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Inequity in Work Placement Year opportunities and graduate employment outcomes: a data analytics approach

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ABSTRACT

Completion of work placements by undergraduate students is recognised as positively influencing graduate employment outcomes. However, it is less clear whether all students can access placements equitably. We analysed an extensive institutional data set, spanning six years, involving 26,506 undergraduate students to explore the extent to which particular student groups take up a Work Placement Year and how engagement (or not) impacts Graduate Prospects (employment outcomes). Specifically, we focused on student characteristics for which some evidence exists for differential outcomes in Higher Education (gender, ethnicity, age, disability and socioeconomic status). Our data shows that participation rates in a Work Placement Year are unequal amongst student groups, with statistically significant differences evident amongst males and females (uptake higher in females), young and mature (uptake higher in the young) and by disability status (uptake higher amongst the non-disabled). Whilst participation in a Work Placement Year associated with improved (statistically significant) Graduate Prospects for all cohorts, there continues to be a gap in Graduate Prospects between certain categories of students. This is most notably apparent between females and males, with a statistically significant difference in favour of men. Our work highlights the need to understand barriers experienced by specific student cohorts and consider how to provide targeted support in accessing work placement opportunities. Our work also suggests broader structural inequalities and a gender divide may impact on graduate prospects for certain student groups and these need to be examined so that effective strategies can be implemented to reduce inequities post-graduation.

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Work Placement Year; data analytics; graduate prospects; degree classification; student characteristics; inequality; gender divide

Introduction

In recent years, across the UK and in other regions of the world such as Australia and the USA, there has been growing attention to the role of higher education in reducing inequalities and promoting social mobility (Universities UK 2016; Bradley et al. 2008; Cahalan and Perna 2015). A university education can be 'the route to greater health, wealth and happiness, and is the primary gateway to the professions' (Bridge Group 2017). Completion of a university degree can provide students with opportunities for personal advancement and significantly increase the earning potential of some graduates over a lifetime (Belfield et al. 2018), thereby reducing inequalities. Progress has been made in widening access to individuals from groups that have

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been traditionally underrepresented in higher education for example based on socioeconomic status, ethnicity or gender. However, gaps in academic attainment and employment prospects still remain (HESA 2020; Gaskell and Lingwood 2019; Universities UK 2019). This has led the UK government's newly created Office for Students (OfS) to proclaim that 'universities have increased opportunity, but not secured equality of opportunity, and this extends through all stages of the student lifecycle, including transition into work' (OfS 2018).

Whether access and participation translates to equity in graduate opportunities following completion of a degree remains relatively unexplored (Universities UK 2019). There is some evidence, albeit limited, that disparities exist between student groups. Employment data for UK graduates, as measured through the Destinations of Leavers from Higher Education (DLHE), a national survey completed annually until 2018, shows a gap in highly skilled employment rates between disabled and non-disabled students (by 2.6%) by ethnicity (5% in favour of White graduates) and between graduates from low and high socioeconomic backgrounds by 4% (OfS 2019; Britton et al. 2016; Crawford et al. 2016). The recently released findings of the Graduate Outcomes survey, which replaced DLHE, show a continued disparity in employment rates by disability, ethnicity and socioeconomic status (HESA 2020). BAME graduates were more likely to be unemployed than white graduates with just 51% of those who left undergraduate-level courses at universities 15 months earlier were in full-time employment compared with 62% of white graduates. A gender divide was also apparent in relation to earnings with male graduates being paid 10% more than female graduates (about three-quarters of female graduates in full-time paid employment after 15 months earning less than £27,000, a figure that was just 59% for men). Unequal graduate employment outcomes have also been reported in the Australian context. An analysis of the 2014 Australian Graduate Survey data highlighted that employment outcomes were below average for graduates with a disability and for women graduating from science, engineering and IT-related courses (Pitman et al. 2019).

Benefits of completing a work placement on graduate outcomes

Universities are recognised as environments for generating 'employability capitals'. These include the acquisition of technical skills and knowledge gained through a degree programme (human capital) but also social capital (acquisition of networks that bring the student closer to their target employers) and cultural capital (behaviours and values that align with their target employer organisation) (Tomlinson 2017). Completion of workplacement opportunities can build social and cultural capital amongst students and in turn positively influence graduate employment outcomes. As shown by Brooks and Youngson (2016), students who completed an optional work placement ($n = 777$), defined as between 5 and 12 months duration, showed improved academic performance, by 3%, in the final year of study compared to those that did not complete a placement ($n = 698$). In addition, 50% of placement students were more likely to secure graduate-level work and have higher starting salaries (on average £2,000 per year) upon completion of their degree in comparison to non-placement students. Similar findings have been reported by Smith et al. (2018) with a group of computing students; those who completed a work placement as part of their course secured graduate positions more quickly and earned higher salaries, on average than students who graduated without completing a placement. A systematic review by Inceoglu et al. (2019) comprising data from 40 control-matched, longitudinal studies, evaluated the effectiveness of work placements, of between 10 weeks to 16 months duration. These authors highlighted that taking part in a placement does not always associate with increased academic performance but does consistently and positively relate to better graduate employment prospects (e.g. Green 2011; Santer 2010). These observations are supported by other studies undertaken in Portugal (Silva et al. 2018) and Spain (Di Meglio et al. 2019). Based on the analysis of national employment data sets of university graduates, these authors were able to show that internships (work placements) were able to reduce the time-to-find the first job amongst graduating students.

