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Yujong Hwang  
yhwang1@depaul.edu

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# UNDERSTANDING SOCIAL NORMS, ENJOYMENT, AND THE MODERATING EFFECT OF GENDER ON E-COMMERCE ADOPTION

**Yujong Hwang**

School of Accountancy & MIS  
DePaul University

&

School of International Studies

Kyung Hee University

[yhwang1@depaul.edu](mailto:yhwang1@depaul.edu)

## ABSTRACT

Understanding e-commerce system adoption is an important topic for e-commerce designers and electronic customer relationship managers. Even though there are a lot of research endeavors to explain e-commerce adoption, one of the main questions to be answered is regarding the normative and affective factors based on the theory of reasoned action and the self-determination theory. In this paper, the relationships among the social norms, perceived enjoyment, and their relationships to intention to adopt e-commerce system are tested (n = 322). Furthermore, the moderating effects of gender are tested based on the socio-linguistic 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. Interestingly, a female is more influenced by her friends while a male is more influenced by his family and media. Theoretical and practical implications of these findings are discussed in the paper.

## Keywords

E-commerce, social norms, enjoyment, gender, technology adoption

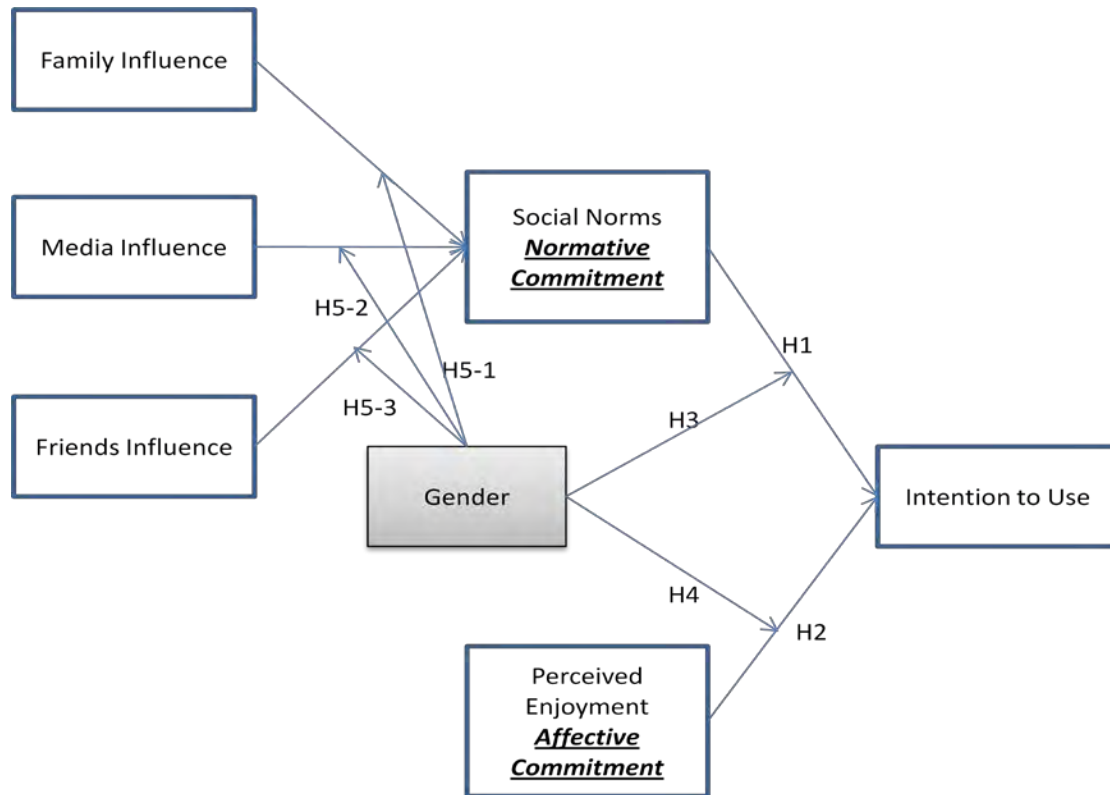
## INTRODUCTION

Electronic commerce (e-commerce) systems adoption is an important topic for e-commerce designers and human-computer interaction researchers. (Saeed et al., 2003; Gefen et al., 2003; Birkhofer, Schagel, and Tomczak, 2000). Even though there are a lot of research endeavors to explain e-commerce system adoption and online consumer behavior (e.g., Gefen et al., 2003; Grazoli and Jarvenpaa, 2000; Pennington et al., 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., 2003). Specifically, the complex effects of social norms – as a normative factor – and the perceived enjoyment – as an affective factor – on intention to use e-commerce system have not been tested in the previous research. This study investigates these important relationships with the moderating effects of gender based on the theory of reasoned action, self-determination theory, and socio-linguistic literature. The detailed discussion of these theories and hypotheses are in the next sections.

