From work-integrated learning to learning-integrated work: motivations and apprehensions of Graduate Apprentices

Sally Smith*, Ella Taylor-Smith, Colin Smith, and Alison Varey

Edinburgh Napier University, Edinburgh, UK.

* Corresponding author: s.smith@napier.ac.uk

Abstract

Graduate Apprenticeship (GA) degrees bring new collaborations between universities and employers and new opportunities for apprentices—to gain a university degree, while also being in formal employment. In 2017, Scotland introduced funding for GAs: students are based in the workplace and undertake work-based learning as well as attending campus-based classes. To support students through four relatively intense years of study and employment, it is vital to understand their experience. Research workshops were held with computing students starting GAs to explore motivations and apprehensions—their aspirations and understandings of the challenges ahead. Workshops involved a short individual survey and a group Rich Picture session, a participant-centred tool for surfacing perspectives and mental models. To contextualise the data, a comparative study was conducted with computing students starting 'traditional' on-campus degrees. Both groups were primarily motivated by the goal of well-paid careers. The apprentices were worried about work-study balance and the challenges of fulfilling (even keeping) their jobs while passing university assessments. The comparison group were also worried about academic challenges and maintaining a healthy work-life balance; however, unlike the apprentices, they were worried about money and debt. This paper explores the apprentices' context through literature and policy and, with a focus on students' situated perspectives, reflects on the advantages and challenges of this new work-based learning model. The study aims to deepen understanding of how best to ensure apprentices fulfil their aspirations.

Keywords

Work-based learning; work-integrated learning; apprentices; rich pictures; computing

Introduction

In September 2017, the Scottish Government introduced Graduate Apprenticeship work-based learning degrees offered by selected universities. In terms of curriculum development, the degrees were to be employer-led to ensure a good fit of graduate skills and capabilities for industry. The apprentice is a full-time employee, also studying towards their degree, with universities implementing models such as day-release and block release. There was a requirement that the degrees should take the same length of time as traditional on-campus degrees, which in Scotland is four years. Policy documents established the required

principles of work-based learning (SDS, 2016). These represent a shift towards meaningful recognition of learning in the workplace, or *learning-integrated work*. Similar degrees exist elsewhere, including the degree apprenticeship model in England and the German Dual System. Lester, Bravenboer and Webb (2016) recognise work-integrated learning as a continuum, from a traditional degree incorporating some elements of work experience to degrees "built around workplace learning on either an individual or a cohort basis" (p.8). Bravenboer (2016) emphasises the need for collaboration between universities and employers in designing apprenticeship degrees which facilitate academic, credit-bearing, workplace learning. While work-integrated learning as a means of enabling students to gain insights and learning from industry and workplaces is well understood, there has been little work to date from the perspective of the apprentices based in industry undertaking such programmes. This study set out to explore the motivations, aspirations, and concerns of new apprentices at a Scottish university, compared with those of students undertaking traditional fully on-campus degrees. The over-arching aim is to better understand apprentices' perspectives on their experience, in order to inform universities' approaches to the delivery of apprenticeship degrees.

Context

Literature addressing expectations of university study and the process of transitioning provides a good starting point for considering apprentices' perspectives. While the focus of this literature has been towards traditional fully on-campus students (referred to as 'on-campus' from this point on), the implications for apprentices can be assessed.

Expectations of university study

Exploring how expectations of university study might differ for apprentices focuses attention on structural considerations that potentially affect apprentices and shape their expectations, either positively or negatively. Expectations of university study for on-campus students, with university as the context for learning and the social environment, are reasonably well-understood. For apprentices, where both university *and* the workplace act as learning and social environments, expectations are likely to be distinct. The nature of that distinctiveness has not been the subject of recent research.

