



The moderating effects of gender on e-commerce systems adoption factors: An empirical investigation

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ABSTRACT

For e-commerce designers and human–computer interaction researchers, electronic commerce (e-commerce) systems adoption factors and the moderating effects of gender are important topics. Even though there are research endeavors to explain e-commerce systems adoption, one of the main questions to be answered is regarding the normative and affective factors based on the theory of reasoned action and self-determination theory. In this paper, social norms, perceived enjoyment, and their relationships to intention to adopt an e-commerce system are tested ($n = 322$). Furthermore, the moderating effects of gender are tested based on the sociolinguistic literature. As expected, the influence of social norms is stronger in the female group while the influence of enjoyment is stronger in the male group. Theoretical and practical implications of these findings are discussed in the paper.

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1. Introduction

For e-commerce designers and human–computer interaction researchers, electronic commerce (e-commerce) systems adoption behavior and the moderating effects of gender are important topics. (Birkhofer, Schagel, & Tomczak, 2000; Cyr & Bonanni, 2005; Dittmar, Long, & Meek, 2004; Gefen, Karahanna, & Straub, 2003; Hasan, 2010; Ilie, Van Slyke, Green, & Lou, 2005; Kay, 2006; Saeed, Hwang, & Grover, 2003a, Saeed, Hwang, & Yi, 2003b). Even though there are research endeavors to explain e-commerce system adoption and online consumer behavior (e.g., Gefen et al., 2003; Grazioli & Jarvenpaa, 2000; Pennington, Wilcox, & Grover, 2004), one of the main questions is how to understand the influences of social normative and affective factors on electronic customer relationship management (Saeed et al., 2003a, 2003b).

Slyke, Comunale, and Belanger (2002) also recently called for research to investigate the moderating effects of gender in e-commerce systems adoption as follows (p. 18): “Among the many characteristics that impact the use of e-commerce, one that has received relatively little attention is gender. Extant evidence suggests that men and women differ in their beliefs regarding the use of information technology-related innovations, including e-commerce. However, less is known about how gender moderates the impact of various beliefs on behavioral intentions.” Specifically, the moderating effects of gender on social norms – as a normative factor – and the perceived enjoyment – as an affective factor – and

the moderating effects of gender on intention to use e-commerce systems are very important to human–computer interaction but have not been tested in the previous research.

There are several objects of this study. First, this study focus on the gender differences and moderating effects in e-commerce adoption based on the sociolinguistics literature. Although Hasan (2010) showed that there are gender differences in online shopping attitude, he did not test the model with the sophisticated gender effects on purchase intention. This study tests a more complex model to clarify the gender role in e-commerce adoption based on the sociolinguistic literature. Second, this study posits the strong positive influence of perceived enjoyment based on self-determination theory. Although Deci and Ryan (1985) emphasized the intrinsic motivation of social behavior, they did not compare it with other social norms. We test and compare the normative and affective commitment in one model for the specific case of online consumer behavior on the grounds of the theory of reasoned action (TRA).

The organization of this paper is as follows: Section 2 presents the theoretical foundations and literature; Section 3 presents the research model; Section 4 presents the hypotheses; Section 5 outlines the research methodology and analysis; Section 6 presents a summary, and Section 7 presents limitations. Section 8 discusses implications for researchers and practitioners, and Section 9 concludes the paper.

2. Theoretical foundations and literature

Self-determination theory (Deci & Ryan, 1985) showed that all individuals have natural, innate, and constructive tendencies to

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develop an ever more elaborate and unified sense of self. It focuses on how individuals develop a coherent sense of self through regulation of their behavioral actions that may be self-determined, controlled, or motivated. Self-determination theory emphasizes an individual's intrinsic motivation (perceived enjoyment) as a main behavioral mechanism in general social behavior. Although there is literature in social psychology research on self-determination theory (Deci & Ryan, 1985), there have been limited applications of this model to e-commerce systems adoption in the IS domain. In traditional systems, an individual's voluntary and intrinsic motivation is not the main focus. However, as hedonic systems, such as the internet and various online communities, are globally popular in e-commerce these days, intrinsic motivation should be investigated further for successful IS adoption (Van der Heijden, 2004). Malhotra (2002) also argued that the tacit perspective of IS adoption should be managed and controlled mainly by self control or intrinsic motivation (perceived enjoyment), rather than by formal controls based on self-determination theory. Perceived enjoyment refers to the extent to which the activity of using a computer system is perceived to be personally enjoyable in its own right, aside from the instrumental value of the technology (Davis, Bagozzi, & Warshaw, 1992; Yi & Hwang, 2003). According to Davis et al. (1992, p. 1112), extrinsic motivation refers to "the performance of an activity because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself," whereas intrinsic motivation refers to "the performance of an activity for no apparent reinforcement other than the process of performing the activity per se." Davis et al. (1992) and recently Venkatesh and Speier (2000) classified enjoyment as a type of intrinsic motivation and perceived usefulness as a type of extrinsic motivation. For this reason, perceived enjoyment is gaining attention in IS research as an important intrinsic motivation variable in technology adoption behaviors.

