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A multi-institutional exploration of the social mobility potential of degree apprenticeships

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ABSTRACT

This mixed-method study at six universities asked degree apprentices about their trajectories into the apprenticeship, to better understand the social mobility potential of apprenticeships. The degree apprenticeship offers a route to a degree for apprentices, who are employees studying for a degree. As a new model, little is known about the apprentices: who they are, their journey towards this degree, and whether they fulfil the social mobility aspirations expressed by apprenticeship policymakers. Computing and IT apprentices at six universities in Scotland, UK, were surveyed ($n = 160$) to ask about their background and previous experience. Interviews ($n = 28$) were carried out with apprentices studying with one of the institutions, to enquire how their backgrounds impacted on their journey to this point. By taking a multi-institutional approach, the study reports findings across different degree apprenticeships and geographical locations. Apprentices were found to be drawn from all socio-economic groups and represented those new to work and upskillers, already in work. For upskillers, the degree apprenticeship offered a belated opportunity for degree-level study. However, young people recruited into the apprenticeship were disproportionately from more privileged groups. We make recommendations for recruitment and selection processes to increase equality of access to degree apprenticeship places.

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Introduction

With the expansion of higher education globally, having a degree is not necessarily sufficient to secure a graduate role. Instead, employers increasingly turn to work experience to make recruitment and selection decisions (Marginson 2015; Tomlinson 2008; Tomlinson et al. 2017). There are many and varied models for work experience while studying, ranging from work-based projects through to paid work placements of significant duration. By contrast, the degree apprenticeship means studying while working, whereby the apprentice is first and foremost an employee. Like many vocational education and training (VET) systems across Europe, the degree apprenticeships introduced in Scotland in 2017 are partly inspired by the German dual system (for example, Protsch and Solga 2016). In the dual system, the employers pay apprentices' wages, training and equipment costs, while government funds their study in specialist *vocational schools*. German students enter VET on leaving school; it is unusual and difficult to retrain later (Protsch and Solga 2016). The German approach has been criticised for maintaining social disparities and intergenerational social

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immobility, because access to training places, especially for higher status occupations such as IT specialist, depends on school attainment, which is highly correlated with social background. Further, VET is less prestigious than universities but more attractive to working class students who have the qualifications to choose university (Protsch and Solga 2016). The co-operative education model, adopted widely in the US and Canada (Johnston, Angerilli, and Gajdamaschko 2003), offers similarly rich work experience but without a longer term employment commitment (for example the promise of a graduate job) or wages during the study terms. Co-op is often undertaken across various employers so a number of different working environments are experienced. Co-op is also generally aimed at recent school-leavers with little experience of the workplace (Linn 2015). Across the four devolved regions of the UK (England, Scotland, Northern Ireland and Wales), the degree apprenticeship model involves individual employers paying wages and employment costs, while university course fees are paid by employers collectively, via an apprenticeship levy, topped up with other funding. The main differences in implementation relate to administration and the extent of employer-influence on the degree content (Smith et al. 2020). Most degree apprentices in Scotland (70.6% in 2018–19) were already working for their employer when they started the apprenticeship; almost half of all those starting apprenticeship degrees in 2018 were aged between 25 and 49 (SDS 2019), and there is no upper age limit. This may reflect dual underlying goals: degree apprenticeships are tasked with producing skilled employees *and* increasing social mobility (QAA 2019). This second aim reflects a growing concern that Higher Education (HE) expansion in and of itself has not, in recent years, led to an increase in social mobility, where social mobility is considered to be the strength of the link between ‘a person’s occupation or income and the occupation or income of their parents’ (Social Mobility Commission 2020a). We use the term in this paper to refer to upward social mobility. Brown (2013) sets out inherent challenges of social mobility, including the complexity of the employment landscape such as an inadequate supply of high pay, high status jobs leading to fierce competition even among those with the qualifications that evidence exceptional talent. The degree apprenticeship is a new model for the UK, and one that has the potential to offer a new route to a highly paid job. Bathmaker (2017) challenges researchers to reconsider access to various forms of post-secondary education and ‘think beyond what works to consider much more carefully who gets what and why’ (p 7). This paper is a response to that challenge. A study was conducted to explore routes into the degree apprenticeship by asking participants about their early experiences and backgrounds. The study involved six universities in Scotland, where the link with social mobility is explicitly expressed by the funding body (SDS 2016). In Scotland this apprenticeship is referred to as a *graduate* apprenticeship, as, if successfully completed, it culminates in graduation; however, we use the term *degree* apprenticeships in this paper, as the term is more widely used across the UK. The models across the regions differ in administration, funding allocations and employer involvement, but not significantly in their potential for social mobility.