Expectations of university are shaped by individuals' reasoning about whether or not to attend university (Kahu, Nelson & Picton., 2016). Cotê and Levine (1997) explored five non-exclusive reasons for attending university: to have a career and earn money; for personal development; to support others; because of family and friends' expectations; and as simply being better than alternative options. In their study, personal development/intellectual stimulation was the main motivation, followed by career. Those who could not find anything better to do were at risk of "wasting university resources" (p.240). Money, Nixon, Tracy, Ball, and Dinning (2017) found that students valued "having the chance of a new start and the opportunity to build skills and knowledge" (p.10). Balloo, Pauli, and Worrell (2015) surveyed first year students about their reasons for attending university; improving career prospects was seen as the most important reason, with improved quality of life and personal development also cited.

For many students the step to university is anticipated by both themselves and their families, as inculcated through years of schooling and cultural acceptance (Baker, 2014). For some, the choice of university may be pre-ordained, possibly even the subject discipline, through family practices and parental preferences (Gao & Ng, 2017). These students largely know what to expect, in general terms, through familial expectations and discourse, accompanying their long-term access to cultural and social capital (Bourdieu & Passeron, 1990). Indeed parental, sibling and acquaintance experience narratives can all shape expectations of university life. For others, such as those first in their family to attend university, imagining a university-self may be more challenging through, for example, not having role models to draw upon and being in possession of less relevant cultural capital. Whatever the route into university, expectations, aspirations and concerns are, in any case, experienced individually.

Jackson, Pancer, Pratt, and Hunsberger (2000) found that expectations of university study influenced students' adjustment to university. In particular, those who approached university study in a fearful way, with negative expectations and with little sense of agency, were more likely to suffer from depression and drop out. Kahu et al. (2016) present a framework recognising the wider sociocultural context of becoming a student. An educational interface is presented as the conduit between, on the one hand, institutional and student influences, and, on the other hand, academic and social outcomes. The educational interface is the

result of student interactions with their university and includes four psychosocial constructs: self-efficacy, emotion, belonging, and well-being. There is an extensive body of work exploring these constructs for on-campus students (for example, Wäschle, Allgaier, Lachner, Fink, & Nückles, 2014; Thomas, 2012; Kahu et al., 2016). What is not yet clear, is how these constructs might relate to apprentices and their interactions with two distinct loci, workplace and university. How does self-efficacy play out across these two contexts, each of which require distinct (if inter-related) forms of performance? How are emotion and well-being experienced across each context? How do apprentices develop a sense of belonging, and what aspects of belonging make a difference? Understanding apprentices' navigation of these issues can inspire universities to create environments that take account of both study and work, to best support apprentices to achieve positive outcomes.

Transitioning to university

Transition is a process of change from one life stage to another, a contextualised process individually experienced (Kralik, Visentin, & Van Loon, 2006; Chick & Meleis, 1986). The transition to university has been studied extensively, and several theoretical models proposed (summarised in Cheng, Barnes, Edwards, Corduneanu, & Koukou, 2015), including a model for mapping the formation of student identity (Briggs, Clark, & Hall, 2012). Briggs et al.'s (2012) model proposes a list of factors enabling the construction of a student identity, including activities universities can introduce (for example, sustained induction) but also recognises habitus (for example, Bourdieu, 1977), including early aspirations to be a student and imaginings of self as student. Identity is the answer to the question "who am I?" (Lawler, 2015). Self-identity needs to be reconstructed when new roles and responsibilities are assumed, through undertaking identity work (Holmegaard, Ulriksen, & Madsen, 2014). According to Ibarra and Petriglieri (2010, p.14) the "primary function of identity work is compliance with role requirements and their display rules." An individual's identity is challenged by significant life transitions, such as the transition from school to university or from school to work (Bridges, 2009), prompting identity work. In terms of the transition from work to study, Boudreau, Macdonald, and Steinert (2014) found that apprenticeship learning affords opportunities to construct new identities. Their participants cited learning environments and critical reflection as providing resources for identity work. Kasworm (2005) found adult learners experiencing changing student identities,

influenced by their classroom interactions, their expectations of student behaviours, and their ongoing lived experiences in the home. Kasworm's work further developed into an adult undergraduate student identity (AUSI) model which locates co-construction of self as learner with co-construction of self as worker and family member—i.e., taking account of significant external experiences (Kasworm, 2010).

