Gender Differences in Perceptions and Use of Communication Technologies: A Diffusion of Innovation Approach

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ABSTRACT

Understanding the factors influencing users’ adoption and use of emerging information technologies is a critical issue for researchers and practitioners. This research aims to deepen our understanding of the underlying phenomena of technology adoption and use by examining whether there are gender differences in the importance of the perceived innovation characteristics on communication technologies use intentions. Specifically, we investigate whether gender moderates the influence of perceived relative advantage, compatibility, ease of use, visibility, result demonstrability and critical mass on intentions to use a communication technology: instant messaging. Results suggest a strong moderation effect of gender between perceptions of relative advantage, ease of use, visibility, result demonstrability, critical mass and use intentions. Contributions and future directions for research are presented.

Keywords: diffusion of innovation; emerging information technologies; gender; gender differences; individual characteristics; information technology adoption; innovation adoption; innovation characteristics; perceptions of IT; user behavior

INTRODUCTION

Understanding the factors influencing the adoption and use of emerging information technologies (IT) in the workplace is a critical issue for researchers and practitioners (Venkatesh & Morris, 2000; Green & Hevner, 2000; Lou, Luo & Strong, 2000; Van Slyke, Comunale & Belanger, 2002). One particular group of emerging information technologies that is becoming increasingly important to organizations and consumers alike is groupware technologies (Chen & Lou, 2002; Kontzer, 2003). Existing research has examined factors important to the diffusion of groupware technologies such as electronic mail (e-mail) (Gefen & Straub, 1997) and group support systems (Van Slyke, Lou & Day, 2002). This body
of research has found that users' perceptions about a technology influence their intentions to use the technology, and that their perceptions tend to differ based on gender. As the use of group communication technologies is spreading rapidly, it is important to further understand how gender differences influence the use of these technologies. With some exceptions (e.g., Van Slyke, Comunale & Belanger, 2002), most existing research has examined gender differences in IT perceptions using the Technology Acceptance Model (TAM) (Davis, 1989; Davis, Bagozzi & Warshaw, 1989). TAM posits that user acceptance of different technologies is determined by two key beliefs: perceived ease of use and perceived usefulness.

While TAM is a widely accepted theory in IT research, there are alternatives. One alternate theoretical basis for examining technology use comes from Rogers’ (1995) work on innovation diffusion. Rogers’ diffusion theory states that potential adopters’ perceptions of the characteristics of an innovation influence their adoption decisions. This view has been widely supported for a variety of innovations, including many IT innovations (Van Slyke, Lou & Day, 2002). One advantage of this theoretical perspective is that it considers a larger number of factors than does TAM, and thus provides a richer perspective (Plouffe, Hulland & Vandenbosch, 2001). With communication technologies, the concept of critical mass has emerged as an important factor influencing potential users’ adoption decisions (Prescott & Conger, 1995; Karahanna, Straub & Chervany, 1999). Because the critical mass threshold of an innovation is difficult to determine, especially a priori, an additional user perception has been proposed – perceived critical mass (Lou et al., 2000). It has been demonstrated empirically that users’ perceptions of the critical mass of a communication technology has an influence on its use (Lou et al., 2000). Because of the potential importance of this relatively new construct, we employ it in this research.

The importance of understanding differences in how women and men view IT is demonstrated by the growing body of research investigating these differences. Recent studies have examined gender differences in a variety of contexts, including Internet and Web use (Flanagan & Metzger, 2003; Dickerson, 2002; Simon 2001), e-mail (Gefen & Straub, 1997), information retrieval systems (Venkatesh & Morris, 2000) and electronic commerce (Van Slyke, Comunale & Belanger, 2002). These studies have revealed interesting differences in how men and women perceive IT. However, to gain a fuller understanding of these important differences, it is necessary to investigate them using different IT innovations and different theoretical perspectives.

One emerging technology that may warrant investigation is instant messaging (IM). Initially used primarily by home users, particularly younger users, many organizational users have recognized the potential of IM. Because of this, the organizational use of IM is exploding. Since this is a relatively immature technology, few academic investigations of IM have been conducted.

This research aims to deepen understanding of the underlying phenomena of technology adoption and use by focusing on how gender moderates the impact of perceptions of the characteristics of an innovation on use intentions. Specifically, this research extends the diffusion of innovation theory to incorporate perceived critical mass and then examines whether there are gender differences in the importance of the perceived innovation characteristics
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