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Original Citation

Brooks, Ruth and Youngson, Paul L. (2016) Undergraduate work placements: an analysis of the effects on career progression. *Studies in Higher Education*, 41 (9). pp. 1563-1578. ISSN 0307-5079

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Undergraduate work placements: an analysis of the effects on career progression

Studies in Higher Education

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Undergraduate work placements: an analysis of the effects on career progression

Combining work experience with degree-level study is seen as a key differentiator for securing employment upon graduation in a competitive employment market. The positive benefits of sandwich courses, where up to twelve months is spent working in industry, are widely acknowledged in academic literature though data analysis tends to focus on cohorts in single subject areas with course-based factors possibly influencing outcomes. This paper explores the benefits of work placements on a cross-cohort basis with an institutional level study empirically analysing over three academic years the outcomes for placement students in comparison to non-placement students. The study found that completing a sandwich work placement is associated with improved academic performance in the final year of study. Placement students are also more likely to secure appropriate graduate-level work and higher starting salaries upon completion of their degree in comparison to non-placement students.

Keywords: academic performance, career development, employability, graduate students, placements

Introduction

UK government commissioned reports by Dearing (1997) and more recently Wilson (2012) recommend that work experience should be an integral part of university education to equip graduates with skills, knowledge and abilities to enhance employment prospects upon completing their degree. In the UK a 13.3% expansion of higher education student numbers between 2003/2004 to 2009/2010 (Universities UK 2011), accompanied by recession from 2007 onwards has meant that increasing numbers of graduates are entering a challenging labour market, with intense competition for places in the top graduate recruiting organisations. Based on this expansion, Rae (2007) believes that employability is a priority for the university sector though strategies differ significantly by subject area and institution. Pegg et al. (2012)

recognise that employability has to be tailored to student needs and the institutional context and like Yorke (2004), recommend that employability is embedded in the curriculum with multiple opportunities being provided for developing a wide range of skills.

The HESA (2011) longitudinal study of destinations shows that 3.8% of UK domiciled students from 2007 remained unemployed three years after graduation. Work experience has been recognised by CBI (2011) as a key differentiator for gaining employment; graduates with significant work experience are more likely to obtain appropriate level work within six months of completing their studies, the point at which the government first measures success through the Destinations of Leavers in Higher Education survey.

Work experience can be gained through a number of approaches: part-time employment, short internships, and employment prior to university or integrated into the curriculum through collaboration with industry. However, sandwich placements are recognised as a particularly effective method for gaining sustained structured experience of the workplace alongside formal academic studies (Knight and Yorke 2004; Little and Harvey 2006; Reddy and Moores 2006). To be classed as a sandwich course, a placement should last a minimum of 24 weeks to a maximum of 12 months. Participating in placements has attracted research interest, the general consensus being that undertaking a placement is a beneficial experience (Aggett and Busby 2011; Bourner and Ellerker 1998; Hejmadi et al. 2012). Despite the evidence that placements are an effective method for gaining work experience, the number of students taking placements nationally has declined from 9.5% in 2002/2003 to 7.2% in 2009/2010 (Education for Engineering 2011). Walker and Bowerman (2010) believe that the changing composition of the student body along with the general economic situation are

possible contributory factors to this decline, while Bullock et al.'s (2009) findings show students not wishing to break their study pattern by working a year in industry. When it comes to applying for placements, it appears that the long-term benefits are not always appreciated with fewer students engaging in the process.