Multiple identities co-exist, for example, student and worker identities. The nature of on-campus and work roles and experiences will impact on the apprentices' self-identification. Balancing work and study is a challenge for both apprentices and on-campus students. The majority of on-campus students have part-time jobs to fund their studies (for example, Logan, Hughes, & Logan, 2016; McGregor, 2015). This juggling of study with work is less visible to faculty staff than the pressures of work on apprentices, where employers are involved in course design and delivery (Mulkeen, Abdou, Leigh, & Ward, 2017). For these courses, work-based learning is acknowledged through supported academic credit (Feldmann & Sprafke, 2015; Mulkeen et al, 2017). By comparison, paid work for on-campus students, which is unrelated to their degree, garners little academic appreciation, beyond generic recognition of graduate attributes (Gbadamosi, Evans, Richardson, & Ridolfo, 2015).

In the shift from work-integrated learning to learning-integrated work, the main questions to emerge from the literature concerning students' experiences are: how do expectations of university differ for on-campus students and apprentices; and how is student identity construction experienced by apprentices as they transition to combined work and study?

Methodology

To explore these questions, an approach was adopted to gather both individual and group perspectives, comprising a short survey (**n=42**) and a Rich Pictures (RP) exercise (**n=42**, resulting in 10 RPs). The Rich Picture is a method to enable participants to surface and explore aspects of complex situations, analysed through identification of recognisable icons together with audio recorded transcriptions allowing for thematic analysis (Bell, Berg, & Morse, 2016), and has been used previously to capture student expectations (for example, Berg, Bowen, & Smith, 2017). Cohort A participants were apprentices **(n=22)**; Cohort B participants were on-campus students **(n=20)**. At the time of the data collection, both cohorts were in their

first semester of study. Cohort A completed the workshop as part of their induction day; Cohort B participated in a lunchtime workshop, later in the semester. The short survey was designed to gather some information about the backgrounds of the participants and capture their main motivations to study.

Next, participants, in small groups, were invited to express their motives and perceptions, in pictures (RPs). This group RP exercise invited diagrammatic expressions of participants' hopes and concerns about their degree. Specifically, on one large sheet of paper per group, participants were asked to draw:

1. What are your aims and aspirations in this degree? (Picture your journey)
2. What do you hope to get out of it? (Picture yourself in the future)
3. What are you worried about? (Picture potential obstacles)

Students completed the drawing within 20-30 minutes then briefly described their pictures to the whole group. These descriptions were audio-recorded and transcribed. The exercise produced five RPs for Cohort A and five RPs for Cohort B.

Following university ethics procedures, the researchers completed a checklist to identify any issues and necessary actions. The actions identified concerned: informing participants and anonymising workshop data. Each participant signed an informed consent form, describing the research aims and method, the anonymisation and potential use of the workshop data, and their rights within the project.

Findings

Survey findings

The survey results gave an overview of the demographics of each group. Both groups were similar in terms of their self-identified social class and whether their parents had higher education. In each group, 45% designated themselves as working class or lower middle. For about 70% of each group, one or both parents had been to university or polytechnic. About 20% of each group were female. Only one student in each group reported non-white ethnic identity; a greater proportion of the on-campus group were from outside the UK (45%, compared to 13.6% of the apprentices. The apprentices were more diverse in terms of age; the on-campus cohort were mostly under 21 (and all under 25)—most of them had left school the previous summer.

