They prefer days at work (S41: +1) and disagree that work is secondary to their studies (S46: -2). While they are more neutral about the learning continuum between work and university coursework (S2; S3; S7; S20) they agree that the apprenticeship will help them be successful after graduation (S12: +3).

Factor B: Busy Professionals

Factor B explained 18% of the variance and had ten Q-sorts loading on it. It consisted of eight male and two female apprentices; three aged below 25, the other seven above. All were with their organisations prior to starting the apprenticeship. Nine of them have regular monthly or quarterly meetings with their mentor, but one apprentice never had this opportunity.

Apprentices who loaded on this factor identify strongly with items related to work and identify themselves as professionals (S40: +4) higher than those who loaded in Factor A and C, so we use the term *busy professionals* to refer to this group. They disagree with the label "apprentice" (S45: -4) and consider themselves to be making a positive contribution to work (S44: +2).

> I was not hired to do this apprenticeship, I was already in the role and nobody treats me as an apprentice (Participant 21)

They consider their mentors to be supportive about their studies (S33: +2) but they consider themselves to be ultimately responsible for their own development at work (S27: +2). Work is considered more important than their studies (S14; +3). They also feel that they have to catch up with work after being at university (S24: +3).

> I am here to bring value to my work. I can only do this by prioritising work over study (Participant 16)

They are enjoying the apprenticeship experience (S1: +4; S42: +3) and feel part of the university (S37: -3). They consider the things taught in the classroom useful for work (S3: +2) and vice versa (S32: +1). They believe learning happens both at work and at university (S9: -4) and that there is a link between the two (S20: -2).

The challenges they face are their study commitments, such as learning to learn again (S15: +2), and how their study commitments affect work (S24: +3). So, unlike Factor A, they find themselves with a poor work-life-study balance (S18: -2). They see both work and university as opportunities to help them develop as professionals (S35:-3; S36: +3); however, one item that breached the boundary between work and study — the academic visit at work— was rated lower (S6: -2) in comparison to the ratings of Factor A and C. Perhaps these apprentices are happy to bring their professional identity to university, but less happy to bring their student identity to work.

Factor C: Cast Adrift

Three apprentices (2 male, 1 female) loaded to Factor C. All three have been working with their employers prior to joining the apprenticeship and all were above 25. One had never had a meeting with his mentor while the other two had scheduled quarterly meetings.

Apprentices who loaded on this factor did not seem to be getting much support at work. They feel strongly that they have to take responsibility for their own development at work (S27: +4) and they are not getting enough support from work, either in terms of mentor feedback (S28: +3) or support from mentors (S23: +4; S33: -3) and colleagues (S34: -3). The reasons they provide for their rankings provide more detail:

> I have to take full responsibility for my own development at work. It's no one else's (Participant 28)
> I do not know who my mentor is and not once have I had a sit down with him (Participant 27)

We use the term *Cast adrift* to refer to this factor. Unlike the other factors that consider work to offer apprentices opportunities to develop as professionals, the Q sorts

exemplifying this factor feels otherwise (S36: -4). They are also finding it difficult to link theory to practice (S20: +2; S3: -2; S7: -3; S2: -4).

> nothing I am learning at work has yet to apply to university (Participant 28)

They see work as secondary to their studies (S46: +3), feel bored at work (S17: +2), and generally prefer university work (S16: -2; S41: -3). However, they also feel overwhelmed with their coursework (S25: +3) and feel that they have to catch up at work after being at university (S24: +2). Unsurprisingly, they do not feel they have a good work-life-study balance (S18: -2).

Overall, the three factors represent apprentices enjoying the apprenticeship experience (S1), although some more than others. They acknowledge the support that they get from the university in developing them as professionals (S35). While there are differences in the views regarding learning continuity between work and university, all three factors agree that support from both university and employers is an important aspect of the apprenticeship (S32; S30).

Discussion

This study looked across apprentices to find, in general, university study was supportive, enjoyable, valuable (in terms of learning), useful both in making new contacts and the anticipation of a successful future, and the source of a sense of belonging. There seemed to be a good level of understanding about the nature of these degrees, about their roles, and the dynamic interplay at the important intersection between work and study. Universities should take comfort in these findings as they reflect contemporary profiles of on-campus student engagement (Kahu, Picton, and Nelson 2019) and allay some concerns about implementations (for example, Bravenboer

and Lester 2016). Beyond these general findings, however, a more nuanced level of understanding was revealed by the Q-sort which revealed some of the challenges faced by apprentices. Three factors emerged in this study: *aligned student-workers*, *busy professionals* and the *cast adrift*. Each factor emerged with characteristics to aid understanding of the lived experiences of the apprentices and offering potential to improve the implementation of the apprenticeships.