We begin the paper by considering debates and research concerning social mobility as facilitated by education. We then highlight the Information Technology (IT) labour market, as this sector is extensively served by the degree apprenticeships, and the apprentices in this study are drawn from IT sector-aligned degrees. We outline the approach to data collection before presenting the data related to routes into the apprenticeship, taking account of participants’ backgrounds. The paper concludes with a discussion of how the degree apprenticeship opportunity is accessed differently for different groups and the impact of these findings on current debates about the role of this educational model on ‘prospects for social mobility’ (Brown 2013, 683).

Social mobility and education

Increasingly, higher education has become a necessity for entry to certain high-status, high-pay occupations, including access to the professions such as law, medicine, and accountancy (Boliver and Wakeling 2016). However, a degree itself does not guarantee access, as ‘having graduated from

university, students from disadvantaged backgrounds are less likely to go into professional jobs' (Universities 2016, 2).

Following the UK's major expansion of higher education in the latter part of the 20th century, the importance of education as a factor in increasing social mobility is arguably declining (Hope 1981; Goldthorpe 1987; Goldthorpe and Mills 2004). Bukodi et al. (2015) found that class inequalities in the face of education have remained stable over time. Some researchers are concerned that trends in access to education are actually serving to increase social inequality (for example Busemayer 2015; Robertson 2016). Indeed, theorists propose that further expansion of higher education will not lead to increased social mobility, as saturation level is reached (Hout 2006; Brown 2013). Instead, social congestion occurs unless jobs can be created to keep up with the increased numbers of skilled graduates; otherwise the competition for high value roles simply intensifies (Brown 2013).

In an attempt to counter social stagnation for under-represented groups, universities in the UK (and elsewhere) introduced a system of contextual admissions and widening participation policies designed to ensure open and fair access to traditional higher education for those that could benefit (Boliver, Gorard, and Siddiqui 2019). The *context* includes taking account of geographical areas of low university participation to recognise the significant challenges for those from disadvantaged backgrounds of achieving university entrance qualifications. The main actions for traditional degree applicants taken by universities across the four devolved regions in the UK are: to provide financial support for students from low-income backgrounds as expressed through reports to funders and regulators (Donnelly and Evans 2019), reduced entrance requirements (Boliver, Gorard, and Siddiqui 2019), and to collaborate across local schools and educational institutions (Hoskins and Ilie 2017). These measures in themselves may be not be enough, even where students are admitted to elite universities (Reay 2018). The intense competition for graduate roles makes the degree award necessary but insufficient (Donnelly and Evans 2019). Looking to graduate employers, attributes in addition to undergraduate educational attainment are increasingly favoured by those making recruitment decisions, forming insidious barriers related to social distance. Specifically, factors such as differentiating the graduating institution (Boliver 2013), selection based on cultural fit (Smith and Smith 2016), expectations of experience of one or more paid or unpaid internships (Brown 2013) and postgraduate qualifications (Wakeling and Laurison 2017). Jackson, Goldthorpe, and Mills (2005) argue that the potential for graduate social mobility rests with employers, finding:

'the importance that employers attach to educational qualifications tends to vary, in a systematic way, across different kinds of work and, in turn, across the occupations comprised by the different classes of modern societies, including, and indeed especially, by more advantaged classes.' (25).

So, recruitment decisions are influenced by employer-identified attributes which are more readily acquired by advantaged groups. Work experience with a degree embedded should, then, present a realistic opportunity for social mobility, with apprentices having time to achieve the degree while building up work experience and developing the cultural capital to *fit in* at work. But this will only work if apprenticeship places are both filled by those from disadvantaged groups *and* lead to high status, high pay jobs. Indeed, at this early stage of degree apprenticeships, with no data available yet tracking longer term outcomes -social mobility is more akin to a consideration of upward education mobility whereby offspring of non university-educated parents seek higher education (Kupfer 2015).

Apprentices are not recruited by the university; they are recruited by an employer who puts them forward for an apprenticeship place at a university (which applies university admissions criteria). The effectiveness of the early policy aim of apprenticeships having a positive impact on social mobility has been questioned by recent reports that doubt this has been achieved to date (e.g., Lester and Bravenboer 2020; Social Mobility Commission 2020b). Lester and Bravenboer (2020) call for the government to reconfirm the social mobility purpose of apprenticeships as measured by access to 'professional status' (62), however professional *status* still falls short of a professional *job*. As noted above, vocational education, as in Germany, may be stratified, from school results to the labour market, and act to maintain social immobility (Protsch and Solga 2016). Such immobility is

unsurprising when considering degree apprenticeships alongside more established means of combining work with study, such as student work placements. Placements have been found to help students gain graduate work more quickly and start on higher salaries (Smith et al. 2018b; Wilton 2012). There is evidence, however, that not all students have equal recognition of, or access to, student work placements (Bathmaker, Ingram, and Waller 2013; Smith et al. 2019). In the study by Bathmaker et al., middle class students enjoyed advantages including recognising the opportunity for work experience, social capital to acquire access to work experience, finance as an enabler for unpaid work, and cultural capital recognised by employers. Smith et al. (2019) found evidence that while a wide range of students recognised the opportunity posed by work experience, white students had more success in their applications than those from other ethnic groups.