Nearly a third of Cohort A were over 26; having left school between 1981 and the preceding summer. Three apprentices had some experience of university; one had a degree. Some apprentices had been employed by their current employer prior to becoming a GA (half had been employed there for more than 18 months, including one who had been employed there for 28 years); some (18.2%) were recruited by the employer to become a GA. About a quarter of the on-campus group had a part-time job beyond university (2/5 of these were relevant to their degree); most of the others were looking for paid work.

The survey asked "What are your main aims in undertaking this [apprenticeship] degree?" and "What skills are you most keen to develop within this [apprenticeship] degree?" In terms of skills, the objectives of participants in both groups centred on coding/ programming). The on-campus students were more likely to specify social/ professional/ interpersonal skills, whereas more apprentices specified project management. This may reflect the content of the two cohorts' activities immediately prior to the workshop, specifically Cohort A's induction day sessions. The apprentices were more likely to phrase their aims in terms of benefits to their employer, e.g., "To develop my skills for me and [my] company" (Survey response, Cohort A).

The survey asked "What do you think will be the main challenge(s) for you?" Participants from both groups expressed concerns around learning and understanding. Cohort A anticipated challenges in terms of establishing a balance between work and study, (returning to) the academic environment, and maintaining their job for four years (one of the tenets of their degree). Cohort B, most of whom had left school in the last year, also mentioned dealing with a change in their circumstances, e.g. "The main challenges are most likely to be living away from home and studying a lot on my own" (Survey response, Cohort B).

Rich picture findings

The RPs, together with the transcripts of the students' descriptions, were analysed to identify common themes and motifs across the pictures, including themes common to one cohort, but missing or different in the other cohort's pictures. The main themes to emerge from the RPs are categorised as: hazardous journey; the goal of academic success; the goal of material acquisition, and concerns The cohorts diverged a little in these concerns.. The source images are presented in Table 1 in the Appendices.

Hazardous journey

The difficult or hazardous journey emerged as a theme from both cohorts. University study as a struggle and adventure was depicted variously through metaphors of climbing, diving, swamps, snakes, and games. Realistic student expectations have previously been linked to success (Lehmann, 2012, Jackson et al., 2000) so the depictions of endeavour, beset with uncertainties and challenges, suggests a good level of awareness and realistic expectations.

Academic success

Academic success was depicted in terms of graduation, a good degree and A-grade exam scripts, though this did not seem to be, in itself, the end goal of the journeys. Rather, academic success was illustrated as leading to careers and material acquisition. Cohort B had fewer expressions of graduation (appearing in 2/5 RPs); indeed the pinnacle was generally seen as acquisition of a job related to their degree. Perhaps Cohort A were more assured of a good/specialised job; the requirement to achieving this being to succeed academically. When asked about the significance of the faceless figures in their picture (Cohort B RP2), the group said there was no intended message, however tie and glasses are recognisable symbols of worker identity (cf. Cohort A RP2), and this notably male figure is aligned to the external perception of work in the Information Technology sector, with the systematic under-representation of women (Kay, Matuszek, & Munson, 2015).

Material acquisition

An end goal of wealth, as exhibited through material acquisitions (house, cars) and holidays, was a common feature in all RPs. The synecdoche dollar and pound icons represent money which is seen in Cohort B RP5 as the final destination in their hazardous journey. Recent research indicates a movement towards more transactional approaches to work, suggesting changes to work contracts and increasing reliance on freelance and flexible working as drivers for new attitudes to working life (Shaw & Fairhurst, 2008).

Concerns

Concerns about ‘keeping up’ were depicted in three RPs. For Cohort A the pictures depicted the challenges of work/ study balance. For the on-campus students this was linked with finding time to sleep and concerns about money. In each case, academic failure was the consequence of not keeping up. “Being deported” was

cited in a Cohort B RP. Money *worries* only featured in Cohort B RPs. Cohort B RP4 includes a pile of cash, crossed out, with "Broke" written underneath. The crossing out (in Cohort B RP4) is a form of prohibition icon, where the aim is to express clearly something forbidden or inaccessible (Berg et al., 2017). The steep-sided pool of debt in final year, with an unclear alternative path(depicted by the dotted line), is a strong icon showing money problems as a potential final barrier to reaching their destination.