Demonstrating the impact of a work placement during higher education could help students to make informed decisions on whether to undertake one, potentially increasing participation rates. The nature of higher education can make it difficult to undertake empirical analysis of the differences in outcomes between those who undertake a work placement year and those who do not. Noteworthy work has been undertaken on subject specific cohorts (Gomez, Lush, and Clements 2004; Gracia and Jenkins 2003; Mansfield 2011). However, cross-discipline comparisons between placement and non-placement student outcomes is an under-researched area. The significance of this paper's contribution to the debate on the benefits of placements in higher education is that it is a comparative analysis of six subject areas with findings that indicate differing approaches across industries and disciplines still produce the same outcome. Students surveyed had the opportunity to undertake an optional twelve-month placement in the third year of their degree in a relevant vocational area; students electing to opt out of the placement continue directly into the final year of their studies. Even though this research is based in a single UK institution, the findings are applicable internationally to contexts where work experience forms an integral part of higher education. For example, Jackson's (2014) research from Australia and Wickramasinghe and Perera's (2010) analysis of Sri Lankan graduates both discuss the benefits of workplace experience during undergraduate study. Additionally, the research includes international as well as UK students indicating the wider need for relevant work experience for successful employment upon graduation.

The data analysis focuses on three key measures to compare placement with non-placement students. The first of these measures was academic performance which was determined by comparing any changes in students' results from year two to those from their final year. The second measure was employment outcomes, specifically in relation to the type and level of work six months after graduation. Finally, graduate salary levels provided the third measure for comparison. This research shows that on all three measures students electing to take a placement perform significantly better than students progressing straight into their final year.

The benefits of placements

In addition to academic qualifications, students increasingly need to differentiate themselves in a crowded job market through personal added value such as relevant experience, skills and abilities (Tomlinson 2008). Bennett et al. (2008) suggest employers prefer graduates with relevant work experience, with some viewing it as more important than the degree classification and institution attended.

Knight and Yorke (2004) believe that work placements, even if only for a short period of time, make a positive contribution to an individual student's skills and subsequent employability. Ehiyazaryan and Barraclough (2009) argue that certain skills are more effectively developed in a real-world environment rather than the classroom, though the effect of workplace learning can be further enhanced when integrated into studies (Bourner and Ellerker 1998). Neill and Mulholland (2003) posit that the work-based development of skills during placement enhances personal development as students appreciate the commercial impact of their activities and subsequently maximise their learning having combined academic study with work experience. While on placement, students benefit from the opportunity to develop a range of transferable or generic skills such as self-management, communication and problem solving in a work-

based setting (Bridges 1993). The development of such skills in the workplace appears to be a contributory factor towards placement students being more successful in securing employment upon graduation.

Being able to demonstrate ability based on actual workplace achievements can also differentiate a placement from a non-placement student in terms of gaining initial employment, with the former more likely to be in graduate employment within six months of completing their studies (Mason, Williams, and Cranmer 2009). High Fliers Research (2014) shows that 37% of positions with the top graduate recruiters are filled by people who already have work experience with the organisation, either through individual employment or placement. Such initiatives allow organisations to fully assess a graduate's ability to make a contribution before offering employment. Immediate graduate-level employment after university impacts on long-term career success in terms of salary, the level of role and the type of organisation worked for, thus reducing the risk of later underemployment (Mosca and Wright 2011). An increasing supply of graduates means that underemployment is a potential outcome at the end of studying. Employers may specify degree-level qualifications even though they are not warranted, meaning employees can be left feeling frustrated and demotivated by a mismatch between the job role and their abilities (Brynin 2002; Mason 2002). Brynin (2012) considers that higher education should now be seen as an individual risk with rising costs and blurred job opportunities after study possibly resulting in a student not receiving a return on their investment. Taking a work placement, while raising the amount of investment through additional fees, living costs and opportunity costs of delaying employment, could reduce the likelihood of being underemployed upon graduation and improve long-term career success.

In addition to the employment benefits, completing a work placement also affects academic performance. Analysing final degree classifications for subject disciplines, Bullock et al. (2009), Gomez, Lush, and Clements (2004) and Mansfield (2011) demonstrate that placement students have higher academic achievement in terms of final grades but they also report a greater increase in grades between year two and the final year of the course in comparison to non-placement students. Surridge (2009) argues that as more academically able students are likely to undertake a placement higher grades should be expected, although it could be considered that more able students possibly recognise the long-term benefits so pursue the opportunity to successfully gain a placement. Final-year students completing a placement are distinguishable in the classroom through their attitudes and approaches to work, exhibiting higher levels of motivation (Gracia and Jenkins 2003) and a more mature approach to studying having spent a year in the more structured environment of work (Rawlings, White, and Stephens 2005). In contrast, Wilton's (2012) research on business and management students provides inconsistent and inconclusive results, questioning the universal value of sandwich placement benefits with a notable number of students surveyed not enhancing their employment opportunities and academic performance after taking a placement. Findings such as this are in the minority with significantly more evidence reinforcing the positive impact of placements as indicated earlier.

