The Cross–Cultural Dimension of Gender and Information Technology

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INTRODUCTION

The underrepresentation of women in the information technology (IT) sector has been widely studied in the contexts of western countries such as North American and Western European countries. These studies indicate that the underrepresentation of women in the IT sector is unveiled in multiple perspectives, including IT access, the development, adoption and use of IT, IT education, and the IT workforce in general and within the IT workforce structure itself (e.g., different levels of IT positions) (Cooper & Weaver, 2003; Gürer & Camp, 2002; Hartzel, 2003; Klein, Jiang & Tesch, 2002; Margolis & Fisher, 2002; Rommes, 2002; Trauth, 2002; von Hellens, Neilsen, & Beekhuyzen, 2001; Webster, 1996).

Why is it important to study issues related to gender and information technology? First, it is argued that the information technology sector should value and leverage all kinds of diversity (including gender diversity as one dimension) to enhance productivity, to facilitate IT innovation, and to develop IT for a wide variety of people (Avgerou, 2002; Roberts, 2003; Trauth, Huang, Morgan, Quesenberry, & Yeo, 2006). Second, it is also argued that women's underrepresentation in and exclusion from information technology can be attributed to power and sociocultural reproduction of inequality through technology development and use, and the historically social-construction of technology fields as "masculine" domains, which result in a gendered digital divide (Cockburn, 1985; Kvasny & Trauth, 2002; Kvasny & Truex, 2001; Wajcman, 1991, 2004; Woodfield, 2000). Ignorance or failure to address issues related to gender and IT will further marginalize women's participation in future economic and social development, and will endanger social equality and social welfare in general (Kvasny & Trauth, 2002).

A significant trend of the contemporary information technology industry is towards globalization, which is manifested through a variety of established practices such as IT offshore outsourcing, global software development, and innovation through global R&D (research & design) collaboration (Sahay, Nicholson, & Krishna, 2003; Walsham, 2000, 2001, 2002). Such a globalization trend of the IT industry and market has put forward new challenges to gender and IT research, to incorporate the cross-cultural dimension. Similar to the rationale for studying gender and IT in developed countries (leveraging diversity and improving social inclusion), Hafkin and Taggart (2001) argued that it is imperative to examine the cultural factors while studying gender and IT in developing countries.

Although the research on the cross-cultural dimension of gender relations with information technology is limited, Galpin (2002) pointed out that the underrepresentation of women in IT seems to be a worldwide phenomenon indicated by statistics. Galpin (2002) also pointed out that there is a wide range of participation in IT by women, which is influenced by complex cultural and societal factors that are different from country to country. Models related to gender relations to IT developed in certain sociocultural contexts may not be applicable to others (Clarke & Teague, 1994a; El Louadi & Everard, 2005; Mukhopadhyay, 1996, 2004).

In addition to the importance of studying gender and IT within a specific cultural context, there is another perspective of the cross-cultural dimension of gender and IT: the increasingly diversified global IT workforce as a result of the IT skill shortage, global IT outsourcing, and other global IT collaborations. For example, under the pressure of the skill shortage of the IT workforce in America, the IT institutions and industry turn to the global intellectual pool for recruiting talented international students

and skilled IT workers through F-1 and H1-B visas (National Research Council, 2001). According to the 2005 ITAA (Information Technology Association of America) report, the representation of Asian IT workers in the IT workforce doubled the number of Asian worker in the overall workforce in America (ITAA, 2005). Globally, an increasing number of countries have a maturing IT sector, which enables them to enter the global IT outsourcing market or to engage in globally distributed collaborative software work through virtual environment (Trauth et al., 2005). The mobility and cultural diversity of the global IT workforce will add more complexity to articulate their gender relations to IT since individuals may have different cultural backgrounds and experiences.

Therefore, it is important for scholars and practitioners to explore the cross-cultural dimension of gender and IT to understand how the nuances of different cultural influences shape women's relations with IT, to build knowledge with respect to the plural perspective of gender and IT research, and to prepare future global IT workforce. In this article, I first articulate the theoretical underpinnings of cross-cultural dimension of gender and IT research, then review some current studies related to this research area, and finally discuss some future research agendas.

BACKGROUND

The theoretical explanations about why women are underrepresented in IT education and the workforce are complex in nature (Adam, Howcroft, & Richardson, 2002, 2004; Webster, 1996). Those theories attempt to articulate the gender IT gap from either the technology perspective (including the IT sector environment) or the people perspective (e.g., women). From the technology perspective, there are two theoretical orientations: technology determinism and social shaping of technology. From the people perspective, there are three theoretical orientations: essentialist theory, social construction theory, and Individual Difference Theory of Gender and IT (Trauth, Quesenberry, & Morgan, 2004).

Technology determinism views technology as a value-free artifact without any biases, and the impacts of technology on society are self-directed and universal. It neglects the influences of socio-cultural

contexts in which the technology is created and used. Social shaping of technology, on the other hand, views technology as a product of socio-cultural and power relations and the impacts of technology on society are shaped by the socio-cultural beliefs embedded within the technology and the societal attitude towards the technology. For example, Kvasny and Truex (2000) argued that power relations and controls are embedded in technology and in society's attitudes towards technology, and hence new technology tends to "reify the dominant relations in the existing social order." The embeddedness of social order in technology will privilege certain groups while disempowering others (Kvasny & Trauth, 2002). Technology related educational disciplines and industrial sectors have been historically dominated by men and hence are embedded with belief systems that are engendered with "masculinity," which may be exclusive of women's participation (Cockburn, 1985; von Hellens et al., 2004; Wajcman, 1991, 2004). Driven by this theoretical orientation, researchers recommend bringing IT closer to women: changing technology development methods, increasing women's participation in system development and implementation, modifying the "masculine" culture of IT at various levels from societies, to industries, and to organizations and educational institutions.

The essentialist theory argues that men and women are differentiated by their biological differences; such differences are inherent and fixed and thus act as main causes to determine their different relationships with IT (Adam et al., 2004; Trauth et al., 2004). Similar to the technology determinism, the essentialist theory only emphasizes the intrinsic internal differences between men and women and overlooks the influences of social contexts in which both technology and people are embedded. Social construction theory views gender identity and gender relationship with IT as on-going negotiation processes in social interactions, in which the influences of various factors are relevant and important (Trauth et al., 2004; von Hellens et al., 2004; Wajcman, 1991; Webster, 1996). Driven by this theoretical orientation, researchers recommend bringing women closer to IT, which include setting up mentoring programs, providing convenient child-care facilities, and developing initiatives to facilitate work-life balance of female IT workers.

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