Influence of student characteristics on engagement with work placement opportunities

Whilst the positive relationship between graduate employment prospects and participating in a work placement is clear, it is less clear whether all student cohorts are able to access placement opportunities equitably. A limited body of evidence suggests that characteristics such as social background or ethnicity may act as barriers to the uptake of work placement opportunities. A study undertaken by Bathmaker, Ingram, and Waller (2013) showed that students from a working-class background were less likely to secure a work placement compared to students from a middle-class background. Similarly, work conducted by Sharp (2017) analysing data from a single University over a 5-year period showed that ethnic minority students were less likely to engage in a placement year compared to the University cohort as a whole. Differences in engagement with extracurricular activities and influence on graduate outcomes have also been reported. Stuart et al. (2011) showed that male students spent more time linked to university-based leadership roles and team-based activities and were less likely to see voluntary work and part-time employment beneficial to their future career prospects. These authors suggest that university-linked extracurricular activities support the development of social networks, self-identity and thus improve graduate prospects.

Our Study

As the literature review above highlights whilst work placements confer a positive advantage in the employment market, there is limited published evidence that explores whether this advantage is experienced by *all* student groups. Moreover, where evidence exists, this is typically based on qualitative information, namely perceptions of academics or students restricted to one or more disciplines and include relatively small sample sizes (e.g. Smith et al. 2018 and papers therein). Where larger scale, quantitative studies have been carried out (e.g. Silva et al. 2018; Di Meglio et al. 2019) with the specific aim of measuring the success of work placement opportunities on graduate employment outcomes, these have not concentrated on investigating variations in participation and outcomes for a comprehensive range of characteristics such as gender, age, disability or socioeconomic factors.

Our research therefore addresses a key gap in the literature: is uptake of work placements amongst student groups equal and does engagement in this opportunity confer equitable advantage in the employment market. To this end, we explore associations between student characteristics, uptake of a work placement (or not) and graduate employment outcomes. Specifically, we focus on student characteristics for which some evidence exists for differential outcomes in Higher Education (HE) including access to and continuation through HE, degree attainment and employment outcomes (OfS 2019; Pitman et al. 2019). Thus, the factors we analyse are socioeconomic status, ethnicity, gender, age, disability and non-traditional qualification routes into HE. Our methodological approach brings together information from several databases, comprising 26,506 undergraduate students, spanning six years across multiple subject areas within a single organisation. Our data set is therefore unique. Use of such a large and combined data set contributes to the need identified in the literature for a more systematic and joint up approach to understanding the relationship between placements and employment outcomes (Miralles-Quirós and Jerez-Barroso 2018; Jones, Green, and Higson 2017). Overall, we shed light on whether inequities persist in employment prospects post-graduation for particular student groups and if engaging in a work placement opportunity may play a role in reducing any gaps that exist.

Methods

Data set

In this study, we utilised student data for those who had completed a first degree at a single Russell Group university. The data was gathered from multiple databases held at institutional level. These included characteristics provided by students at the point of registration at the University and from

learning management systems recording student degree classifications, uptake of year-long work placements, degree classifications and year of graduation. These data sets were combined with Graduate Prospects data (proportion of students in graduate-level employment or higher-level study 6 months after graduation) obtained from the national Destinations of Leavers from Higher Education survey (HESA 2018). This yielded information on 33,435 students who had graduated from the institution over a six-year period (2012–2017). Our focus was to understand participation in a Work Placement Year which is offered as an optional activity (9–12 months duration) to students across the Institution undertaking a Bachelors (Hons) degree between their second and final year of study. Thus, we eliminated from our analysis those students from departments where a work placement forms a compulsory component of the degree (Dentistry, Medicine, Healthcare and Modern Languages). The analysis presented in this paper is based on data from the remaining 26,506 students.