In England, where university fees represent a significant debt to the learner, studies have found that some learners perceive degree apprenticeships as their only realistic chance of higher education (Lester and Bravenboer 2020; Office for Students 2019). However, a Social Mobility Commission report states that apprentice funding in England 'has disproportionately funded higher-level apprenticeships for learners from more advantaged communities' (Social Mobility Commission 2020b, 5), and degree apprentices in Scotland are more likely to live in the most advantaged postcodes, with only 11.8% of degree apprentices starting in 2017 and 2018 from the most deprived areas ('Quintile 1' using the Scottish Index of Multiple Deprivations (SIMD)), compared to 23.8% from the least deprived areas ('Quintile 5') (SDS 2019), suggesting that there is a need to reconsider the route to an apprenticeship for those from disadvantaged groups. An alternative route to an apprenticeship, also eligible for fees funding, is for an existing member of staff to become an apprentice in their organisation to upskill or reskill. It is not clear whether or how this approach to degree apprenticeship selection can promote social mobility.

In both cases, knowing the route towards becoming an apprentice can increase understanding of how apprenticeships are accessed. There is as yet little empirical evidence related to Scottish apprentices as the model has only recently been introduced. Computing-related degree apprenticeships are widely offered in Scotland and this study focused on those. The next section briefly introduces employment practices in the IT sector.

Social mobility and the IT Sector context

In Scotland, degree apprenticeship frameworks were published that set out curriculum coverage of four different computing courses that lead to careers in the following IT professions: Software Development, Cybersecurity, Information Technology for Business, and Data Science. Computing is taught in the majority of UK universities and is generally successful at attracting students from under-represented groups (Shadbolt 2016). Students on UK computing courses have been drawn from Low Participation Neighbourhoods (LPN) at 14% (compared with 12% across all STEM subjects) (Shadbolt 2016); and Black, Asian and Minority Ethnic (BAME) at 28% (compared with 26% for all STEM subjects) (HESA 2019).

As a relatively new profession, IT can offer opportunities for social mobility (Darr and Warhurst 2008). Indeed, Marks and Baldry (2009) suggest that IT 'offers open-access socio-economic mobility to those with the necessary talents without the significant value baggage which might be associated with the traditional professions' (p 60). While apprenticeships focus on professional standards, the migration to global service-based economies has undermined the high salary/job security protections previously afforded many professions, including IT (Švarc 2016). As such, belonging to the IT profession differs from more established professions, such as medicine and law, that maintain high levels of regulation and significant barriers to entry (Smith and Philips 2015). Many policy documents and reports highlight the potential for degree apprenticeships to increase social mobility, and the IT sector provides a *somewhat* welcoming environment for those studying computing with varying backgrounds. The starting point to understand whether this potential is being realised is to understand the backgrounds of the apprentices as evidenced, in this paper, from their home postcodes

and their parents' tertiary education. This paper considers whether apprenticeships offer potential for social mobility or whether apprenticeship places are being secured by the more advantaged.

Methodology

The study used a mixed method approach. A survey queried participants' routes into the apprenticeship, including who/what had influenced them, along with some demographic questions. The interviews enabled a deeper, individualised exploration of the apprentices' trajectories.

Six universities took part in this joint study. Each university offers similar computing curricula, based on course frameworks. The over-arching features of the apprenticeship degrees include integrated on and off-the-job learning, and recruitment of new apprentices is the responsibility of the employing organisation.

Survey data ($n = 160$) was collected over three academic years but administered only once per cohort to ensure that there are no duplicate entries. Table 1 shows the demographic information of the participants. Interviews ($n = 28$) were conducted with apprentices in one university, following the first two rounds of the survey, about six months into their course. More detail about the interviews is provided below.

Survey: instrument and data analysis

The survey consisted of multiple choice and open-ended questions relating to routes into apprenticeship (for example, recruitment, previous work and study experience). To determine whether apprenticeships aligned to the IT sector are offering an opportunity to deliver the promise of social mobility, we asked participants for two pieces of data: their postcode and parents' education (whether either or both of their parents had experience of higher education). The postcode responses were used to identify the level of Scottish Index of Multiple Deprivation (SIMD). SIMD categories are based on postcode data, with Quintile 1 (Q1) representing 20% of most deprived areas and Quintile 5 (Q5) indicating the least deprived areas. SIMD brings together a variety of indices that describe deprivation related to income, employment, health, education, crime, and housing (SIMD 2020).

Table 1. Participant survey demographic information.