Completing a placement can present challenges to students. Auburn (2007), for instance, reports on difficulties experienced upon transition back to university, with some finding it hard to re-establish their student identities. The quality of a placement is not always satisfactory either; there may be difficulties with supervisors, an inability to meet the needs of the job or a mismatch between student expectations and the nature of

the work. Even though a placement may be considered as less than satisfactory it can still present a learning experience providing this is recognised and reflected upon (Hill 2004).

Placement students are at a distinct advantage over non-placement students when applying for jobs after university as graduate recruitment processes utilise similar techniques to the ones used to recruit students for a sandwich year. Graduate recruitment processes are usually more demanding though, as organisations are searching the talent pool for their future managers and leaders. With experience of recruitment activities and having already been successful in securing a placement, students are more confident in their approach to graduate applications (Branine 2008), demonstrating higher levels of self-esteem and self-efficacy to cope with the challenge (Purdie et al. 2011). Not only do these students have more confidence, they also have more work experience to draw upon and are better positioned to articulate their skills and abilities in relation to job roles (Raybould and Sheedy 2005).

In summary, completing a sandwich placement has a long-term impact on employment and career progression. Academic benefits aside, a key differentiator amongst students securing work is previous experience. The advantage of work experience gained through a placement rather than working part-time while at university is that placement providers frequently offer opportunities for personal development that are not necessarily available to students who just work for the organisation on a part-time basis. Recognising the findings of the Wilson Report (2012) that work experience while studying leads to academic success and improved career prospects, McKellar (2013) argues that the UK government should re-incentivise sandwich degrees by providing an infrastructure encouraging companies to offer placements and for students to fully appreciate the benefits. The data analysis in this research demonstrates that the

benefits of placements are applicable to multiple subject areas on three key measures: placement students achieve a better degree classification, more placement students are in graduate-level employment within six months of graduation and, placement students earn more upon graduation.

Research Methods

Quantitative data forms the central analysis of this research, empirically measuring employment differences between placement and non-placement students where undertaking a placement is an optional rather than compulsory part of study. The data gathered at an institutional level comprises academic performance from an internal record system and employment data from the Destination of Leavers in Higher Education Survey (DLHE) administered on behalf of the government. Collected annually, the DLHE forms part of the key information set universities have to publish. All graduates are issued with a nationally developed questionnaire six months after completing their studies with responses collected through the post, online or telephone depending upon the student's chosen communication method. Responses are identifiable on an individual basis so that outcomes can be measured against courses. When a course response rate is less than 80% graduates not returning the questionnaire are telephoned to gather the data. The overall response rate for students participating in this study was 81.6% meeting the university target.

The quantitative analysis was supported by qualitative data collected from placement and non-placement students through an online questionnaire. Open-ended questions provide contextual data to evaluate relative experiences of gaining employment upon graduation and feelings towards the graduate recruitment process. The questionnaire asked placement students their reasons for deciding to take a sandwich year, their experiences during placement and the benefits gained from

completing a year in industry including the impact on looking for graduate employment. Non-placement students were questioned about their decision to continue into the final year without undertaking a placement and their experiences of looking for work upon completing their studies. The sample comprises 24 students from 2009 onwards allowing employment experiences to be considered longitudinally and whether completing a placement has longer term benefits upon employment past the government's DLHE survey. In addition, 20 students in their final year, equally split between placement and non-placement, were contacted with a modified version of the questionnaire to allow comparison of engagement with employment processes during their final year of studies and whether different approaches were taken by those completing a placement.