Student characteristics

For the purpose of this study, we focused on student characteristics for which some evidence exists for differential outcomes in Higher Education (HESA 2020, OfS 2019, Pitman et al. 2019). We dichotomised each characteristic to enable chi-square analysis guided by how such information is reported in publicly shared educational data sets (e.g. by the UK Higher Education Statistics Agency). Thus, the variables analysed were:

- age: mature student (aged 21+ at application) or younger
- registered disabled or not;
- ethnicity (Black and Minority Ethnic (BAME) or White);
- gender (male or female);
- discretionary entry scheme (DES) available to eligible applicants via contextualised offers;
- POLAR (Participation of Local Areas) quintile is a measure of educational disadvantage based on participation rates of young people in higher education according to where they live in the UK. Scored on a scale of 1–5, POLAR quintiles 1 and 2 represent ‘low participation neighbourhoods’ and 3–5 ‘high participation neighbourhoods’;
- socio economic group (SEG): measured as a combination of a parent’s income, education and occupation, categorised as high or low;
- school type (state or independent (fee-paying)).

Method of data analysis

The data set was analysed to identify the proportion of students completing a work placement year as a full cohort over the six-year period of this study. This was followed by interrogation of the data set using chi-square analysis, to identify any associations between completing a Work Placement Year and:

- each of the student characteristics listed above;
- the degree classification awarded to students at the end of their degree;
- the Graduate Prospects of students on completion of their degree;
- the Graduate Prospects of students broken down by student characteristics.

SPSS was used for chi-square analyses which were carried out using the Crosstabs operation available in Descriptive Statistics. The output of each of the analysis produced observed frequencies; observed percentages and predictions of the expected frequencies of students of the distributions that would fall into each category of the factors being cross-referenced. The observed and expected frequencies were compared. A chi square result was also produced (χ^2) with the level of statistical significance (p). Statistical significance was assumed if values of $p \leq 0.05$ were achieved.

Results

Student participation in the Work Placement Year by student characteristic

During the six-year period of our study, 2,796 students (10.5%) undertook an optional Work Placement Year. The numbers rose gradually each year from 274 students (5.9%) in the 2011/12 academic session to 711 (16.5%) in the 2016/17 academic session.

Data were analysed to identify if Work Placement Year uptake differed by student characteristic. Table 1 illustrates the characteristics where a statistically significant difference was found; these are gender, age, the type of school attended and disability. In relation to gender, female students were more likely to participate in a Work Placement Year (12.2%) than male students (8.3%) ($p < 0.001$). Mature students were less likely to participate in a Work Placement Year (4.2%) compared to young students (11.5%) ($p < 0.001$). For school type, students from independent schools (9.9%) were less likely to participate in a Work Placement Year compared to those who had attended state schools (12.9%) ($p < 0.001$). Registered disabled were also less likely to participate in a Work Placement Year (8.95%) compared to students without a registered disability (10.7%) ($p = 0.015$).

For the characteristics, ethnicity and socioeconomic status, there were marginal differences in uptake between BAME and White students, between low and high socioeconomic groups and low and high POLAR quintile, but these differences were not statistically significant (Table 2). Nor were there differences in uptake between students who had entered the university via the discretionary entry scheme and those that had not.

Does engaging in a Work Placement Year influence student outcomes (degree classification and Graduate Prospects)

Data were analysed to identify whether undertaking a Work Placement Year impacted on final degree classification and on student's Graduate Prospects. Our data showed (Figure 1), that the percentage of students graduating with a First class degree was higher amongst those completing

Table 1. Uptake of Work Placement Year (WPY) by student characteristic where there is a statistically significant difference between the categories. Total number of students by characteristic varies dependent on whether information was available for each category.

Characteristic	Category	Total no of students	% & no of cohort who took a WPY		Chi ² value	Significance
			%	no		
Gender	Male	11,325	8.3%	942	103.223	$p < 0.001$
	Female	15,181	12.2%	1852		
Age	Mature	1511	4.2%	64	75.175	$p < 0.001$
	Young	23,476	11.5%	2696		
School type	Independent	4180	9.9%	414	25.538	$p < 0.001$
	State	12,712	12.9%	1635		
Registered disabled	Disability	2068	8.95%	185	5.870	$p = 0.015$
	No known disability	24,438	10.7%	2609		

Table 2. Uptake of Work Placement Year (WPY) by student characteristic where no statistically significant difference between the categories was identified. Total number of students by characteristic varies dependent on whether information was available for each category.

Characteristic	Category	Total no of students	% & no of cohort who took a WPY		Chi ² value	Significance
			%	no		
Ethnicity	BAME	2368	11.2%	265	1.545	$p = 0.214$
	White	20,511	12.1%	2480		
Discretionary entry scheme (DES)	DES	1102	10.5%	116	0.00	$p = 1.000$
	Not DES	25,404	10.5%	2678		
POLAR	Low	2767	12.3%	340	0.073	$p = 0.787$
	High	13,829	12.5%	1728		
Socioeconomic group	Low	3562	11.9%	425	0.300	$p = 0.584$
	High	15,355	12.3%	1886		

a Work Placement Year (43.1%) compared to those that did not undertake a Work Placement Year (22.8%). Similarly, Graduate Prospects were also higher for those completing a Work Placement Year (85.8%) compared to those that had not completed a Work Placement Year (74.3%). Both these differences were statistically significant ($p < 0.05$).

