Chapter 16

Gender and Employability Patterns amongst UK ICT Graduates:
Investigating the Leaky Pipeline

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ABSTRACT

This chapter explores the employment patterns of male and female Computer Science graduates in the UK. It is shown that women Computer Science graduates fare less well than men on a variety of measures of employment success, despite being more likely to leave university with a better degree. Their performance is compared to that of women from a comparable scientific and male-dominated discipline: engineering. The results show that women graduates from Computer Science degrees enjoy less success in securing graduate-level work than that experienced by other groups of women, including those graduating from engineering. Most notably, women computer science graduates are less likely to secure graduate-level work within the work sphere that their degree has prepared them for: ICT. The utility of explanations focusing on individual preferences, versus those focusing on extra-individual, demand-side factors, is discussed in the context of the findings.

INTRODUCTION

The participation of women within some traditionally male-dominated educational and occupational arenas has increased significantly in the last decades in the UK. Women now outnumber men in higher education generally (HEPI 2009) and this transformation has seen some dramatic increases in numbers of women within Science, Technology, Engineering and Maths (STEM) subjects that were for decades more resistant to female inroads than Arts and Humanities disciplines. There are now, for instance, more women than men undertaking degrees in medicine, and veterinary science has become female-dominated[1].

Women generally achieve more 'good degrees' than men at university in the UK. In some areas their dominance of a discipline is translating into their dominance of the occupational field associated with it (this is the case for medicine and veterinary practice, for instance). What has happened to computer science in this picture?

Tracy Camp's landmark article "The Incredible Shrinking Pipeline" (1997), using data up to 1994, plotted the fall-off of women in computer science between one educational level and the next, but in relation to the US. It noted that 'a critical point' was the drop-off before bachelor-level study—critical because the loss of women was dramatic, but also because a degree in computer science was and remains a key preparatory qualification for working within a professional ICT role.

The "leaky pipeline" image is just as pertinent today and in the context of other countries. In the UK numbers of females undertaking undergraduate courses in the computer sciences has stabilised at just over a fifth of each cohort since the 1980s (Woodfield 2006), bucking the trend in HE disciplines generally, and in other science disciplines specifically. Furthermore, the number of women within professional ICT work has been shown to have fallen rather than grown (Glover & Guerrier 2010). The leakage of women between University and ICT work requires more exploration. The transition from computer science graduate to ICT professional is also a critical point along the pipeline. We need to explore this transition, and explain any gender differences in success, especially as we can presume that women who persist in the discipline to this level, and therefore past Camp's 'critical drop-off before university itself, have demonstrated their interest and commitment to the subject, as well as, arguably, their motivation to pursue a career associated with it.

This chapter explores the gender distribution patterns within computer science degrees within higher education, and within computer science graduates' first destination employment i.e. the transition from university to first graduate job.

Where relevant, it compares the gendered patterns revealed here with those revealed more broadly, but also, specifically in relation to an arguably more directly comparable discipline: engineering. The data-source is a bespoke data set from the UK's Higher Education Statistics Agency (HESA) comprising all UK domiciled graduates from 2006 and their Destinations of Leavers in Higher Education data from early 2007.

The chapter discusses the findings in the context of broad theoretical frameworks that have been used to explain the gendered occupational segregation generally, and specifically in relation to ICT occupations. It concludes that individual choice explanations have less to offer than explanations focusing on structural and demand-side factors in the production of observed gender inequalities.

BACKGROUND

Gender and Computer Science in the Educational and Occupational Context

Against a backdrop of strongly male-dominated science and technology disciplines, the computer was initially hailed as a novel artefact that could challenge the gendered nature of its parent fields. It was suggested that the computer, along with the newly created field of "computer science" (Poster, 1990: 147) might offer opportunities to women previously denied within STEM areas. An identifiable wave of optimism consequently greeted the early development of mass computing (Woodfield 2000). Computing was hailed as "sex-blind and colourblind" (Williams, cited in Griffths 1988: 145) in support of a belief that women would freely enter the educational and occupational fields associated with it. Many commentators noted that significant numbers of early software workers were female. The association of the computer with cutting-edge ways of communicating and working, supported the belief that women might

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