The qualitative data was analysed thematically using template analysis (King 2004). As each student group was asked the same questions a priori higher order codes were initially established to form the outline template. Reiterative readings of the transcripts subsequently developed lower order codes providing a deeper, contextual analysis to reflect students more personal experiences. Validity and reliability are achieved in the qualitative data through internal consistency between placement and non-placement student responses allowing the development of a cohesive template. Additionally, the findings of this research are consistent with academic literature from different discipline areas and institutional settings.

Population

Table 1 below shows students surveyed falling into six broad subject discipline areas using the Joint Academic Coding System (JACS) that groups courses into subject disciplines. Notable exclusions are nursing, teaching, architecture and subjects with a compulsory work-based learning aspect; other exclusions are those where no optional

placement is offered such as some social sciences and humanities courses. Students over the age of 21 at the 1st December of their first year were also removed from the population to prevent prejudice from other significant work experience avenues influencing employment outcomes upon graduation. To ensure the largest population possible entrants from the 2006/2007 and 2007/2008 intakes were considered. This gave three possible exit years from the degree; 2008/2009 for those in the first group that did not undertake a placement year, 2010/2011 for those in the latter group that did take a placement year and 2009/2010 for the rest of the study's population. These three exit years coincide with a relative return to stability in the labour market after the large drop which appeared between 2007/2008 and 2008/2009.

Table 1. Participants by subject area

Subject Area (JACS)	Undertook a placement year	Did not undertake a placement year
Creative arts and design	289	355
Business and administrative studies	201	161
Mathematical and computer sciences	96	72
Engineering	122	42
Physical sciences	46	28
Biological sciences	23	40
Total	777	698

Effect of placement on degree outcome

To test the assertion that completing a placement has a positive impact upon academic performance when returning to study in the final year, credit weighted average scores were taken for each student in their second-year and their final-year at university. Table 2 provides the mean score for both groups of the population at the second-year and final-year stages. Students' individual scores closely follow a normal distribution

allowing for a fair T-test of the hypothesis that placement students' academic performance is at an improved, higher level after a year spent in the workplace.

Rather than score each student against the population it is fairer to base the data for the T-test on how each student has performed against their own second-year score, removing any bias that has crept in from one group starting off in a better position and allowing an examination of the average benefit to each individual student. Table 3 shows students who go out on placement tend to see a rise in performance against their second-year score, whilst those choosing to continue straight into their final year do not experience a similar rise. Assuming unequal variance (to be as strict as possible – although the standard deviations are fairly similar), the resultant p -value (5×10^{-24}) for this T-test shows a significant difference between the two groups. Academic performance in the final year is significantly improved for placement students in comparison to non-placement students. This study measures a 3.22 percentage point difference between the two groups, approximately one-third of a grade boundary.

Table 4 shows the resulting change in the overall grade achieved using the UK classification system. For honours degrees a 1st is awarded for grades averaging 70% or higher, a 2.1 between 60-69%, a 2.2 between 50-59% and finally, a 3rd is awarded between the pass mark of 40% and 49%. The impact of Table 4 has been aided by the closeness of the average scores to the 2.2/2.1 grade boundary. A placement student, within the bounds of this study, is twice as likely to see an improvement by at least one grade boundary in comparison to peers not taking a placement. If the average score in the 2nd year had been closer to 52% or even 62% then the numbers of students moving up a grade boundary would have been less. However, since the populations both follow normal distributions so closely it can be assumed that there will always be twice as many placement students moving up a grade boundary than non-placement students.

Even though the more academically able take placements in the first instance as shown in Table 2 by the higher mean scores at the end of the second year, the impact on final-year grades in this population is that placement students record a further increase in their average grade in the final year than those continuing with their studies. It appears that the placement experience has an additional impact upon academic performance meaning that the most likely outcome for these students is improving their final classification from a 2.2 to a 2.1; the case for 40% of students in this research. In relation to the UK graduate job market a 2.1 classification has a positive effect upon the number and level of organisations that can be applied to. The majority of leading graduate recruiters require a 2.1 classification as minimum entry for their graduate schemes, criteria that a placement student is more likely to achieve.