Does participation in a Work Placement Year influence the Graduate Prospects of students and is this dependent on student characteristics?

Data were analysed to identify if participation in a work Placement Year (+WPY) by specific student characteristics influenced Graduate Prospects. Table 3 illustrates the characteristics, participation (+WPY) and non-participation (-WPY) and how they associate with Graduate Prospects. Our data showed that for all characteristics analysed (gender, school-type, disability, ethnicity, discretionary entry scheme and socioeconomic groups) participation in a Work Placement Year improved the Graduate Prospects for each cohort (i.e. disabled students who take a Work Placement Year have improved graduate prospects compared to disabled students that do not). This improvement was statistically significant for each characteristic ($p < 0.001$). The exception was for age, which showed that students classified as 'mature' do not show an improvement in Graduate Prospects with completion of a Work Placement Year.

We then compared the difference in influence participation in a Work Placement Year has on positive Graduate Prospects across each characteristic, i.e. male/female; BAME/White and so forth (Figure 2). Our analysis showed that the percentage of females with positive Graduate Prospects remained lower than their male counterparts despite completing a Work Placement Year (83.4% vs 90.2% respectively) and this difference was statistically significant ($p < 0.001$). We did not identify statistically significant differences in Graduate Prospects for characteristics of disability, age, socio-economic status, ethnicity, school-type or discretionary entry route to HE. Although not statistically significant, we noted marginal differences in Graduate Prospects for mature students compared to younger counterparts (77.4%vs 86%) despite both groups completing a Work Placement Year.

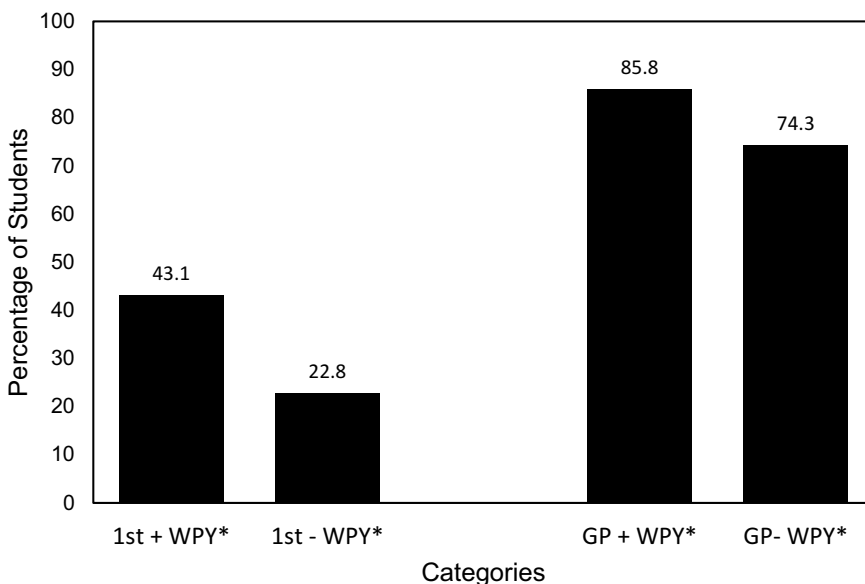


Figure 1. Differences in attainment and graduate outcomes amongst students completing (or not) a Work Placement Year (WPY): percentage of students graduating with a First class (1st) degree (with (+) and without (-) completing a WPY) and the percentage of students achieving graduate level employment 6 months after graduation (GP) (with (+) and without (-) completing a WPY) (* = significant $p < 0.05$).

Table 3. Influence of completing a Work Placement Year (WPY) on Graduate Prospects (GP) broken down by student characteristic. Positive associations that are statistically significant are shown with an *.