Discussion

The government's aim in introducing Graduate Apprenticeships is to grow a skilled workforce, aligned with the needs of industry. For universities, this involves a shift from promoting work-integrated learning for on-campus students, to bringing student apprentices in from their workplace to experience university study, while also recognising their workplace learning–i.e. learning-integrated work. This study was designed to gain insights into the distinct expectations of apprentices, with questions designed to reveal whether expectations differed between apprentices and on-campus students, and to uncover how identity construction is experienced by apprentices as they transition to university study. Identity is an important consideration for universities, as it impacts on learner behaviour. The data was analysed for evidence of identity constructs, and the themes to emerge are described below.

Shared expectations of a difficult academic journey

The academic journey, littered with hazards and perils, was a theme for both student groups. The shame of failing and the positive impact of a good degree have been found elsewhere in studies of student expectations (Berg et al., 2017). In a cross-institutional study of confidence and belonging, Yorke (2016) found male students to be more confident than females, and older students more confident than younger students. In addition to age and gender, class plays its part. For example, Lehmann's (2012) study of first-generation students from working-class backgrounds found a "heightened sense of uncertainty and worry" (p.541) amongst their participants regarding fitting in or integrating. In his study, opportunities for prior socialisation, holding well-defined and realistic career goals, and *chance encounters* at university played an important part in their successful completion. It is unclear what the equivalent of a *chance encounter* might be for apprentices, with fewer opportunities for interacting with academic staff and on-campus students.

Participants in this study expressed the ultimate aim of gaining a university degree to be the acquisition of nice homes and holidays. Lehman (2012) warns about student reliance on instrumental reasons to attend university which can deter students from integrating fully and lead to subsequent feelings of alienation. For the apprentices, one further instrument at play is the outcome for their employing organisations. Indeed, the apprentices, through the survey responses, were observed to hold expectations for themselves, as both individuals and employees. These centred on skills development, including a desire to acquire skills and apply them in the workplace.

Divergent expectations

Concerns about academic performance were common across both cohorts, however, concerns about money were cited only by the on-campus cohort (B). Most of these participants were looking for term-time, part-time work. Part-time work and its impact on academic success has been explored extensively (for example, McGregor, 2015) and the advantages have also been well documented. In computing, employers have mentioned that any paid employment signals a positive work attitude (Smith & Smith, 2016). The context for these on-campus students is that overall student debt in Scotland is relatively static and manageable (Student Loans Company, 2017); however, students are likely to have been influenced by extensive media coverage of the situation in England where fees have increased significantly in recent years (for media examples, see David, 2016). In place of finance worries, the apprentices had concerns about meeting employer expectations through acquisition of new technical skills.

Student identity in transition

Skills-based identities, or future selves, were *desired* by the apprentices who looked forward to applying their new-found skills in their workplaces. Previous studies into possible selves (for example, Markus & Nurius, 1986; Pizzolato, 2007) recognise both desired selves and undesirable selves and notions of such balance has been found to increase persistence towards a goal (Oyserman & Markus, 1990). As not all apprentices have the same opportunities in their workplaces to try out new technical skills, with subsequent identity reconstruction as skilled worker, universities might consider how to realise the promise of meaningful work-based learning for all apprentices.

Both cohorts were experiencing transition to study; either as students new to university, or those returning to study after a lengthy period. Identity as a learner was observed through the survey and RP data. Apprentices and on-campus students expressed both positive and negative aspects of being a student. While academic success and failure were both depicted, other aspects of student identity, such as a scholar identity (e.g. learner engaging with library and academic staff) (Kram, Wasserman, & Yip., 2012), were not observed. Participants were surveyed in their first semester, with limited time and opportunity for identity work, so this is not unexpected. This is worthy of further exploration at a later stage of their courses.