## RESEARCH MODEL AND HYPOTHESES

Malhotra and Galletta (2005) recently argued that a system user's affective commitment development was omitted in the previous research model which investigated IS adoption. 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 system and the company's successful electronic customer relationship management. Sociolinguists also have claimed for years that men and women communicate with different underlying social objectives and that their communication patterns are very different (Tannen, 1991, 1994, 1995). Yet the effects of gender on e-commerce system adoption have been ignored in IS research, even though gender is a fundamental aspect of individual behavior, based on socio-linguistic research (Gefen and Staub, 1997). Although it is clear that gender should be considered in understanding social, affective, and intrinsic aspects, nobody has studied this important aspect to understand the affective and normative social factors. In this study, social norms and the perceived enjoyment are hypothesized as direct antecedents to users' intention to use the e-commerce system. Further, the moderating

effects of gender are tested in the model based on socio-linguistic research (Tannen, 1994, 1995) and current IS literature (Gefen and Ridings, 2005; Venkatesh et al., 2003). The proposed research model is in Figure 1, and the detailed hypotheses are as follows.



**Figure 1. Proposed Research Model**

Online consumer behavior is a voluntary individual behavior that can be explained by theory of reasoned action proposed by Fishbein and Ajzen (1975). This theory argues that behavior is preceded by intentions and that intentions are determined by the individual's attitude – similar to the perceived enjoyment – toward the behavior and the individual's social norms. There are several IS studies focusing on social norms or environmental influence on online consumer behavior. Limayem et al. (2000) suggested that social norms influence purchase intention, using formative construct of social norms (family, media, and friends influences) in online consumer behavior. Thus, we hypothesize that;

*H1: Social Norms will have a positive effect on Intention to Use.*

Self-determination theory (Deci & Ryan, 1985) showed that all individuals have natural, innate, and constructive tendencies to 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. Malhotra (2002) argued that tacit perspective of systems adoption should be managed and controlled mainly by intrinsic motivation rather than by formal controls based on the self-determination theory. Prior research such as theory of reasoned action proposed intrinsic motivation, such as perceived enjoyment or attitude, as a determinant of perceived ease of use and intention to use (Venkatesh, 2000; Venkatesh et al., 2002; Yi & Hwang, 2003). Thus, we hypothesize that:

*H2: Perceived Enjoyment will have a positive effect on Intention to Use.*

Gefen and Straub (1997) showed that women sense more social presence in work-related emails. Venkatesh and Morris (2000) also showed that women are more affected by social norms in their adoption of IT. Women do so more with the objective of creating social inclusion, while men communicate more with the objective of creating and preserving their status and exchanging information (Gefen and Ridings, 2005; Tannen, 1994). In the unified theory of acceptance and usage of technology (UTAUT) model, Venkatesh et al. (2003) showed that women have a stronger relationship between social influence and behavioral intention. Thus, we hypothesize that;

*H3: Social Norms will have a stronger effect on Intention to Use in Females.*

On the other hand, Venkatesh et al. (2000) also found that the decisions of men were more strongly influenced by their attitude (or perceived enjoyment) toward using the new technology, while women were more strongly influenced by social norm and perceived behavioral control. Generally, men are supposed to be more sensitive to self-motive or self-satisfaction than women (Anderson and Leaper, 1998; Edelsky, 1993; Herring, 1993; Holmes, 1992; Kilbourn and Weeks, 1997; Weatherall, 1998; West and Zimmerman, 1983). Based on an extensive review of the literature, Minton and Schneider (1980) concluded that men tend to be more self-confident that would be related to the intrinsic motivation. Thus, we hypothesize that;

*H4: Perceived Enjoyment will have a stronger effect on Enjoyment in Males.*

We also expect that there would be moderating effects of gender in the different social influences on the norms. Since there is limited previous research on these specific relationships, we did not propose the specific directions on the moderating effects of gender. The empirical test results and findings would provide useful practical implications to the e-commerce system designers and electronic customer management relationship researchers. We hypothesize that;

*H5-1: Family Influence will have a different effect on Social Norms in Gender.*

*H5-2: Media Influence will have a different effect on Social Norms in Gender.*

*H5-3: Friends Influence will have a different effect on Social Norms in Gender.*

## **METHOD AND PRELIMINARY ANALYSIS**

The online survey was implemented with undergraduate business students, who voluntarily participated. The target university for the survey is in the northern region of the U.S. The experiment was conducted in an Internet classroom as suggested by Gefen (2002). Students were approached in an Internet-connected classroom, where each student had his/her own PC. The students were asked to navigate to [www.amazon.com](http://www.amazon.com), and go through the procedure of purchasing a book without actually submitting the purchase transaction. Next, the students were asked to complete the experimental instrument of an online survey based on their experiences with the website. The main objective of this experiment was to refresh the participants' memory without manipulating the participants or creating perception. We developed an online survey website and posted this URL to the class management system (Blackboard™) for the students to access.