Demographic Information	Frequency	Percentage	HESA 2018/19 Scotland data	HESA Computing UK Wide
<i>Age (n = 160)</i>				
21 and under	67	42%	48% (20 and under)	53%
22 to 30	41	26%	35% (21–29)	37%
31 up	52	33%	16% (30 years and over)	10%
<i>Gender (n = 158)</i>				
Female	37	23%	19%*	16%
Male	118	75%	81%*	84%
Prefer not to say/Other	3	2%	0.2%*	.09%
<i>Ethnicity (n = 159)</i>				
White	149	94%	91%	72%
BAME	10	6%	9%	28%
<i>SIMD (n = 118)</i>				
Q1	16	14%	13%	-
Q2	24	20%	15%	-
Q3	24	20%	19%	-
Q4	20	17%	23%	-
Q5	34	29%	30%	-
<i>Parents' education (attended HE; n = 155)</i>				
No	70	45%	34%	-
Yes	85	55%	61%	-

*Note: Gender data is for Computer Science only.

For open-ended questions, themes from the free-text responses were extracted, then coded by two independent researchers and any discrepancies were resolved through discussion (Holman 2018). For the comparative analysis, the themes were coded as dichotomies (Boyatzis 1998).

Comparison of distribution of responses by SIMD were conducted using Chi-squared test of independence. Our analysis grouped the participants into two groups: Q1-Q2 are residents of the two most deprived quintiles ($n = 40$) and Q3-Q5 ($n = 78$) are residents of the least deprived quintiles. Responses with missing or unlisted postcodes ($n = 37$) were excluded in the analysis with regards to SIMD. A Chi-squared test of independence was also used to compare responses by parents' education, with parents' education coded as 0 for those where neither parents/guardians attended tertiary education ($n = 70$) and 1 otherwise ($n = 85$). For responses with more than 80% of expected values less than zero, the Fisher exact test was used.

Interviews: instrument and data analysis

Apprentices in the first two cohorts, at one university, were invited to participate in interviews, about six to eight months into their course. All 28 volunteers (from a pool of 56) were interviewed: 15 in the first cohort and 13 in the second, forming a 'convenience sample' (Saumure and Given 2012). While not necessarily representative of their full cohorts, the interviewees provided useful situated perspectives of students' experience of the programme: i.e., this is our best opportunity to foreground the 'students' lived realities' (Gale and Parker 2014, 735). Following the university's ethics processes, participants signed informed consent forms. Semi-structured interviews, lasting up to an hour, were audio-recorded, transcribed, and anonymised. Twenty participants were interviewed at their workplace and eight were interviewed on campus. The interview approach was inspired by narrative interviews (Dziallas and Fincher 2016; Jovchelovitch and Bauer 2000); the protocol encouraged participants to describe their life's education and work events as a trajectory and to think aloud about what and who influenced them at each stage. Prompts included: 'As you were making decisions about what to do after school, did you know family members or friends who had been to university or were planning to go?'; and 'Please can you tell me what you did after school (up to the point of hearing about the [degree apprenticeship])? (E.g., college, jobs, career plans)'. The transcriptions were analysed using the Framework Method (Gale et al. 2013). An analytic framework was developed to categorise texts about education and training events between leaving high school and starting the degree apprenticeship; codes arose inductively from the data, identifying salient experiences shared by participants, such as 'Previous HE'. Texts were coded, according to the framework, in NVivo. The coded texts for each case were summarised and charted in the framework matrix. The matrix was further interrogated to identify common trajectories through the educational events and any relationships between apprentices' attributes and their trajectories. We use gender-neutral pseudonyms when directly quoting interviewees.

Findings

Demographics

To look overall at the profile of the apprentices in this study compared with those studying an on-campus computing degree, Table 1 shows the demographic data of the survey respondents together with the Higher Education Statistics Agency (HESA) data for Scottish students studying in the most recent year reported (2018/19). The well-reported lack of gender balance amongst computing students has been repeated for apprentices (23% female, compared with 19% female among on-campus computing students). The balance is slightly better for apprentices than on-campus students, however this sample is self-selecting representing those responding to a request to participate in the study. A higher percentage of apprentices were over the age of 31 compared with undergraduate students (33% compared with 16%). Representation for the younger

apprentices (aged 21 and under) is comparable to the HESA figures for Scottish undergraduates (42% vs 48%). Of the apprentices responding to the survey, white representation was 94%, while 91% of the Scottish on-campus student population is white. The low percentage of apprentices from BAME groups is concerning and should be a priority for further research, especially in the context of ongoing challenges for ethnic minority students, for example making decisions about university choices (Ball, Reay, and Miriam David 2002). An early report into the first two years' experiences of degree apprenticeships in Scotland show that 96% of apprentices across Scotland are white (SDS 2019).