Characteristic	Category	Total no of students	% & no of cohort attaining GP		Chi ² value	Significance
Gender	Male (+WPY)	738	90.2%	666	74.783	p < 0.001*
	Male (-WPY)	6786	76.2%	5170		
	Female (+WPY)	1371	83.4%	1144	69.433	p < 0.001*
	Female (-WPY)	8726	72.8%	6354		
Age	Mature (+WPY)	53	77.4%	41	0.00	p = 1.000
	Mature (-WPY)	801	76.8%	615		
	Young (+WPY)	2038	86.0%	1753	148.683	p < 0.001*
	Young (-WPY)	14,230	73.5%	10,458		
School type	Independent (+WPY)	301	85.7%	258	10.064	p = 0.002*
	Independent (-WPY)	2433	77.6%	1887		
	State (+WPY)	1249	85.5%	1068	76.921	p < 0.001*
	State (-WPY)	7852	74.0%	5809		
Registered disabled	Disability (+WPY)	143	84.6%	121	9.644	p = 0.002*
	Disability (-WPY)	1310	72.1%	945		
	No known disability (+WPY)	1966	85.9%	1689	122.448	p < 0.001*
	No known disability (-WPY)	14,202	74.5%	10,579		
Ethnicity	BAME (+WPY)	201	83.6%	168	9.888	p = 0.002*
	BAME (-WPY)	1400	72.9%	1021		
	White (+WPY)	1881	85.9%	1616	149.742	p < 0.001*
	White (-WPY)	12,847	72.7%	9339		
Discretionary entry scheme (DES)	DES (+WPY)	95	88.4%	84	8.733	p = 0.003*
	DES (-WPY)	699	74.0%	517		
	DES A2L (+WPY)	2014	85.7%	1726	124.397	p < 0.001*
	DES A2L (-WPY)	14,813	74.3%	11,007		
POLAR	Low (+WPY)	276	88.0%	243	29.856	p < 0.001*
	Low (-WPY)	1740	72.4%	1260		
	High (+WPY)	1280	85.6%	1096	68.098	p < 0.001*
	High (-WPY)	8365	75.1%	6280		
Socioeconomic group	Low (+WPY)	319	85.3%	272	30.708	p < 0.001*
	Low (-WPY)	2215	70.2%	1555		
	High (+WPY)	1443	86.3%	1246	114.722	p < 0.001*
	High (-WPY)	9539	73.2%	6982		

Similarly, positive Graduate Prospects were also marginally lower for the following students groups: BAME students compared to White (83.6% vs 85.9%), lower socioeconomic group compared to higher socioeconomic group (85.3% vs 86.3%) and disabled students versus non-disabled students (84.6% vs 85.9%), but again not statistically significant.

Discussion

Whilst published studies highlight that completing a work placement as part of an undergraduate degree confers a positive advantage in the employment market, there is a scarcity of evidence on whether this advantage is experienced by all students regardless of factors such as background, gender or ethnicity. To address this gap, we explored associations between the take up (or not) of a Work Placement Year by different student groups, focusing on those characteristics that have been shown to have differential outcomes in HE (gender, age, school-type, disability, ethnicity, discretionary entry route and socioeconomic status). We then analysed whether uptake (or not) impacts Graduate Prospects.

Three key findings emerge from our analysis. First, participation rates in a Work Placement Year is unequal amongst the student groups we analysed. Second, our data shows that engaging in a Work Placement Year improves the Graduate Prospects for all of the student characteristics analysed. Our

