War of attrition: patterns of non-completion amongst postgraduate research students.

Chris Park
Director of the Graduate School, Lancaster University, Lancaster LA1 4YB, UK.
Email: c.park@lancaster.ac.uk

This paper describes a case study of non-completion among postgraduate research students in a research-intensive English university, which found statistically significant associations between non-completion rates and a range of factors. The results show that non-completion rates are significantly higher than expected amongst students who are aged over 40, those who come from the UK, those who are registered as part-time, those who are working in non-science disciplines and faculties, and those who had not previously studied at this university. This profiling helps to define the types of research students who are most 'at risk' of non-completion, to whom appropriate support should therefore be targeted.

Introduction

Recent years have witnessed growing interest in patterns and rates of student non-completion of degree courses in the UK, both within and between universities, mainly at the undergraduate level (see, for example, Johnes and McNabb 2004: Smith and Naylor 2001: Yorke 1999). Relatively little attention has been paid to non-completion amongst postgraduate students in general, and research students in particular.

The drop-out rate from doctoral programmes in the United States is in the order 40-50% (Smallwood 2004), which Lovitts and Nelson (2000) describe as the "hidden crisis in higher education". Smallwood (2004) calls it "the central issue in doctoral education in the United States today". Doctoral completion rates in Australia are estimated to be around 65% (Martin, Maclachlan and Karmel 2001). For the UK as a whole, HEFCE (2005) found that 57% of full-time (and 19% of part-time) PhD students completed within 5 years, and 71% of full-time (and 34% of part-time) students to complete within 7 years.

Case study

The study looks at patterns of non-completion among postgraduate research students in a research-intensive provincial English university. The term 'research student', as used here, includes students taking a 2-year research Masters (M.Phil) and students studying for a 3-year doctorate (PhD). Like many UK universities, this one has a policy of normally admitting research students to the Master's degree first, and then upgrading their registration to PhD only when evidence is available of the successful progress of the student (usually after at least one year of full-time study), and of the viability of their research project. This study uses the combined population of MPhil and PhD students, because it provides a larger cohort (n = 1376) and most student migrate freely between registrations for MPhil and PhD.

The study was designed to identify patterns in non-completion rates between different categories of research student, based on statistical analysis of student records using the non-parametric Chi-Square test. The analysis was based on ten recent years (1992-2001) of research student registrations, and it included only those students who were not continuing or had not died whilst registered.

Each student was defined using the following categorical variables – gender (61% of the sample were male, 39% were female); age group (49% were aged 20-29, 29% were 30-39, 17% were 40-49, 6% were aged more than 50); nationality for fees purposes (68% were UK, 9% EU and 23% overseas); mode of attendance (55% were registered full-time and 45% part-time); discipline (the population was divided into science (37%) and non-science (63%) subjects); and 'alumni' status, based on whether (29%) or not (71%) the student had previously been registered for an award of this university.

Students were also assigned to one of three groups based on eventual outcome – graduated (58%), transferred (5%) or did not complete (37%). The

pattern of association was then examined between outcome and each categorical variable in turn, using the Ch-Square test, with a significance level of 99.9%.

Gender: no significant association was found between gender and non-completion (degrees of freedom = 2; critical Chi square = 13.82; calculated Chi Square = 0.98); male and female students were equally likely to complete.

Age: a significant association was found between age and non-completion (degrees of freedom = 8; critical Chi square = 26.12; calculated Chi Square = 77.52); non-completion was lower than expected among the 20-29 year olds but higher than expected amongst students aged over 40.

Nationality: a significant association was found between nationality and non-completion (degrees of freedom = 4; critical Chi square = 18.47; calculated Chi Square = 19.42); non-completion was higher than expected for UK students, a little lower than expected for EU students, and much lower than expected for overseas students.

Mode of attendance: a significant association was found between mode of attendance and non-completion (degrees of freedom = 2; critical Chi square = 13.82; calculated Chi Square = 108.03); non-completion rates were lower than expected for full-time students, and higher than expected for part-time students.

Discipline: a significant association was found between discipline and non-completion (degrees of freedom = 2; critical Chi square = 13.82; calculated Chi Square = 56.92); non-completion was much higher than expected among the non-science students, and much lower than expected among the science students.