Table 2. Average (mean) credit weighted scores for the study population by year of study

	Number students	Year	Mean score (%)	Standard deviation (percentage points)	Normal quartile-quartile R^2 value
Placement students	777	2 nd year	59.88	7.56	0.996
Placement students		final year	63.04	8.03	0.995
Non-placement students	698	2 nd year	57.62	7.22	0.995
Non-placement students		final year	57.54	7.85	0.992

Table 3. Average (mean) credit weighted difference in score for the study population

	Mean difference between Year 2 and final year score (percentage points)	Standard deviation of differences (percentage points)	Normal quartile-quartile plot of differences, R^2 value
Placement students	3.15	6.20	0.996
Non-placement students	-0.07	5.83	0.995

Table 4. The impact of the difference in score on individual grade boundaries

	Number moving down at least one grade boundary	Number staying in the same grade boundary	Number moving up at least one grade boundary
Placement students	94 (12.1%)	367 (47.2%)	316 (40.7%)
Non-placement students	146 (20.9%)	397 (56.9%)	155 (22.2%)

Effect of placement upon employment success after graduation

Using data gathered as part of the 2008/2009, 2009/2010 and 2010/2011 DLHE surveys it is possible to separate and assess employment outcomes in relation to choosing to complete a placement or not. Table 5 shows the DLHE results for the target population, identifying clear differences between the two groups. The survey considers entering work either full- or part-time, voluntary work and further study as positive outcomes. Graduates undertaking placements are more successful in finding full-time work over their non-placement peers. In terms of career and future development, enhanced opportunities are usually associated with full-time employment. It appears that the additional year taken to complete a degree is a worthwhile investment for placement students regarding employment upon graduation. However, it cannot be assumed that all graduates look for full-time employment as part-time or voluntary work could be a desired outcome for some students falling into these categories.

‘Unemployed’ is the only outcome of the DLHE survey that the higher education funding bodies class as negative, with students in this category failing to gain any form of work or further study six months after completing their degree. It must be recognised that a small proportion of students are not available for employment and therefore a more rigorous approach would be to examine the number of unemployed as a function of students that are available for employment rather than all respondents. The UK’s HESA adopts this approach to measure the annual performance indicators for graduate outcomes. Table 6 shows the impact of measuring unemployment in this way, demonstrating that there is no great statistical significance between placement and non-placement students regarding unemployment. A cumulative binomial test indicates the probability of a placement student to be unemployed by chance to be approximately 30%, and so this sample of the population is not more likely to be in a positive employment outcome.

Table 5. Circumstances of the students six months after graduation

Category	Placement students	Non-placement students
Full-time paid work only (including self-employed)	442 (66.1%)	227 (42.5%)
Part-time paid work only	60 (9.0%)	138 (25.8%)
Voluntary/unpaid work only	6 (0.9%)	13 (2.4%)
Work and further study	28 (4.1%)	25 (4.7%)
Further study only	51 (7.6%)	61 (11.4%)
Unemployed	39 (5.8%)	36 (6.7%)
Not available for employment	28 (4.2%)	17 (3.2%)
Other	15 (2.2%)	17 (3.2%)
Total surveyed	669	534

Although there is no statistically significant difference in unemployment between placement and non-placement students, the next step in the study was to

examine differences in the type and level of employment secured as there is a potential for disparity in the proportions of graduates being underemployed from the two groups. There is a concern regarding increasing levels of underemployment with graduates finding work in a role not commensurate with their level of qualification. The nature of first employment after graduating has a long-term impact upon a career trajectory. Future opportunities and advances on the career ladder use the first job role as a base; therefore underemployment upon graduation can mean longer term lower level employment opportunities. Table 7 uses the Standard Occupational Classification 2000 (Office for National Statistics 2000), grouping job roles into nine primary categories based on a perception of training and experience required to perform the job. The first three categories are generally considered to require a degree to enter the position while the remaining six categories can be entered with sub-degree qualifications. A graduate entering a sub-degree role would be considered as underemployed as the job could be completed with lower levels of qualifications.