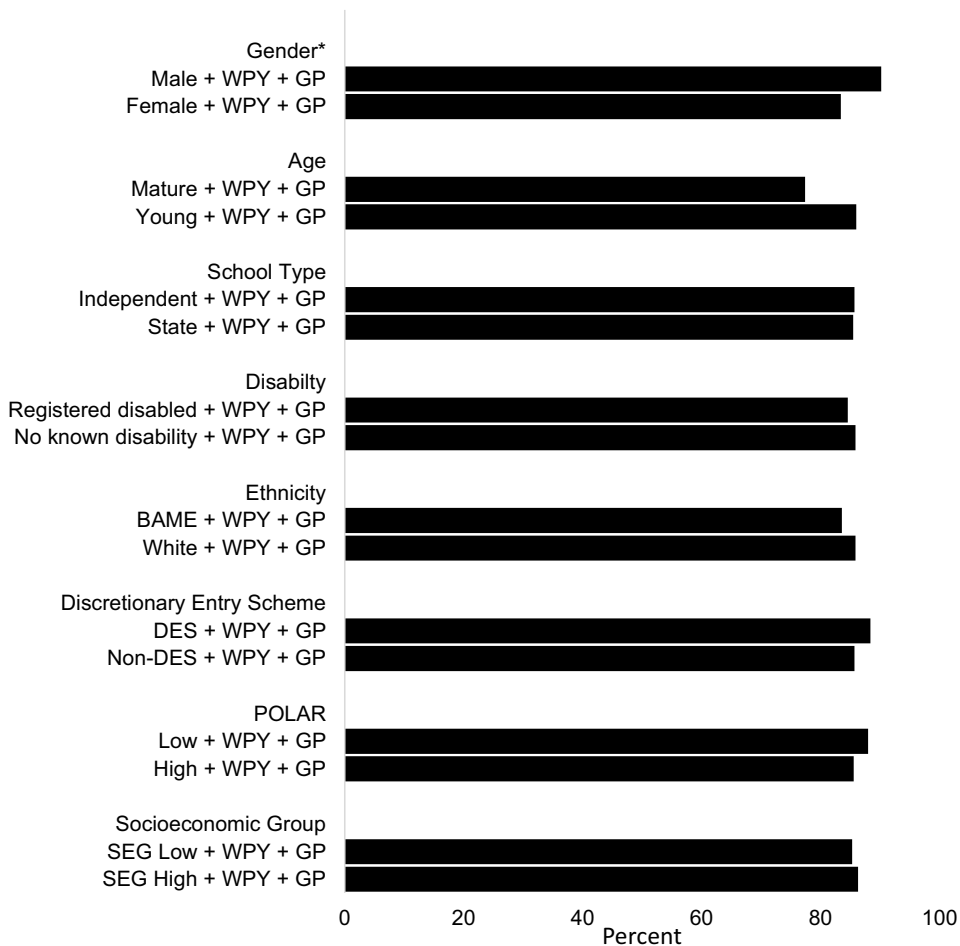


Figure 2. Differences in Graduate Prospects (GP) for each student cohort (characteristic) with participation in a Work Placement Year (WPY) (* = significant $p < 0.001$).

third point to note is that although engaging in a Work Placement Year improves Graduate Prospects, there continues to be a gap between certain categories of students, notably between female and male graduates. Each of these are discussed in turn below.

Unequal participation in Work Placement Year

Our six-year data show unequal participation in a work placement year. Of the groups we analysed, students from State Schools (12.9%), female students (12.1%) and those from high socioeconomic backgrounds (12.3%) showed the highest participation rates. Lowest participation rates were observed amongst mature students (4.2%), males (8.3%), disabled students (8.4%) and students who enter university from independent schools (9.9%).

A comprehensive analysis of all of the student characteristics explored in our study has not recently been conducted as far as we are aware. However, a report by HEFCE (Higher Education Funding Council for England) published in (2009), highlighted unequal participation in work placement years'. This study reported on students who entered full-time undergraduate degrees in 2002/03 across Higher Education Institutions in the UK. It revealed that 7% of these students completed a work placement lasting one year. Of those completing a placement, participation rates were higher

in males compared to females (45% females; 55% males); in those aged under 21 compared to those over the age of 21 (7% versus 93%), in White students compared to non-White students (83% vs 17%), in non-disabled students compared to disabled students (95% vs 5%) and in students from high socioeconomic groups compared to low socioeconomic groups (70% vs 30%).

In contrast to the HEFCE study, the uptake of placements over our six-year study period was higher with 10.5% of the cohort taking a work placement year. Also in contrast, higher uptake of placements was observed in our study amongst females than in males. Despite these two differences, our analysis concurs with the HEFCE sector-wide report highlighting lower participation rates amongst mature and disabled students. Whilst our results showed a marginal difference in participation rates by ethnicity and socioeconomic status, this was not statistically significant.

Beyond the HEFCE report, very few studies explore uptake of a work placement year amongst different student groups. One of these, a study conducted at a single HE institution in the UK shows, in line with our findings, that females tend to engage more in work placements as do White students and those under 25 (Dodd et al. 2019). However, this particular study focused on short (2 days) to longer (1 year) work placements for a single academic year. That uptake of placement years is more common amongst younger students has also been previously reported. Jones et al. (2015) showed that in a sample size of 6645 students from Aston University (UK), students undertaking a placement year had a mean age of 19.23.

Although the differential uptake of work placement between specific student characteristics is underexplored, factors which may influence take-up have been put forward. For example, Bullock et al. (2009) report that mature students do not wish to prolong their studies given that they have already taken time out for other activities and so do not pursue placement options. The Wilson Review (2012) highlighted a range of perceived barriers to students taking up placements including 'time pressures of application, uncertainty in securing a placement, strong peer group pressure to opt out, and difficulties in finding a placement close to the university or parents' home' (p.38). Location of placements, financial reasons and the challenge of finding placements as reasons for not taking up a placement have also been reported by students (Divan and McBurney 2016; Allen et al. 2013; Bullock et al. 2009). A study of 56 HEIs in the UK exploring the challenges faced by (specifically) computing students in completing a placement year identified lack of student motivation or commitment to take-out a year and lack of confidence to apply and fear of rejection as two key barriers (Banga and Lancaster 2013). The responses in the latter study were provided by HEI staff and not students and therefore it is not known, whether student responses would concur with these.

Whilst the majority of studies exploring barriers to uptake of work placements have tended to focus on students as a collective group or within specific disciplines, two studies have stressed the importance of the economic and social circumstances of different student groups (Abrahams 2017; Bathmaker, Ingram, and Waller 2013). Bathmaker, Ingram, and Waller (2013) conducted a longitudinal study of working class and middle-class undergraduates in multiple disciplines across two universities in the UK. These authors reported that most participants sought internships regardless of social class or institution but that success in securing a placement varied. Ten working class students secured internships compared to 23 middle-class students. Types of internship gained also varied with those from socially privileged backgrounds securing high status internships such as in law and banking.