Our *aligned student-workers* reported the most positive and coherent experiences; they were managing work and study while being in a position to relate the two, through coursework and work opportunities that would fulfil the requirements of the work-based study. Furthermore, alignment between work and study was strong, in contrast to previous studies (for example, Bravenboer and Lester 2016). They had a sense of belonging to their employing organisations and recognised the value of their work. There is evidence that organisational belonging and work contexts that support learning can lead to improved performance (Callea, Urbini, and Chirumbolo 2016; Fuller and Unwin, 2010), so this sense of belonging indicates that employers have made a good investment, whether by recruiting apprentices or facilitating degree study amongst existing staff by means of an apprenticeship.

The *busy professionals* in this study identified as workers making a significant contribution to (and valuing) work. They strongly identified with their work organisation and their profession, finding university enjoyable, but work to be more important than their studies. This group were already in the workplace, and although benefiting from acquiring new skills, they were most at risk of not being able to prioritise study. The responsibilities of *busy professionals* at work led to them feeling obliged to catch up with work after a day at the university. The requirement for 20% of time to be set aside for off-the-job learning has been re-emphasised (Powell 2019) to

note that an apprenticeship is not simply an accreditation of work experience or an award that can be completed in evenings and weekends, but must be a true partnership between apprentice, employer, and university. *Busy professionals* are most at risk of finding the work-study-life balance challenging, holding an existing valued contributor status within their organisations. Employers should consider, as part of their commitment, how workloads are managed to support these apprentices, so that the 20% off-the-job learning does not displace that day's work to evening and weekend time.

All apprentices need appropriate support in the workplace (Wallin et al. 2018). The *cast adrift* report receiving little support from either mentors or work colleagues. Work and study were not closely aligned, and work was boring but demanding. They felt responsible for ensuring work would support them with meaningful projects and experience throughout the degree. Subsequently, they lacked a sense of organisational and professional identity, which has been found to reduce job performance (Callea et al. 2016). For example, implementing workplace mentor allocation and mentor training, including clear expectations of the role of the mentor (Mulkeen et al. 2017), could better support the *cast adrift*, and benefit their organisations through increasing these apprentices' satisfaction and engagement.

We return to Fuller and Unwin's (2003) expansive-restrictive model to make the following recommendations:

1. For employers to support apprentice development as *aligned student workers* with the aim of achieving a good work/ study balance for their employees. For example, employer organisations and universities should draw upon apprenticeships to develop close working relationships: to set joint objectives which ensure close alignment of study and work, to find meaning in both study and work, to ensure constructive coherence of work and student identities

resulting in meaningful participation (Fuller and Unwin, 2003). This could start with considering the previous experiences and current work contexts of apprentices, recognising their different transitions into and through work which differentiated apprentices' experiences.

2. Mentors and the support they provide are factors in how students engaged in the degree apprenticeship. So, we recommend that workplace mentor training should be available for all new mentors, and employing organisations should plan for workloads to recognise mentoring activity as well as reduced workloads for apprentices. This would signal the value of mentoring to achieving the expansive learning described by Fuller and Unwin (2003).
3. By revealing the factors that lead to positive attitudes to study as reported here by apprentices, universities should critically reflect on how a better understanding of apprentices' experience could inform new approaches to student engagement for on-campus students where a sense of belonging can be elusive, but, crucially, is linked to academic achievement (Thomas 2012).

Support for individual apprentices is a shared responsibility: shared by universities and employers (Basit et al. 2015). This study helps us to understand more about apprentices' sense of belonging and identity, perceived challenges, and their views on the apprenticeship. To move from understanding, to impact, the outputs of the research were re-imagined as three *personas*. Personas are a design tool in which characteristics are brought together into fictional archetypes (Madsen et al. 2014). The three personas (presented in the supplemental file) provided an intuitive way to consider the needs, goals, and contexts of apprentices, without discussing specific people. They can be used in discussions with university staff and have, so far, been used successfully within a mentor development session.

This exploratory study has several limitations. Q as a method makes no claim about these viewpoints remaining constant over time (Watts and Stenner, 2005). The study was conducted within the first two months of the semester and further experiences of the apprenticeship programme may have resulted in different views. We could have addressed this limitation had our sample consisted of apprentices in their higher level of study but unfortunately, as the programme is new, this was not possible to do so at the time. Another limitation is the study being situated in a single university and focused on computing and IT apprentices. While a large sample size is not a requirement for Q studies, we acknowledge that there are likely other viewpoints not captured in this study. In terms of future work, the study could be extended with participants at different level in their studies, to different subjects, and other degree apprenticeship providers. This would provide a more comprehensive data set and a richer understanding of degree apprentices' perspectives.

Conclusion

To successfully implement this new higher education model, an understanding of the views of the apprentices is essential. This study piloted the Q methodology to holistically identify the different apprentices' perspective of the degree apprenticeship experience. The study design provided the lens to view the complex intersections of work and study, as experienced by the apprentices, and the question of belonging and identity. The Q methodology highlighted both similarities and differences in apprentices' perceptions of the apprenticeship, driven largely by their diverse work contexts. Understanding the apprenticeships this way creates building blocks for both signposting the apprenticeship opportunity effectively and subsequently aligning employer and university support.

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