Students electing a sandwich placement are much more likely to appear in the top three groups gaining employment appropriate for their level of qualification. HESA considers the first three groups to be appropriate graduate-level work when compiling data for clients, for example inclusion into newspaper league tables. This classification structure is a fair representation of Elias and Purcell's (2004) research; classifying roles as graduate or non-graduate based on the number of workers already in these positions holding a degree-level qualification, they found the top three groups far outweighed the other six. Table 8 measures the success of placement students in comparison to non-placement students in obtaining graduate to non-graduate-level roles upon graduation.

Students taking a placement were 50% more likely to find graduate-level work, a statistically significant finding demonstrating the longer term benefit of a work

placement. Sandwich placements not only add value with enhanced academic performance, they improve the chance of obtaining graduate-level employment to better utilise skills and abilities through appropriate level work.

Table 6. Graduate outcomes for the two groups of students

	Number of positive outcomes	Number of negative outcomes	Success (%)
Placement students	587	39	93.77
Non-placement students	464	36	92.80
Total	1051	75	93.34

Table 7. The standard occupational classification of employed graduates within the study

Category	Placement students	Non-placement students
<i>Graduate-level roles</i>		
Managers and senior officials	74 (13.8%)	41 (10.2%)
Professional occupations	136 (25.4%)	40 (9.9%)
Associate professional and technical occupations	223 (41.6%)	136 (33.7%)
<i>Non-graduate-level roles</i>		
Administrative and secretarial occupations	28 (5.2%)	39 (9.7%)
Skilled trades occupations	4 (0.7%)	6 (1.5%)
Personal service occupations	7 (1.3%)	18 (4.5%)
Sales and customer service occupations	42 (7.8%)	78 (19.4%)
Process, plant and machine operatives	5 (0.9%)	5 (1.2%)
Elementary occupations	17 (3.2%)	40 (9.9%)

Table 8. The success of graduates into graduate- and non-graduate-level job roles

	Number in graduate-level roles	Number in non-graduate-level roles	Success (%)
Placement students	433	103	80.78
Non-placement students	217	186	53.85
Total	650	289	69.22

Effect of placement upon salary

The DLHE survey asks graduates to provide full-time equivalent salaries to the nearest thousand pounds. As this is not a compulsory question, response rates are lower but still exceed 50%. The following analysis shows a small variation depending on the subject area; the two groups of placement and non-placement students have responses across a balance of subjects with the difference between the subjects nationally not being wholly significant in this context. When considering salary it is important to consider the impact of subject area on the outcome. Table 9 shows the average salary of the two groups by subject; in all areas placement students’ average earnings are higher than their non-placement peers.

Further analysis undertaken by subtracting each graduate’s salary from their subject area’s mean value provides the values in Table 10. Due to the stricter method used this calculation shows a disparity in the amount of salary received by the two groups with placement students earning £2 132 over non-placement students.

As with many unbounded variables the given salaries, even though they are close to the normal distribution do not accurately follow it. This outcome is expected as salaries are unbounded at the high level end but fixed by the minimum wage at the low end. Accounting for the non-parametric nature of the data the Mann-Whitney statistical significance test gives a result of $p=5 \times 10^{-8}$. However, the large size of the two surveyed groups still allows for the statement that graduates choosing to undertake a

placement year secure a £2 000 salary premium over their peers that continued directly into the final year.