The future selves of both groups of students, as depicted in the RPs, were relatively wealthy: owners of nice homes, and able to experience travel with the comfort of flying or cruising. The accessibility of such rewards aligns with Marks and Baldry (2009), who noted specific opportunities (or weaker boundaries) for social mobility among Information Technology workers.

Limitations and Future Work

The sample size for this study is small for both cohorts. In the case of Cohort A, participation was part of a compulsory induction day, while Cohort B were encouraged to participate through small incentives. The findings will be shared with workplace mentors to raise awareness of the type of support that might be beneficial to ensuring apprentice success, in particular the tensions that might arise for example when work milestones and study deadlines clash. The next step for the work is to gather life narratives of the apprentices, to provide in-depth context-rich data relating to their identity construction, their early education, their work and study decision, and the influence of others.

Conclusion

This study captured the expectations of this new cohort of graduate apprentices, starting computing degrees, and their expressions of identity, both now and in the future. Parallel data collection from on-campus students enabled comparison. The apprentices and on-campus students were similarly concerned about academic failure, and linked academic success with the trappings of wealth. Their pre-occupations about how they would achieve this differed a little: apprentices were concerned about the challenges of balancing the demands of work and study, while on-campus students were concerned about student debt.

Fundamentally, the study indicates that graduate apprentices' perceptions relating to expectations and transitions are shaped by their distinct circumstances, reflecting their navigation of two sites for learning and success. A deeper understanding of how apprentices successfully navigate between these sites will inform universities involved in developing and delivering new models for work-integrated learning.

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Appendix 1

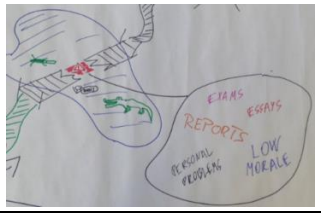
Table 1: RP themes

Theme: Hazardous Journey

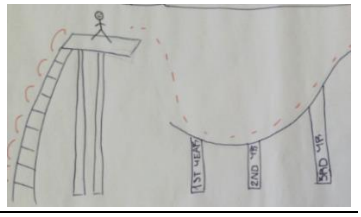
Cohort A, RP 3

Cohort A, RP 4

Cohort B, RP 1



Cohort B, RP 5



Theme: Academic success

Cohort A, RP 1

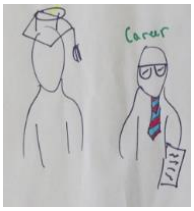
Cohort A, RP 2

Cohort A, RP 3

Cohort A, RP 5

Theme: Career

Cohort B, RP 2



Cohort B, RP 1

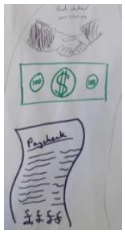
Theme: Material acquisition

Cohort A, RP 1

Cohort A, RP 3

Cohort B, RP 3

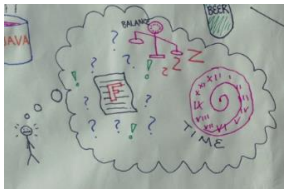
Cohort B, RP 1



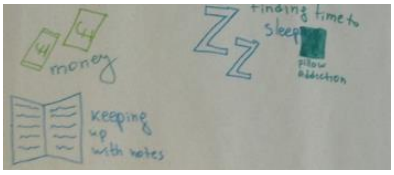
Theme: Concerns about keeping up

Cohort A, RP 2

Cohort A, RP 5

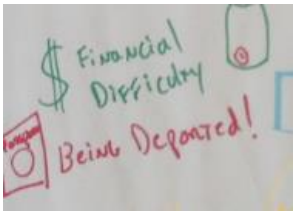


Cohort B, RP 3



Theme: Money worries

Cohort B, RP 2



Cohort B, RP 4

Cohort B, RP5