In terms of the SIMD scale, 34% of the respondents were from areas that belong to Quintile 1 and 2 (representing 40% of the most deprived areas). This shows a higher representation compared with 28% of undergraduate students in Scottish HE providers. The numbers reporting that neither parent attended higher education was also higher for the apprentices, with 45% of apprentices having parents who did not attend higher education in comparison to 34% of undergraduate students in HE providers in Scotland. Both the higher representation of apprentices from Q1 and Q2 and lower levels of parental HE education can be seen as early indications that degree apprenticeships may be more effective at realising the goals of social mobility than traditional on-campus university degrees.

However, when we look at the percentage of *younger* apprentices (21 and below) reporting that neither of their parents attended university across the sample, we found this was lower (31%) compared with 51% of older apprentices ($p = 0.52$). While older apprentices may be less likely to have parents with experience of degrees, following significant expansion of higher education in the 1980s (ERA 1988), this could be an indication that parents who have degrees are more likely to be aware of these new opportunities and encourage their offspring to take advantage of them. As the degree apprenticeship matures, the expectation (as evidenced by the significant promotion of apprenticeships at schools) is that more apprentices will be drawn from school leavers, and thus will be younger. So, for social mobility to increase, the proportion of first generation HE apprentices, among those starting apprenticeships soon after leaving school, needs to rise. The interview data found evidence of apprentices not considering studying for a degree after school for financial reasons. Of the 28 interviewees, only two of the older apprentices (over 30), whose parents had not attended university, were embarking on their first experience of degree-level study. One had left school as soon as possible: 'I didn't think I had the choice ... Mum and Dad couldn't support somebody to go to university ... Just wasn't on the radar' (*Dan*). Another had planned to go to university, but changing family circumstances led to him supporting his family via low paid jobs: 'I just ended up doing jobs, like supermarket, worked as a cleaner for a while, and all that stuff. ... I was kind of like supporting my mum and all that stuff ...' (*Finn*). Most of the interviewees identified the apprenticeship as a particularly good opportunity financially:

'Rather than getting student loans and, whatever, putting yourself in debt, you can work and earn and get a degree at the same time. I thought it was a no-brainer, yeah, and I jumped at the opportunity' (*Taylor*).

Only two interviewees had started their degree apprenticeship on leaving school and both had parents who had attended university (one or both). One was advised by his computing teacher to apply for the apprenticeship. His mother, a graduate, working in IT, talked through the implications of potentially missing the social side of university, but both parents were happy with the apprenticeship. The other received some initial scepticism from his graduate parents: 'They thought that basically it was just full-time employment and I wasn't really going to get a degree out of it. Everyone in my family was always really pushy towards going to uni and getting a degree' (*Sandy*).

Early interest

The survey asked apprentices at what stage they had developed an interest in the subject area. Table 2 shows early interest in computing cross-tabulated with parents' education.

Table 2. Cross-tabulation of early interest in IT by parents' education.

Interest in IT	Parents' Education		p-value
	No (Col%)	Yes (Col%)	
Childhood	4 (6.8%)	10 (14.7%)	.034
At school	18 (30.5%)	22 (32.4%)	
During HE/FE	4 (6.8%)	13 (19.1%)	
Working life	33 (55.9%)	23 (33.8%)	

Those apprentices whose parents had higher education were more likely to develop an interest in IT earlier in their lives (47% by the end of school, compared with 37% for those whose parents did not have higher education). The Mann-Whitney test was run to compare how parents' education varied in terms of when they started to have an interest in IT. A significant difference was found between the two groups, $U(N_{No} = 59, N_{Yes} = 68) = 1595.500, z = -2.116, p = .034$.

Interviewees' experiences of becoming interested in computing fell into three phases: growing up with a computer and/or games console in the home; becoming interested at university; their work becoming increasingly IT-centric. Some interviewees were influenced or encouraged by parents who worked in IT; however, no pattern is evident in terms of interviewees' parents' education and when they became interested in computers or IT.

Route taken: Recruitment, prior work and study experience

Survey respondents were asked about their route to the degree apprenticeship and 63% indicated that they were not taken on as an apprentice; instead, they had already been working with the company before starting this apprenticeship. **Table 3** shows a cross-tabulation of recruitment and SIMD. A higher percentage of apprentices that were recruited specifically as an apprentice were from the least deprived backgrounds (SIMD Q4 and Q5) as opposed to those from the most deprived (Q1 and Q2) (48.9% vs 28.0%). Thus, a higher proportion of the apprentices from areas of high deprivation (Q1) were existing employees (87.5%) as opposed to the percentages in the other quintile groups of the SIMD (ranging from 58.3% – 67.6%).

There were significant differences found in relation to parents' education and starting the apprenticeship. Among the 55 apprentices recruited specifically as an apprentice, more had parents who had attended university (69.8%) as opposed to those with parents who didn't (30.2%). This difference in distribution of recruitment and parents' education (**Table 3**) was significant, $\chi^2 (1, N = 153) = 6.674, p = .011$. There was also a significant difference in how the apprentices identified other study options should they not have been successful in getting an apprenticeship, $\chi^2 (1, N = 122) = 4.516, p = .034$. Of the 57 apprentices who were not considering other options, 57.1% ($n = 32$) had parents who did not attend university.