Table 9. The average salaries of students by subject area

Subject area	Average salary	Placement		Non-placement		Difference
		Average salary	Population stating salary	Average salary	Population stating salary	
Creative arts and design	£15,270	£15,840	103	£14,520	77	£1320
Business and administrative studies	£17,320	£18,020	99	£15,900	48	£2120
Mathematical and computer sciences	£18,710	£19,770	48	£15,070	14	£4700
Engineering	£18,580	£19,720	45	£14,620	13	£5110
Physical sciences	£17,950	£18,000	17	£17,750	4	£250
Biological sciences	£15,210	£17,800	5	£14,290	14	£3510
Total	£16,840	£17,810	317	£15,020	170	£2790

Table 10. The overall variations from the subject means for the two groups

	Average of differences from the subject mean	Normal quartile-quartile, R^2 value
Placement	£704	0.927
Non-placement	-£1,428	0.911

Effect of placement on networking

The next test applied to the DLHE data is to ascertain the mechanism students use to secure employment upon graduation and whether there are differences in approaches between the two groups. The general perception is that students on placement build a professional network that helps ‘get a foot in the door’ of an organisation and many return to the same company to work after graduation.

Table 11 shows the responses to the survey question ‘how did you initially find out about the job?’ At first glance it appears that placement students are more likely to find work through a recruitment agency and their non-placement peers through more

traditional newsprint adverts. However, this result is diluted due to the large number of response options presented. The significant result is that very little correlation exists between undertaking a placement and continuing to work for the same employer after leaving university. This may possibly be due to the large number of students that continue to work in the same non-graduate-level job that they held alongside their studies while applying for roles that better utilise their degree qualification and graduate-level skills.

It should be noted that placement students may be referring back to when they first found their placement that they have subsequently continued to work in after graduation, rather than the point of permanent employment by the same company after finishing university. This is conjecture but could account for the difference in results of this research in comparison to the High Fliers Research (2014) where 37% of graduate recruits previously worked for the organisation. The DLHE survey also contains a section solely for graduates who have worked for their current employer before or during their study at university. It cannot be assumed that previous employment only relates to a placement as many undergraduates work alongside their studies. However, it is an indication of how many students specifically state that they have never worked for the employer previously with no prior contact with the organisation.

Disregarding non-graduate-level employment, as all placement work should be considered as graduate-level work, students appear 50% more likely to continue to work for an employer they worked for during university if they undertook a placement. Table 12 identifies the proportion of students interacting with their current employer. An unanticipated high number of non-placement students did interact with their current employer prior to graduating; a possible factor influencing the decision not to take a placement if work experience is already being gained through alternative means.

Further work needs to be undertaken to ascertain whether there is a statistically significant ‘foot-in-the-door’ effect which ensures that some placement graduates can more easily access graduate-level roles; however, it is clear that for the majority (303 out of 399) this has not been the case.

Table 11. Ways in which graduates found their jobs

How student found out about job	Placement	Non-placement
University’s Careers Service	28 (5.5%)	14 (3.7%)
Newspaper advert	13 (2.6%)	23 (6.1%)
Employer’s website	72 (14.2%)	40 (10.7%)
Recruitment agency	115 (22.7%)	61 (16.3%)
Personal contacts	101 (20.0%)	101 (27.0%)
Speculative application	14 (2.8%)	16 (4.3%)
Already worked there	100 (19.8%)	61 (16.3%)
Don’t remember	5 (1.0%)	15 (4.0%)
Other	58 (11.5%)	43 (11.5%)

Table 12. Previous interaction with the employer prior to graduation

Graduate-level work	Placement	Non-placement
Before course began	9 (2.3%)	7 (3.4%)
During course	96 (24.1%)	33 (16.0%)
Before and during course	26 (6.5%)	24 (11.7%)
Never worked there before	268 (67.2%)	142 (68.9%)

Discussion

Qualitative data supporting the earlier statistical analysis indicate all students undertaking a placement felt it was a beneficial experience with 82% planning to take a placement prior to starting university and specifically chose a university offering sandwich courses. The remainder decided to take a placement after attending workshops, realising the benefits for their personal development and employability.