Online consumer behavior is a voluntary individual behavior that can be explained by the theory of reasoned action (TRA) proposed by Fishbein and Ajzen (1975). TRA argues that behavior is preceded by intentions and that intentions are determined by the individual's attitude toward the behavior and the individual's social norms. Social norms are defined as a person's perception that most people who are important to him/her think that he/she should or should not perform the behavior in question (Fishbein & Ajzen, 1975). There are several IS studies focusing on subjective norms or environmental influences on online consumer behavior. Limayem, Khalifa, and Frini (2000) found that subjective norms influence purchase intention ($r = .17, p < .001$), using a formative construct of subjective norms (family, media, and friends influences) in online consumer behavior. Rogers and Diffusion of Innovations (1983) also suggests that there are external and internal sources of social influence affecting technology adoption belief. External sources were defined as including mass media, advertising, and other marketing-related sources, and internal sources were defined as word-of-mouth influence from friends, family, and others (Lekvall & Wahlbin, 1973; Pathasarathy & Bhattacharjee, 1998; Rogers, 1983). Kraut, Mukhopadhyay, Szczypula, Kiesler, and Scherlis (1999) highlight that other family members' internet usage is an important factor in an individual's web usage. Pathasarathy and Bhattacharjee (1998) found that external influence, interpersonal influence, and network externality are the distinguishing factors between discontinuing and continuing consumers. Expectation of e-commerce usefulness was negatively impacted by social disturbance (Han & Noh, 2000). Slyke et al. (2002) found that women viewed online shopping as a social activity rather than technology adoption. Saeed et al. (2003a, 2003b) also found that media influence is an important factor in the enhancement of customer value. Recently, Venkatesh et al.'s (2003) unified theory of acceptance and usage of technology (UTAUT) revealed that social

influence in voluntary contexts, such as e-commerce, operates by influencing perceptions about technology adoption.

Slyke et al. (2002) argued that one possible differentiating factor affecting the decision to engage in e-commerce could be gender. Relatively little research has been done in this area, and researchers have called for more focused attention on this important topic of gender and online shopping (Adam, Howcraft, & Richardson 2003). But the results of research focusing on gender have been mixed (Slyke et al., 2002). Although research has historically found that men are more likely to make online purchases (Akhter, 2003; Cho & Jialin, 2008; Whitley, 1997), recent research has found that women were nearly twice as likely to make online purchases using a popular online auction site (Black, 2007). Research has also found that most e-commerce sites are designed to be more compatible with male preferences, and, when this is done, the websites are less attractive to women (Moss, Gunn, & Kubacki, 2006). Research has also argued that women and men value different capabilities in e-commerce, with women focusing more on trustworthiness and assurance issues and the ability to share opinions and ideas and men focusing more on the value gained through the purchase (Awad & Ragowsky, 2008; Cho & Jialin, 2008; Rogers & Harris, 2003).

Sociolinguists (e.g., Tannen, 1991; Yates, 2001) also suggest that online purchase and communication behavior, including e-commerce, should be investigated with gender as a central social aspect. In electronic communication or e-commerce, the social message behind the words between the average man and the average woman is quite different, as is how this message is interpreted (Yates, 2001). Sociolinguistic researchers argue that men and women have different social influences for conversational interaction (Coates, 1986; Gefen & Straub, 1997). Male patterns of communication tend to be based on the notion of a social hierarchy, while female patterns tend to be network-oriented (Tannen, 1995). In general, women focus more on creating intimacy, while men focus more on asserting independence and seeking respect (Gefen & Straub, 1997). In the electronic communication or e-commerce contexts, women's discourse tends to be more tentative and socially oriented, while men tend to be more categorical (Coates, 1986; Gefen & Straub, 1997; Preisler, 1987). Yates (2001) also found that men tend to access IS more to obtain information, while women did so more to interact with other people.

3. Research model

A better understanding of the nature of systems users' affective and social normative factors will promise to contribute to the design of more effective e-commerce systems and the company's successful electronic customer relationship management. Given that social influence is composed of different dimensions, such as affective commitment and compliance (Kelman, 1958), and most previous IS studies tested only normative compliance, the roles of affective commitment in e-commerce systems adoption are theoretically important issues. In addition, social intervention for interaction and communication positively influence outcomes in varied dimensions of e-commerce and online application systems adoption (Baughner, Varanelli, & Weisbord, 2003; Ellis, 2007; Gallardo, Barrero, Martinez-Torres, Toral, & Durn, 2007; Garrison, Anderson, & Archer, 2003; Rourke & Anderson, 2002).

Based on insights into the social factors of systems adoption behavior, the role of affective commitment for the proactive adoption of systems is recently gaining significant interest from IS researchers (e.g., Malhotra & Galleta, 2005; Venkatesh et al., 2003). Malhotra and Galleta (2005) recently argued that a system user's affective commitment development was omitted in the previous research model which investigated systems adoption in the

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