Placement or practicalities? Barriers and disincentives to work experience, as reported by computing students

Dr Ella Taylor-Smith, Dr Sally Smith, Dr Colin F. Smith

Part 1: Abstract

Having relevant work experience, such as a placement or internship, is valued by employers in the technology sector and can improve employment outcomes for computing graduates (Shadbolt 2016). However, gaining good work experience positions is competitive; some applications are unsuccessful and some students do not apply; some students feel unable to do work placements due to personal or contextual constraints. This study explores the perspectives of computing students at two UK universities, in order to identify factors that might advantage some students over others. A qualitative approach focuses on students' perceptions and circumstances, collected through free-text responses to a survey, combined with data relating to students' ethnicity, social class, and their parents' education. This approach highlights specific challenges faced by individual students. These individuals' challenges are also instances of important factors influencing access to placement, with implications for institutions and policy makers interested in improving equality of opportunity.

Part 2: Outline

Introduction

Computing students come from particularly diverse backgrounds (CPHC 2012) and computing degrees provide good resources for social mobility (Marks and Baldry, 2009). Despite a widely-acknowledged demand for skilled computing graduates (e.g., Blackwood 2016), transition into graduate jobs is comparatively slow (BIS 2016; HESA 2016; Shabolt 2016). Across subjects, increased participation in university (Marginson 2016) has contributed to a competitive graduate employment market (Bathmaker, Ingram, & Waller 2013; Burke 2015). The market is especially challenging for computing graduates due to the diversity of available roles and breadth of skills expectations from employers (Fincher & Finlay 2016; Shadbolt 2016).

Work experience is associated with improved employment prospects for computing graduates (BIS 2016; Docherty, Jones, & Sileryte 2015; Farenga & Quinlan 2015; Fincher & Finlay 2016; Shadbolt 2016). Employers are looking beyond the degree when recruiting, due to competition in the graduate marketplace (Darr & Warhurst 2008; Farenga & Quinlan 2015) and work experience is a widely recognised capital.

Students are encouraged to participate in activities that gain or demonstrate skills for future employment and expected to compete for a limited number of placements, while also studying (Bathmaker, Ingram, & Waller 2013; Docherty, Jones, & Sileryte 2015). Many computing students additionally work part-time to support themselves (and sometimes families), restricting their ability to compete for placements (Farenga & Quinlan 2015; Ramirez et al. 2016). The extent to which students recognise and are equipped to navigate employer expectations has been conceptualised, for example by Bathmaker, Ingram, and Waller (2013), in terms of Bourdieu's 'game' (2000). This framework influenced the study reported here: an exploration of students' perceptions of work experience, undertaken to inform university approaches.

Study

Undergraduate computing students were surveyed in early 2017 at two post-1992 universities, both with large computing departments and urban campuses: University E in England and University S in Scotland. Seventy students from each university participated. The survey instrument drew upon several studies into student/graduate perceptions of employability initiatives (e.g. Smith, Berg, & Smith 2015; Smith, Smith, & Caddell 2015; Smith, Smith, Taylor-Smith, & Fotheringham 2017). The survey included demographic questions and questions about students' knowledge and experience of work-based learning and any support within their institution and courses. Students were asked about events they had attended, who they asked for help (if anyone), whether they had applied for work experience, and the success of those applications. It also lightly explored students' socio-economic backgrounds and ethnicity, to trace any influence on students' engagement with work experience.

Participants from University E were mainly in their 2nd year of study (70%), with 19% identifying themselves as 3rd years and 11% as 4th years (including their placement year).

Participants from University S were mainly in their 4th year (46%) or 3rd year (44%), with a few in 1st or 2nd year. As well as formal placements, students reported taking on a variety of work, including summer internships, individual contracts, and voluntary work. In both universities there was significant interest in work experience (65% applied from University E, 61% from University S). For those that applied, there was some variation in success: white middle class students whose parents attended university were a little more likely to be offered placements (manuscript in preparation).

This presentation focuses on student perspectives and experiences around the barriers to getting work experience, explored via two questions: "Can you see any drawbacks *to you* of doing work experience/a placement?" and "If you haven't applied for work experience, please let us know why not".

On drawbacks, 36% of respondents said that there were none (or N/A). Of those who did identify drawbacks, these related to loss of time, money, losing focus on studies, lack of confidence, or problems with the placement. In terms of time, students were keen to finish their degree with their cohort; they also wanted to move from the financial challenges of studying to the independence and career ladder of graduate employment; for example: "I'm living with my parents and keen to be independent" (3rd year, University S) and "Takes up time I could be working my way up a business and pay not as good" (4th year, University S). Although most of the placements organised through the universities are paid positions, students who relied on part-time employment were unwilling to give this up: "Would have to leave PT job, which pays for my rent" (2nd year, University S). Students also worried about losing focus on their studies or the difficulty of returning to studying after the workplace: "forgetting parts of the course" and "less time learning new content" (both 2nd years, University E). A few students expressed their lack of confidence as a drawback: "may not meet the expectations of the company" (2nd year, University E).