Supported by a dedicated placement unit in each school advertising job opportunities and providing individual advice, students were surprised at the competitive nature of the recruitment process and the demands made upon them to successfully secure a placement. Not all students who expressed a desire to go on placement at the start of the second year were successful in obtaining one. Comments from students included, they “did not dedicate enough time early enough” and, “became downhearted and lost motivation after being rejected a number of times”. Being persistent is important (Aggett and Busby 2011) with determined students continuing to apply, requesting feedback and taking advice until they are eventually successful.

In securing appropriate level employment after graduation, placement students are more confident in their personal skills and abilities, feeling able to demonstrate practical examples of their experience in relation to the organisational requirements outlined in recruitment materials (Raybould and Sheedy 2005). Work experience gained on placement can usually be differentiated from part-time work, as organisations should offer more challenging opportunities to support students’ personal development. Other positive aspects noted from placement include developing a professional work ethic, an understanding of the corporate environment, an ability to frequently work under pressure and to work with a range of colleagues in terms of skills and position in an organisation.

Confidence could be a contributory factor to the differences observed between placement and non-placement students during their final year of study (Purdie et al. 2011). Placement students tend to engage with recruitment processes earlier and are more focused on finding employment, adopting a coherent strategy towards their job search. Placement students also have a clearer understanding of the industry they wish to work in. Even though multiple applications are made, they are more selective about

the organisations they wish to work for, considering opportunities offered in relation to their long-term career goals. In comparison, non-placement students are less confident of the likelihood of being employed upon graduation, taking a more 'scatter gun' approach by applying to a larger number of organisations for a diverse range of jobs. These students do not feel disadvantaged long-term in finding work. However, they possibly moderate their ambitions as they tend to apply for smaller, local organisations filling individual graduate roles rather than the larger schemes, a factor which is likely to have an impact on initial starting salary. Planning and preparation relating to career goals is important for successful employment (Sagan, Dallam, and Lavery 2000) as placement students are able to take advantage of their work experience to focus on their next step after university.

Work-based learning during placement complements academic studies. On returning for the final year, placement students comment on being able to relate their practical experience to academic work enhancing their understanding and learning (Duignan 2003). Students note that their grades improve from the second year and a number particularly focus on moving their classification up into the next boundary. Students discuss an altered study pattern after being on placement. Realising the level of work required to be successful, they tend to maintain the more structured pattern of full-time work for their studies. A year in the workforce appears to noticeably affect placement students' attitudes towards their final year of study (Gracia and Jenkins 2003; Rawlings, White and Stephens 2005), possibly contributing towards the significant increase between second-year and final-year grades. It also appears to positively influence their attitude and commitment towards securing graduate employment.

Conclusions

Academic literature focuses upon the positive benefits of taking a course integrating work experience, with the traditional year-long sandwich placement still being considered as the best mechanism (Little and Harvey 2006). The empirical analysis presented here supports this view, clearly indicating a difference between placement and non-placement students on three measures. Firstly, academic performance is improved with placement students experiencing from year 2 results a further increase in their grades over non-placement students leading to 40% of placement students improving their final classification. Secondly, placement students' employment outcomes are better as they are more likely to work full-time in an appropriate level graduate role, leading to the final positive impact of a higher starting salary. With 1475 students across six subject areas being analysed, the data consistently demonstrate enhanced outcomes for placement students in comparison to non-placement students.

These data indicate that taking a placement causes these improvements but further qualitative analysis is necessary to explore in depth the reasons for these differentiated outcomes. The placement in itself is not sufficient to solely explain the improved performance as a number of non-placement students perform equally well and gain high level work, though as a collective, placement students clearly perform better than non-placement students. It must be questioned if placements were compulsory whether all students would see the same benefits or whether the current system of opting-in attracts better candidates who have the desire and ability to maximise their personal benefit from the experience. With declining participation rates, other forms of high-quality work experience should be considered to provide a viable alternative to sandwich placements. Increasing student costs and a crowded employment market means universities need to provide undergraduates with more than academic

qualifications to enable them to compete for employment that is commensurate to their skills and abilities, work placements play an important role in achieving this.

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