Gender, IT, and Educational Choice in East and West Europe

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INTRODUCTION

This article aims to examine the development of aspects of research on gender and IT by means of considering the mainly psychological research carried out by the authors in Europe. Some issues of continuity or change are considered. Broadly speaking, the point of view is taken that gender neutrality in the field of computing and IT would be a desirable goal. However, it is recognized that this point of view is not without its problems. The discussion below about the old communist system in East Europe illustrates this. Nevertheless, the orientation taken is closest to a liberal view of equality. Adam, Howcroft, and Richardson (2004) offer a useful recent account of some of the twists and turns of the debate about the goal of gender neutrality.

BACKGROUND

It can be argued that the literature on gender and IT goes back to the 1980s (e.g., Durndell, Siann, MacLeod, & Glissov, 1988). In that decade an increased interest in issues of gender in society came together with the growing use of computers. During that period, while official figures show that university enrollments in the UK grew considerably, the proportion of undergraduates who were female grew dramatically, from only 31% in 1971 to 48% in 1994 (U.C.C.A., 1971; U.C.A.S., 1995). At the same time it appeared that subject choices were still remaining highly gendered, leading to a traditional pattern of "gender appropriate" career paths. U.C.A.S. figures showed that in the UK in 1995, female university admissions to engineering, computer studies, and the physical sciences were still all below 19% of total admissions to each subject (U.C.A.S., 1995).

The persistence of gender stereotyping within schools had been researched (e.g., Kelly, 1989). Boys tended to prefer physical science, computing, and technology subjects, while girls tended to prefer languages, social studies, biological science, and humanities. A number of explanations had been proposed for this, including obviously the sex-stereotyping of science and technology. If the "hidden curriculum" within schools actively reinforced gender stereotypes, then peer pressure may have been towards taking subjects which were perceived to be gender appropriate. Research at the time showed that both school pupils and University students in the UK continued to regard some subjects, including engineering, computing and the physical sciences as masculine, and others including English, French, biology, psychology, and sociology, as feminine (Archer & Freedman, 1989). The female attraction to biological sciences was shown by their success in entering competitive professions like veterinary science and medicine, which were previously male-dominated and had stringent science entry requirements.

A study carried out in Scottish schools (Lightbody, Siann, Tait, & Walsh, 1996) sought to investigate pupils' experiences when choosing which subjects to study at ages 15 and 16-17. During group discussions the school pupils firmly rejected the notion that some jobs were better suited to males or to females. The responses from the girls were unequivocal—*anyone can do anything*! Nevertheless, when asked about their own choice of course or career, pupils' responses fell into a stereotypical gender

pattern—girls tending to wish to enter careers in the arts and caring professions whereas the boys were more likely to choose a technological area.

Lightbody and Durndell (1998) asked first-year university students why they chose the course on which they were enrolled. Results indicated that the reported reasons why women favoured law and medicine, rather than more technological courses including computing, were that the former courses were seen to be leading to work that contributed to playing a useful social role and that would allow a higher level of social contact. It was concluded that although women tended to avoid technological courses this was not necessarily a negative choice, rather they *positively chose* courses perceived to lead to careers with higher levels of social involvement.

An idea current at the time was that while girls may lack confidence in their own ability to work with computers, they do not believe that this inability generalises to females as a whole: "*We can, I can't*"—that is, we (females in general) can, but I (personally) can't. Lightbody and Durndell (1998) argued that a better way to phrase this might be "*We can, I don't want to*"—that is it was a lack of desire rather than lack of confidence which prevented girls from entering technological careers.

Some female school leavers avoidance of careers in physical science and technology may not be initiated at a conscious level. Bem (1993) proposed that hidden beliefs about sex and gender roles, which she labelled "lenses of gender", are so deeply entrenched in society that they are no longer visible, but that their pervasive qualities nevertheless permeate our entire culture.

Durndell and Thomson (1997), in an article entitled Gender and Computing: A decade of change?, reported on a series of UK studies of groups of natural science and business studies students on entry to university. They were asked questions about their reported use of computers, knowledge about IT (information technology) and reasons for their choice of subject at University. Data was collected between 1986 and 1995 in a cross sectional design. This decade was a period of enormous change and advances in the world of computing, with the level of hardware and software available increasing almost beyond the dreams of many of the users at the beginning of the decade.

Reported use of computers in school by recent school leavers showed a general increase from 48% to 93% over time, becoming very high, with no gender differentiation, reflecting the widespread introduction of computers into schools. Reported use of a friend's computer, which could be a measure of the extent to which teenagers used computing as a social activity, showed little evidence of change over time. However, it always showed a gender difference with the activity being reported more by males—65% males to 46% females in 1986, and 66% males to 43% females in 1995. Reported use of ones own computer increased considerably over time, and the large difference with males reporting more use of their own computer than females was maintained; from 24% of males to 9% of females in 1986, to 59% to 31% in 1995.

A test of IT knowledge was also taken over time, and showed, not surprisingly, that the level of knowledge was continuously increasing. The gender effect was particularly interesting. In spite of the fact that these male and female students had similar levels of qualifications, the males consistently and considerably outstripped the females in their average level of knowledge. The absolute size of this difference was consistently declining over the period but the rate of decline was so slow that an equalisation of performance seemed a long way off.

Durndell and Thomson also found that the reasons given for choosing not to study computing remained relatively consistent over time, and remained very little gender differentiated. The responses gave the impression that there was a strong stereotype of the computer specialist as someone who interacts far more with machines than people.

Durndell and Thomson concluded that it seemed reasonable to argue that in the UK the previous decade had produced some slight change in the relative interest and involvement with computing of females as opposed to males, but that this change had been very limited. Gender equality, in the sense of having no difference between males and females in attitudes towards, knowledge about and use of computers appeared to be along way off. Durndell and Thomson (1997) speculated that it might not happen within the lifetime of the readers of the article.