Alumni: a significant association was found between alumni status and non-completion (degrees of freedom = 2; critical Chi square = 13.82; calculated Chi Square = 25.86); non-completion was lower than expected among alumni, and higher than expected among students who were new to the university.

Discussion

These results are interesting, particularly because of the strength and statistical significance of the associations. They generally support the findings of other published studies. Gender rarely emerges as a dominant factor, because although some US studies have found that women drop out of doctoral programmes at a huger rate than men (Smallwood 2004), the importance of gender appears to decline after controlling for academic ability (Baker 1998), and HEFCE (2005) found only small differences in completion rates for male and female students in the UK. Age has been found to influence doctoral completion rates in both Australia (Martin, Maclachlan and Karmel 2001) and the UK (HEFCE 2005), in the same way as in this study – younger starters generally have a higher rate of completion, doubtless because more mature students struggle more with balancing multiple responsibilities (Germeroth 1991). In terms of nationality, this study echoes the findings of many US studies which show that home doctoral students drop out more often than international students (Smallwood 2004), and challenges the finding of the HEFCE study that "the lowest completion rates are associated with students from non-EU countries" (HEFCE 2005 p.20). This study found mode of attendance to be important, as is the case in Australia (Martin, Maclachlan and Karmel 2001), although other studies of the UK have found that part-time status affected completion only for male PhD students (Booth and Satchell 1995, 1996), and that "the part-time pattern of PhD completion rates is broadly the same as for full-time rates" (HEFCE 2005 p.20). Discipline has been identified as important in a range of studies, which show that doctoral students drop out of humanities and social science programmes at a higher rate than those in the sciences in North America (Baker 1998, Bair and Haworth 1999, Smallwood 2004), Australia (Martin, Maclachlan and Karmel 2001) and Britain (Booth and Satchell 1995, Wright and Cochrane 2000). HEFCE found that "PhD rates are significantly affected by subject area of the PhD" (HEFCE 2005 p.27), and accounted for this by variations in the extent to which disciplines have well established research fields and agreed methodologies. Other published studies have not considered the importance of alumni-status, but the results of this study are consistent with Tinto's (1993) theory of college student departure, which argues that those students who are most integrated into the academic and social life of institutions are less likely to drop out.

This study has yielded interesting results, but it has inevitably been constrained by the simple methodology adopted, and by the limited range of factors included. The empirical approach reveals significant patterns, but interpretation would be enhanced by ethnographic evidence from interviews with students themselves. The simple non-parametric approach is useful, but a more sophisticated multi-variate analysis – like that adopted by HEFCE (2005), for example – would throw light on the inter-relationships between factors. The analysis was

restricted to variables which are held in the student record database, which meant that it was not possible to include other potentially important or interesting factors. This would include such factors as academic ability, prior academic study and academic achievement (Baker 1998; Bair and Haworth 1999; Booth and Satchell 1996); the availability and type of financial support (Ehrenberg and Mavros 1995; De Valero 2001); the networks of support offered to students by family, friends and peers (Pauley, Cunningham and Toth 1999) and by academic staff acting as mentors, friends, employment counsellors and role models (Baird 1997); departmental culture (Baird 1997, Bair and Haworth 1999) and the accessibility of programme and institutional support (Nerad and Miller 1997); and the roles and responsibilities of supervisors (Delamont, Parry and Atkinson 1998; Johnson, Lee and Green 2000).

The results of this case study touch on a number of issues and have some important implications. It allows 'at risk' types of student to be identified, which should inform the deployment of resources and the review of institutional policies and practices (including recruitment, admission and student support strategies). It also highlights the need to acknowledge non-completion amongst research students as a serious issue (both for the individual students and for the institution as a whole), and to monitor institutional patterns of non-completion, investigate contributory factors, and seek to provide appropriate support.

Conclusions

This paper examines patterns of non-completion among postgraduate research students in a research-intensive university in the United Kingdom. The analysis allows construction of a profile of the type of research student who is most 'at risk' of non-completion, at least within this particular institution, although there are no grounds for suspecting that patterns and processes here are significantly different from those in other research-intensive universities in the UK.

The results, which are statistically significant, show that non-completion rates are higher than expected amongst students who are aged over 40, those who come from the UK, those who are registered as part-time, those who are working in non-science disciplines, and those who had not previously studied at this university.

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