The Glass Ceiling in IT

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INTRODUCTION

The term "glass ceiling," first coined in 1986, is a metaphor for "those artificial barriers based on attitudinal or organizational bias that prevent qualified individuals from advancing upward in their organization into management-level positions." (U.S. Department of Labor, 1991, p. 1).

In has been noted in a number of publications that information technology (IT) is a particularly enlightening field for the study of gender inequalities, such as the glass ceiling. For example, Ramsay (2000) noted that while inequalities in more established industries might be considered a historical leftover of obsolete gender stereotypes, the newness of computing presents researchers with the chance to examine how gender relations develop in an industry apparently less fettered by tradition. IT presents an exemplar case study for those who wished to examine "… whether the dynamics of disadvantage have their roots as deeply in today's employment settings …" (Ramsay, 2000, p. 215). Research indicates that IT has, however, developed to reflect precisely the same forms of gendered inequalities that have been documented in older industries (Suriya, 2003). The metaphor of the glass ceiling is equally applicable to IT. Panteli, Stack, and Ramsay (2001), in a comment on the United Kingdom (UK), which nonetheless resonates internationally, state, "The growth in IT should have opened up new possibilities for women to enter these occupations. However, its growth so far has been used to construct and maintain gender differences and to sustain male hierarchies" (p. 15).

FUTURE TRENDS

Although there has been some improvement in women's representation at the level of management in IT, women remain significantly underrepresented at this level (Panteli et al., 2001). As is the case in many other occupations, women tend to be concentrated in the lower echelons of IT. Suriya (2003) finds the same pattern replicated globally in her overview of gender issues in IT career development in the United States (U.S.), Canada, Brazil, UK, the Netherlands, Austrailia, India, and Malaysia. Millar and Jagger's (2001) report on the participation of women in ITEC employment in the UK, Canada, U.S., Ireland, Taiwan and Spain confirmed that in addition to being underrepresented in ITEC as a whole, "women in ITEC jobs generally appear to have lower status …" (p. 12). Worryingly they, like others, have found evidence of a decline in women's participation in ITEC jobs in recent years, Baroudi and Igbaria (1995) note the potential for severe shortages in the IS labor force, unless the participation rates of minorities, including women, are increased.

BACKGROUND

Explanations for the glass ceiling in IT have drawn upon a variety of disciplines, primarily sociology, psychology and economics.

Psychological explanations have traditionally focused on seeking differences to identify and explicate divergences in men and women's relationship to IT. However, explanations that focus solely upon psychological differences between men and women have been subject to criticism; it is perceived that they promote an essentialist view of gender, drawing on assumptions that there are inherent differences in men and women's aptitudes and motivations, for example (e.g., Trauth, Quesenberry, & Morgan, 2004). Adam, Howcroft, and Richardson (2004) argue that "the chain of reasoning from an 'essential' gendered characteristic to the prediction of some aspect of technology acceptance could be made quite differently if the more socially structured gender and technology research literature is taken into account" (p. 229).

Sociological explanations for the glass ceiling in IT have drawn primarily on social constructionism, a body of theories that emphasise the role of individuals in constructing reality through their interpretations of the social world. From this perspective, masculinity and femininity, their associated stereotypes and roles are held to be socially constructed rather than based on any biologically determined differences between the capabilities of women and men. For example, it is because we collectively *understand* IT to be a masculine domain and act upon this understanding that women face so many barriers to advancement within IT employment, rather than because there is necessarily any truth to this construction. Nielson, von Hellens, Beekhuyzen, and Trauth (2003) have also employed the renowned sociologist Anthony Gidden's structuration theory to understand women's experiences of barriers to advancement in IT.

Explanations for the glass ceiling in IT have also drawn on human capital theory to explain women's disproportionate lack of advancement within IT. At the risk of oversimplification, human capital theory, which originates from economics, holds that an individual's earnings will correlate to the value of their human capital; for example, their education and training. Baroudi and Igbaria (1995) examine the application of human capital theory to job outcomes for male and female information systems (IS) workers. Employing a sample of 348 IS workers, they found that their female participants were more likely than males to be employed in lower-level positions. The authors cite clear differences in the human capital of their male and female participants as an explanation, with women being younger and concomitantly less experienced, though equally well educated. However, the authors also conclude that the differences in men's and women's employment grade persist even when controlling for differences in human capital. They concede that the human capital theory cannot entirely justify their findings. Alternative explanations focus primarily on the untapped potential of training as an explanatory variable. Human capital theory has been subject to criticism from both economists and sociologists for its assumption of a purely rational labor market and insufficient consideration of the potential of system inequalities to explain discrepancies between individuals' measurable human capital and their earnings.

From the field of information sciences, Trauth et al. (2004) and Trauth, Quesenberry, and Yeo (2005) have developed the endogenous *Individual Differences Theory of Gender and IT*. In this approach, the overarching socio-cultural explanatory framework is protected from the potential for essentialism, through comprehensive treatment of the differences among and similarities between genders. The focus on the individual at the level of analysis seeks to prevent predilections towards dualism and provide greater opportunities for the identification of negative cases and individual agency, while retaining a focus on social rather than individualist explanations. Wright (1996), a sociologist, has also proposed the *Controlled Progress Theory* for the specific purpose of interpreting trends in women's participation in IT. This theory seeks to merge Kanter's *Tokenism* and Jacob's *Social Control* theories. Wright (1996) holds that while it has become easier for women to enter IT occupations, the related organizational culture is a factor in their higher exit rates compared to males.

KEY CONTRIBUTING FORCES

Direct Discrimination

Direct discrimination unquestionably remains a feature of women's experiences of employment. Even in countries where greater legislative protections and increased awareness regarding the illegality of discrimination on the grounds of gender have impacted the significance of direct discrimination to women's advancement, government authorities still record cases of sex discrimination in employment annually, including in relation to promotion. However, recent academic research has been much more focused on what are considered to be even more pervasive, less readily identifiable, less easily actionable sources of disadvantage to women, such as those that emanate from stereotyped assumptions about differences between men and women, prevalent in the organisational and wider cultural contexts.

Masculine Organisational Culture

Feminists have highlighted masculine organizational culture as an explanation for the glass ceiling.

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