In our studies, uptake of placements differed only slightly between the socially and economically advantaged as measured by socioeconomic status and POLAR categorisation but this was not statistically significant. However, if we take attendance at independent (fee paying) Schools as a measure of economic advantage, we find that students from these schools were less likely to take up placements than those from state (non-fee) paying schools. The reasons for this are not entirely clear but could indicate that students from independent schools have access to and rely upon social contacts and networks to advantage themselves in the labour market. Consequently, they do not see the value in engaging in additional social and cultural capital building activity.

Work Placement Year uptake improves Graduate Prospects

We noted an improvement in the graduate prospects for students who participated in a work placement year and this uplift was evident in all of the student groups (gender, school-type, disability, ethnicity, discretionary entry scheme and socioeconomic groups) analysed. The exception was for age, which showed that students classified as 'mature' do not show an improvement in graduate prospects with completion of a work placement year.

A number of reasons have been put forward in the literature as to why completion of work placements is associated with improved employment prospects. For example work placements can have a positive impact on students' self-efficacy, especially in relation to their confidence in making applications, attending interviews and articulating their skills and strengths (Edwards 2014) and in broadening networks and creating employment opportunities (Jackson and Bridgestock 2020). Completing work placements is also associated with an improved final year academic performance (Crawford and Wang 2014; Mansfield 2011; Green 2011). Such studies are often criticised for over-estimating the impact of work placement on academic performance due to self-selection, that is, the more academically able tend to choose a placement. However, a study by Jones, Green, and Higson (2017) controlling for the effect of self-selection was still able to show improved academic performance for those undertaking a placement.

In our study, the percentage of students graduating with a First class degree was higher amongst those completing a Work Placement Year (43.1) compared to those that did not undertake a Work Placement Year (22.8). However, we did not investigate the role academic performance may play in relation to uptake of a work placement. Nor did we break down performance by student characteristic and analyse the impact of this on graduate prospects. These would be important studies to undertake to identify contributions made to graduate prospects by student characteristic, work placement uptake and academic performance.

Inequities in graduate prospects persist post-graduation for particular categories of students despite completing a Work Placement Year

Whilst our study shows that participation in a Work Placement Year improves graduate prospects for all student cohorts (with the exception of age), when comparing across groups, there continues to be a gap between certain categories of students. These are particularly notable between female and male graduates. Female students are more likely to participate in a Work Placement Year compared to their male counterparts (12.2% vs 8.3% respectively) and this improves graduate prospects for both men (by 14%) and women (by 10.6%). Yet they do not appear to benefit equally. Instead, our data reveals that male graduates who have completed a Work Placement Year outperform their female counterparts in securing graduate-level employment or higher-level study six months post-graduation by 6.8 percentage points (90.2% and 83.4% respectively) and this difference is statistically significant. The reasons why females do not show the same uplift in graduate prospects as their male counterparts is unclear. There are indications in the literature that students who consider taking a placement are more conscientious and more autonomous than those that do not (St Clair-Thompson and Chivers 2019) and combined with 'capitals' developed through completion of work placements, should be well positioned to secure strong employment outcomes. Implicit biases in favour of male applicants during the recruitment process has been suggested (Consultancy UK 2017; González, Cortina, and Rodriguez 2019) as a reason for this disparity. There is also evidence that women and men find jobs differently. Whilst both genders browse similar numbers of jobs, are open to hearing about new opportunities and spend time researching in to the roles, women are less likely than men to apply for roles if they think they do not meet 100% of the criteria. In contrast, men are likely to apply if they believe they meet 60% of the roles' criteria (Tockey and Ignatova 2019; Mohr 2014). Our findings contrast with a recent study looking at the impact of internships on employment outcomes, which indicated that in the context

of Germany at least, the positive returns are similar in magnitude for female and male graduates (Margaryan et al. 2019). Differences in geographical regions may therefore be evident, indicating that a much better understanding of how gender intersects with employment outcomes is required.

Our data also show that mature students are the least likely to engage in a work placement (4.2%) and those who do take a placement do not show an improvement in graduate prospects. An explanation for this could be that mature students are more likely to have previous work experience and therefore are less likely to benefit from further experience (Mansfield 2011). However, our study also highlights that in the context of our institutional data at least, mature students even with a placement year show poorer graduate prospects than young students who do not complete a placement year (lower by 8.6%). This suggests that factors other than engaging in a placement year impact the graduate prospects of mature graduates and should be investigated further.