Table 3. Cross-tabulation of recruitment with SIMD and parents' education.

Demographic Data	Recruitment			
	Recruited for Apprenticeship	Col %	Existing Employee	Col %
<i>SIMD (n = 117)</i>				
Q1	2	4.7%	14	18.9%
Q2	10	23.3%	14	18.9%
Q3	10	23.3%	13	17.6%
Q4	10	23.3%	10	13.5%
Q5	11	25.6%	23	31.1%
<i>Parents' Education (Attended university; n = 153)</i>				
No	16	30.2%	52	52.0%
Yes	37	69.8%	48	48.0%

Most of the interviewees were already employed by their organisation when they started the apprenticeship degree and the interview data illustrated their diverse routes to the apprenticeship. Those who had acquired their skills in the workplace were motivated by increasing and updating these skills, as well as the career boost of a degree, which could raise earnings and opportunities:

'I just got this opportunity, which is fantastic for developing my skills and also to tackle these weak points on my IT background' (*Sam*).

Table 4 shows the length of time apprentices had been with their employer (before they embarked on the degree apprenticeship) against SIMD and parental education.

Apprentices with parents who didn't go to university had a longer gap between leaving school and starting the apprenticeship (Table 5), an average of 12.7 years (SD = 11.78), in contrast to the an average of 7.8 years (SD = 8.84) for those with parents who attended university, $t(122) = 2.819$, $p = .006$.

Taken collectively with the previous analysis on apprentices having a later interest in IT (Table 2), we see that parents' education, used here as a proxy measure for socio-economic status, has some effect on the journey to degree apprenticeship. Indeed, based on the lack of alternative options identified by these apprentices, without the apprenticeship there may not ever have been a degree.

Previous FE or HE experience

The majority of apprentices had previous experience of either Further Education (FE) (sub-degree) or Higher Education (HE) (79.5%). Forty-three percent had taken FE courses, 14.5% had completed a degree, while 25.6% of apprentices had previously started HE but did not complete. Table 6 shows prior study experience by Parents' Education. There is a difference in the proportion of apprentices with regards to previous tertiary experience overall when cross-tabulated against parents' education ($p = .035$). A higher percentage of those whose parents did not attend university had previous tertiary (FE or HE) experience (27.5% vs 12.7%). Looking specifically at FE, there is also a higher proportion of apprentices with previous FE experience amongst those with parents who did not attend university as opposed to those for whom one or both parents attended university (50.8% vs 36.2%, $p = .092$).

Half the interviewees had previously started or completed an earlier degree. Those who left describe feeling pressured to make career decisions too young, being too young to appreciate university, struggling with relatively unstructured time, and losing interest in the subjects they were

Table 4. Years of employment before the degree apprenticeship.

Demographic Data	Years of employment		
	Up to one year (Col %)	1–5 years (Col %)	5+ years (Col %)
<i>SIMD</i>			
Q1	2 (22.2%)	8 (19.5%)	4 (16.7%)
Q2	3 (33.3%)	6 (14.6%)	5 (20.8%)
Q3	0 (0.0%)	9 (22.0%)	4 (16.7%)
Q4	1 (11.1%)	4 (9.8%)	5 (20.8%)
Q5	3 (33.9%)	14 (34.1%)	6 (25%)
<i>Parents' Education</i>			
No	6 (60.0%)	30 (46.9%)	16 (61.5%)
Yes	4 (40%)	34 (52.1%)	10 (38.5%)

Table 5. Years spent before starting the degree apprenticeship.

Parents' Education	N	Mean	SD	p-value
No	68	12.71	11.78	.006
Yes	82	7.83	8.84	

Table 6. Previous study experience * parents' education.

Demographic Information	Parents' Education				Total		p-value
	No		Yes		Count	Col %	
	Count	Col. %	Count	Col %			
<i>Previous tertiary education</i>							.035
No	8 _a	12.7%	19 _b	27.5%	27	20.5%	
Yes	55 _a	87.3%	50 _b	72.5%	105	79.5%	
<i>Previous apprenticeship experience</i>							.357
No	40 _a	63.5%	49 _a	71.0%	89	67.4%	
Yes	23 _a	36.5%	20 _a	29.0%	43	32.6%	
<i>Previous FE experience</i>							.092
No	31 _a	49.2%	44 _a	63.8%	75	56.8%	
Yes	32 _a	50.8%	25 _a	36.2%	57	43.2%	
<i>Previous HE experience</i>							.497
No	38 _a	60.3%	41 _a	59.4%	79	59.8%	
Withdrawn	13 _a	20.6%	19 _a	27.5%	32	24.2%	
Completed degree	12 _a	19.0%	9 _a	13.0%	21	15.9%	

studying. Previous experience of HE provided lived comparison to the degree apprenticeship and also a further financial imperative, as their fees would not have been paid for starting another traditional degree:

The going back to uni idea would have been a complete no-no if the fees weren't being paid. Because I think that's probably the case for a lot of people ... this was far too good an opportunity not to grasp' (*Alex*).