Those who had not applied for work experience were asked why not. These answers are more concerned with specific constraints, like available time, and less concerned with disincentives like preferring to graduate with their peers. Several students had not had time either to look into work experience or to fit it in, especially those who were already working and studying, e.g. "Did not fit in with life (current job, as domestic within NHS, 15 hours a

week). Got emails about placements but didn't get round to responding" (4th year, University S). Identifying lack of confidence as a barrier, some students expressed uncertainty, fear, and worries over their workload and health; one student specifically mentioned anxiety attacks.

Conclusion

These results, a small subset of the data, shed light upon student perceptions of placement within their contexts and across two universities. The data indicates that, while students in each university take the possibility of placement seriously, decision processes draw upon situated factors that are often overlooked in institutional and policy narratives around placement. These narratives emphasise the future benefits to be gained from placement (as a capital) while students' situated concerns include positioning themselves to complete their studies, particularly within a context of financial constraint. Where students do apply, certain groups are more successful in their applications. This warrants further exploration.

References

Bathmaker, A. M., Ingram, N., & Waller, R. (2013). Higher education, social class and the mobilisation of capitals: Recognising and playing the game. *British Journal of Sociology of Education*, 34(5-6), 723–743.

BIS (2016). Computer Science Graduate Employability: qualitative interviews with graduates. *BIS Research paper 274*. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/523079/bis-16-114-computer-science-graduate-employability.pdf. Accessed 20 June 2017.

Bourdieu, P. (2000). *Pascalian Meditations*. Cambridge: Polity Press.

CPHC (2012). CS Graduate Unemployment Report. An exploration of unemployment statistics within Computer Science graduate 'destinations' data. *Council of Professors and Heads of Computing (CPHC)*. https://cphcuk.files.wordpress.com/2013/12/cs_graduate_unemployment_report.pdf. Accessed 20th June 2017

Docherty, D., Jones, O., & Sileryte, I. (2015). Growing experience: a review of undergraduate placements in computer science for the Department of Business, Innovation and Skills. *National Centre for Universities and Business*. http://www.ncub.co.uk/index.php?option=com_docman&view=download&category_slug=reports&alias=183-growing-experience&Itemid=2728. Accessed 20 June 2017.

Farenga, S. & Quinlan, K. (2015). Classifying university employability strategies: three case studies and implications for practice and research. *Journal of Education and Work*, doi: 10.1080/13639080.2015.1064517

Fincher, S. & Finlay, J. (2016). *Computing graduate employability: sharing practice*. London: Council of Professors and Heads of Computing. https://cphcuk.files.wordpress.com/2016/01/computinggraduateemployabilitysharingpractice.pdf. Accessed 20 June 2017.

Marginson, S. (2016). High participation systems of higher education. Journal of Higher Education, 87(2), doi 10.1353/jhe.2016.0007

Marks, A. & Baldry, C. (2009). Stuck in the middle with who? The class identity of knowledge workers. *Work, Employment & Society*, 23(1), 49–65.

Ramirez, N., Smith, S., Smith, C., Berg, T., Strubel, B., Main, J., & Ohland, M. (2016). From Interest to Decision: A Comparative Exploration of Student Attitudes and Pathways to Co-op Programs in the United States and the United Kingdom. *International Journal of Engineering Education*, 32(5A), 1867–1878.

Shadbolt, N. (2016). *Shadbolt Review of Computer Sciences Degree Accreditation and Graduate Employability*. London: BIS. https://www.gov.uk/government/publications/computer-science-degree-accreditation-and-graduate-employability-shadbolt-review. Accessed 20 June 2017.

Smith, S., Berg, T., & Smith, C. (2015). Making co-op work: An exploration of student attitudes to co-op programs. *Proceedings of Frontiers in Education Conference (FIE),* 2015 (pp.1–6). IEEE.

Smith, S., Smith, C., & Caddell, M. (2015). Can pay, should pay? Exploring employer and student perceptions of paid and unpaid placements. *Active Learning in Higher Education*, 16(2), 149–164.

Smith, S., Smith, C., Taylor-Smith, E., & Fotheringham, J. (2017). Exploring student identity through a university-wide graduate employability initiative. *Asia-Pacific Journal for Cooperative Education*, 18(1), 15–24.

Acknowledgements

This study was part-funded through an Edinburgh Napier University Teaching Fellows grant. Thanks to Professors Liz Bacon and Lachlan M. MacKinnon for supporting the data collection at University of Greenwich. Thanks to Martina Aderonke Bella, Lyndsey Jenkins, Sean McKeown, Joseph Osunde, and Todd Richter for helping to gather the survey data.