Studies have shown that 'regardless of entry qualifications, subject studied, degree outcomes and other socio-demographic characteristics, differences in employment outcomes between White and BAME graduates persist even three years after graduation' (Stevenson et al. 2019). Our analysis shows that a lower percentage of BAME students take up a work placement year compared to their White counterparts (11.2% vs 12.1%; not statistically significant). Lower uptake amongst BAME students has also been reported through a recent NUS study (2019) for the year 2018–19 in the UK (Universities UK 2019). Whilst engagement in a Work Placement Year improves the Graduate Prospects for both categories of students, this uplift is higher for White graduates (by 2.3%), but again the difference is not statistically significant. It is important to bear in mind when interpreting these data that the BAME cohort represents approximately 10% of the total cohort analysed and therefore a different balance of student profile may reveal different findings. It would be important to explore this association further given the literature (OfS 2019; Stevenson et al. 2019) show differences in graduate outcomes between White and BAME students.

Socioeconomic status has also been shown to impact Graduate Prospects. A substantial body of evidence suggests that the effect of a student's socioeconomic status carries into the success after graduation regardless of a student's abilities and academic achievement (Gaskell and Lingwood 2019; OfS 2019). Although our data highlight a gap in both placement uptake and in employment prospects post-graduation for student groups from socially disadvantaged backgrounds, this is marginal (and not statistically significant). Several explanations for this are possible. One, like the size of the BAME cohort, the proportion of students with low socioeconomic status (socioeconomic group low and POLAR low) in our study is small, comprised approximately one-fifth of the cohort. Second, we categorised socioeconomic disadvantage as either low or high and an alternate categorisation method (e.g. comparing POLAR 1 (most disadvantaged with POLAR 5 (most advantaged)) may yield different associations.

We also noted a lower uptake in Work Placement Year by disabled students compared to non-disabled students. Both groups experienced an uplift in Graduate Prospects with a Work Placement Year but the prospects remained marginally lower for the disabled cohort. Poorer Graduate Prospects have been reported for disabled students both in the UK and in Sweden (HESA 2020; Weedon, 2017) and so completion of a work placement may support to reduce this gap. However, barriers and difficulties experienced by disabled students in accessing work placement opportunities need to be identified so that better support can be put in place.

Conclusions

This paper makes an important contribution to an under-researched but crucial area; understanding equity in access to optional extra-curricular activities, specifically work placements and how this may translate into graduate prospects for different student cohorts. Our study shows a positive association between the completion of Work Placement Year and Graduate Prospects for all student groups

we analysed. However, uptake varies between student cohorts, particularly by gender, age and disability. Despite the positive lift conferred through the completion of a Work Placement Year in the employment market, a notable gap continues to exist particularly between males and females.

Our findings are based on an institutional data set, spanning six years, comprising a dataset of 26,506 students. Whilst the size of our sample is a strength of the study, we acknowledge that the number of students in some categories is small (e.g. number of mature students) and therefore this should be taken into account when interpreting the data in relation particular cohorts. We also acknowledge that our findings represent that of a single Russell Group institution and therefore the profile of student characteristics may not be representative of those of other (e.g. more vocational) institutions. Furthermore, the findings will be influenced by the policies and practices of the institution including the duration of the work placement and thus a comparison of data sets and associated analysis may yield differing results at different institutions.

Our work has important implications for policy and practice. Since completion of work placements can enhance Graduate Prospects for all student groups that we analysed, it is important to understand the reasons for the lower uptake amongst specific cohorts (disabled and mature, specifically in our study) in accessing work placement opportunities with a view to reducing any barriers and improving access. This is particularly important given the emphasis in the UK and in other countries to widen university access to students from under-represented groups (The Russell Group Universities 2020; Pitman et al. 2019; Pitman 2017; Universities UK 2019, 2016). The student categories that we identify as requiring improved access and support to placement opportunities are likely to increase in number through widening participation policies. Thus, it is important for HEIs to consider how to provide targeted support to specific student cohorts in accessing co-curricular opportunities to achieve equity in opportunities post-graduation. Work placements are one such co-curricular opportunity and there may be other initiatives that contribute to improved graduate prospects which need to be identified.

There is also a need for further intersectional research to be undertaken. In our study we have explored a specific student characteristic in relation to the uptake of a Work Placement Year and impact on Graduate Prospects. However, some students may experience double (e.g. female and disability) or even additional levels of disadvantage (e.g. female, disability and mature). Hence the impact of the interrelationship between more than one student characteristic needs to be examined to quantify the uptake of work placements amongst these student groups and the subsequent influence these interrelationships may have on employment prospects.

Beyond this, our data reveal a troubling association, of gender differences in graduate employment outcomes. This suggests that whilst work placements may provide a competitive advantage, broader environmental and social factors impact graduate prospect. A better understanding of these, such as the role played by conscious and unconscious bias in recruitment processes, would allow a multi-pronged approach to be established to tackle inequities. Thus a joint up approach between government, universities and employers is necessary to understand reasons for the disparities and to implement effective evidence-based strategies that produce a step-change in reducing inequities.

Disclosure statement

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