Two newly-recruited apprentices who had also previously dropped out of university expressed their motivation:

'Society's set up in such a way that people really respect degrees ... I just sort of had it in my mind that I was going [to university]' (*Charlie, parents did not attend university*).

'University seemed like the only kind of option – it's just what happened. You went to school, then you went to university.' (*Blake, parents did attend university*).

Our data shows that many apprentices are enjoying the benefits of a second bite at the educational cherry, having previously started or actually achieved a degree. On the one hand, this is encouraging, as employers appear open-minded about second chances. On the other hand, it may be that some are benefiting from a second chance of HE, while others are excluded from their first.

Discussion and conclusions

Two main themes emerged from the data: the impact of employer selection approaches on social mobility and the degree apprenticeship as a belated opportunity for social mobility. These are now discussed.

The impact of employer selection on social mobility

'Employers will select employees by reference to whatever attributes they believe most relevant to the productive efficiency of their organisations, and there is no guarantee that these attributes will always be ones indicative of merit, whether as defined in terms of educational attainment or indeed in any other plausible way. The liberal dream of an education-based meritocracy that would allow for the reconciliation of efficiency and social justice is one that, in a liberal society, has no easy means of realisation.' (Jackson, Goldthorpe, and Mills 2005)

As with other forms of paid work, employers select the employee. There have been high-profile calls (for example, Policy Connect 2017; Social Mobility and Child Poverty Commission, 2016) for apprenticeships to be targeted at young people and while this is a welcome message for those facing the barrier posed by the expense of a university degree, this approach may have the opposite effect on

social mobility to that intended. This study found that those recruited directly to a degree apprenticeship were more likely to be from an *advantaged* background. As apprenticeships move towards being filled by directly recruited apprentices instead of upskillers, there is a concern, based on our findings, that the degree apprenticeship represents *less* of an opportunity for social mobility, than when upskilling existing employees. Universities have previously adopted contextual admissions for their traditional degrees to avoid drawing exclusively from those with better school-leaving exam results (which are significantly affected by both SIMD and parental education). Policymakers must consider measures that could be put in place to encourage employers to adopt similar practices in order that the promise of social mobility (as expressed by opportunities open to all) stands a chance of being realised.

Recent reports (Lester and Bravenboer 2020; Social Mobility Commission 2020a) have called for promotion of apprenticeships and recruitment to reach diverse groups (to include ethnicity, disability, and social deprivation), where individuals might not have typical university entry qualifications. Social mobility research to date suggests that raising awareness amongst diverse groups would not *per se* lead to more diverse apprentices. Our recommendation is that employers should adopt policies mirroring contextualised admissions and provide equality and diversity training for all those involved in the apprentices' recruitment and selection process. In our view, the effective application of such policies would necessitate a mandatory requirement.

Employers should also consider the ways they promote the degree apprenticeship opportunity across their organisations when appealing to upskillers. Universities must be active in sharing the intent and benefits of inclusive approaches and be proactive in supporting employers. Urgent action is required to avoid employers, faced with increased numbers of recession-unemployed school leavers, reverting to 'glass floor' behaviour (Waller 2011) which serves to ensure advantage is retained by the children of those at the top. The fact that 16% of apprentices who responded to our survey (all of whom were on undergraduate degree apprenticeships) had already successfully completed a degree would seem to be an indication that degree-holding apprentices are seen as a safe bet by employers for degree-level study. There should be a more efficient way of re-skilling such individuals, for example through expansion of one-year conversion apprenticeship-based Masters courses, to retain the undergraduate degree apprenticeship as a first (perhaps only) chance. There are suggestions that funding shorter courses (for example, from the apprenticeships levy) could stimulate more employers to meet their upskilling needs (Keep 2020; Mason 2020).

Taking account of context, in addition to protected characteristics (age, gender, disability, ethnicity etc.), is necessary to ensure that apprenticeships have the potential to increase social mobility. In this study, it is clear that the aim of widening participation may not be fulfilled for some groups. Those who had dropped out of university before starting the apprenticeship expressed a strong desire (even expectation) to achieve a degree. For now, apprenticeships are providing opportunities for mature learners, from disadvantaged backgrounds, who were unable to attend university when they finished school; however, young school-leaver degree apprentices are currently less likely to come from these backgrounds. Another area of concern is that representation of BAME apprentices in this study fell far below representation of on-campus computing courses and so for some, it would appear, the route is blocked. The UK currently anticipates high levels of post-COVID19 unemployment, so advertised apprenticeship places are likely to become highly prized and competition for them fierce. The Office for Economic Co-operation and Development, while praising opportunities for adult workers in Scotland's apprenticeship system, calls for prioritising the needs of young people in this context and implementing 'specific equity initiatives' (OECD 2020, 7). We need to do more to overcome barriers of access for disadvantaged groups than simply promote the opportunity. Firstly, we need to understand that employers hold all the cards and press employers to adopt more inclusive approaches to apprentice recruitment, including working towards increasing success rates for BAME apprentices. There needs to be a joint effort between universities and employers, with policymakers enforcing measures in an attempt to improve equity and increase

social mobility. Secondly, employers should continue to be encouraged to fill skills needs through upskilling of their existing employees, especially those from disadvantaged groups.

A belated opportunity for social mobility

The swiftest route to a degree is to apply for a university course while at school and be admitted after leaving school having achieved university entrance qualifications. The degree apprenticeship was not available when most of our participants left school. Instead, the majority had studied towards other qualifications and had worked before embarking on the degree apprenticeship. So, the apprenticeship represented a belated opportunity for degree-level study, as also identified by the Social Mobility Commission (Commission 2020a). The Commission suggests entry requirements and financial constraints act as barriers to acquiring a degree. Interview data confirmed financial constraints affected apprentices. Indeed, many mature apprentices had not considered university when they left school, but took this opportunity for a debt-free degree when it became available, recognising that the degree apprenticeship was their best, or only, option for obtaining a degree-level award. Kupfer (2015) found many factors associated with upward education mobility that chime with the experiences of the apprentices in this study, including the process of becoming more aware of one's situation in society and new routes to higher education such as the degree apprenticeship. The prospects for social mobility seem good for those arriving late with a desire for a degree qualification. In the meantime, these participants' lives had included periods of work and study in various forms. For those who had a more direct route to the apprenticeship via school qualifications, with no prior tertiary education, a higher proportion had parents who had attended university. The findings in this paper suggest that those whose parents had not attended university had a more circuitous route to degree-level study – more likely to include lengthy periods of work experience and/or lower-level college and apprenticeship qualifications. Overall, those whose parents had not attended university had an additional five years of work and prior study experience before starting the apprenticeship degree. This represents a significant 'disadvantage gap' (Social Mobility Commission 2020a). Having to work and/or study for a longer period before reaching degree-level work-experience would mean a potential loss of earnings over that period, since university graduates continue to enjoy a 'large earnings advantage over non-graduates' (De Vries 2014, 4). Mature apprentices are more likely to have family commitments which could affect their ability to focus on both work and study, impacting successful outcomes. There are other potential disadvantages to a lengthy run up, including feeling stigmatised (Mallman and Lee 2016) or the possibility of developing imposter syndrome (Ramsey and Brown 2018). Imposter syndrome has been described as feeling like a fraud, a sense of not belonging, which has been observed amongst those coming late to study (Chapman 2017) and first generation students (Gardner and Holley 2011).

Elsewhere, apprentices have revealed that they are acutely aware of the 'devalued status of apprenticeships' (Ryan and Lórinč 2018), which could serve to compound stigma associated with being a mature learner from a disadvantaged background. Whatever the route taken by our participants, this low-status perception observed elsewhere was not evidenced in the interviews reported in this study. Apprentices articulated self-narratives of being beneficiaries of a valuable opportunity, as has been reported elsewhere, in particular related to the degree award (cf. Smith et al. 2018a). Furthermore, given that most of our respondents were employed before they began this apprenticeship, and nearly a third had previous apprenticeship experience, they may not feel the term 'apprentice' is appropriate to their current role.

Overall, the study found diverse routes to the apprenticeship, with some apprentices enjoying a more direct journey. If demand for upskilling existing employees (or the demand from those wanting to upskill) reduces, or the policy changes to prioritise younger apprentices, the potential for social mobility may also be reduced, driven by employer preferences, parental influence and having an interest in IT.

Limitations and further work

The study has its limitations including an uneven sample across participating universities. The use of postcodes to generate quintiles of deprivation can only be claimed to approximate socio-economic status. There have been recent calls for household income (and free school meals) to be used as a more accurate guide (Boliver, Gorard, and Siddiqui 2019). Also, while parents' education measures degree apprentices' background, current postcodes, especially for older apprentices, may reflect social mobility already achieved, rather than origins. Finally, the recent introduction of degree apprenticeships complicates any longitudinal analysis, including comparisons across age groups.

Further work is necessary, as the degree apprenticeships mature, to follow the apprentices' next steps on completing their apprenticeships and being awarded their degrees, then to track salaries and career trajectories in the longer term. This is necessary to determine whether the degree apprenticeship ultimately proves advantageous for upward social mobility. A study of factors affecting low representation of BAME apprentices is essential and urgent. In particular, research into employer perspectives of both recruitment and selection activity (and the impact on their organisations) is necessary.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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