In the main test, 322 students voluntarily participated in the study. We awarded bonus points to the final grade of survey participants. It took around 20 minutes for the participants to navigate the website and 25 minutes to complete the survey. The average age of the main test participants was 22 years, and 56% were female. 92% of participants reported having used e-commerce website to buy products before. 66% reported having used Internet 4 to 20 hours in a week, while 20% replied more than 20 hours. 15% replied that they used Internet less than 3 hours in a week. All measurement items are adapted and revised from previous research on the theory of reasoned action and the self-determination theory as we explained in the hypotheses section (see Appendix for detailed items). All questionnaire items used a 5-point Likert-type scale where 1 = completely disagree, 3 = neither agree nor disagree, and 5 = completely agree.

Measure validation and model testing were conducted using Partial Least Square (PLS) Graph Version 3.0 (Chin & Frye, 1998), a structural equation-modeling (SEM) tool that utilizes a component-based approach to estimation. PLS makes few assumptions about measurement scales, sample size, and distributional assumptions (Chin, 1998; Falk & Miller, 1992; Fornell & Bookstein, 1982; Wold, 1982). The model in this study has complex moderating relationships with the formative construct that can be tested by the PLS manipulation (Keil et al., 2000). Chin (1998, p. 311) advises that "if one were to use a regression heuristic of 10 cases per indicator," the sample size requirement would be 10 times (1) the largest number of formative indicators or (2) the largest number of independent variables impacting a dependent variable, whichever is the greater. In our model, the largest number of formative indicators is only three. Thus, our sample size of 322 is more than adequate for the PLS estimation procedures.

Before testing the hypothesized structural model, we first evaluated the psychometric properties of the study variables through confirmatory factor analysis. The measurement model was assessed by using PLS to examine internal consistency reliability (ICR) and convergent and discriminant validity (Barclay et al., 1995; Chin, 1998; Yi & Davis, 2003). Internal consistencies of 0.7 or higher are considered adequate (Barclay et al., 1995; Chin, 1998; Yi & Davis, 2003). To assess convergent and discriminant validity, the square root of the average variance extracted (AVE) by a construct should be at least 0.707 (i.e.,  $AVE > 0.50$ ) and should exceed that construct's correlation with other constructs. Table 1 shows that the psychometric properties of the study variables were considered relevant and sufficiently strong to support valid testing of the proposed structural model.

**Table 1. Weights, Loadings, Internal Consistencies, and Correlations (n=322)**

Construct	Weight/Loading		ICR	Social Norms	Enjoyment	Use
Social Norms	SN1	0.62	0.70	0.71		
	SN2	0.23				
	SN3	0.55				
Enjoyment	EN1	0.92	0.93	0.32	0.90	
	EN2	0.92				
	EN3	0.89				
Use	USE1	0.76	0.89	0.35	0.38	0.85
	USE2	0.87				
	USE3	0.91				

The PLS structural model and hypotheses were assessed by examining path coefficients and their significance levels. Following Chin (1998), bootstrapping (with 500 resamples) was performed on the model to obtain estimates of standard errors for testing the statistical significance of path coefficients using a t-test. Figure 2 provides the results of hypothesis testing. All direct paths in the model were supported within the 0.001 significance level. To test the moderating effects of gender, we adapted the procedure by Keil et al. (2000). Hypotheses 3 – 5(3) were examined by comparing the path coefficients based on Wynne Chin as described by Keil et al. (2000). All the hypotheses were confirmed within the 0.001 significance level. Table 2 shows these results.

## CONCLUSION

This research in progress investigates the normative and affective factors based on the theory of reasoned action and the self-determination theory. Furthermore, the moderating effects of gender are tested based on the socio-linguistic literature. In the preliminary analysis with 322 samples, the influence of social norms is stronger in the female group while the influence of enjoyment is stronger in the male group. Interestingly, a female is more influenced by her friends while a male is more influenced by his family and media. The findings of this study would be helpful for the e-commerce researcher and practitioners in understanding the online consumers' behaviors, which is essential for the successful e-commerce systems implementation.

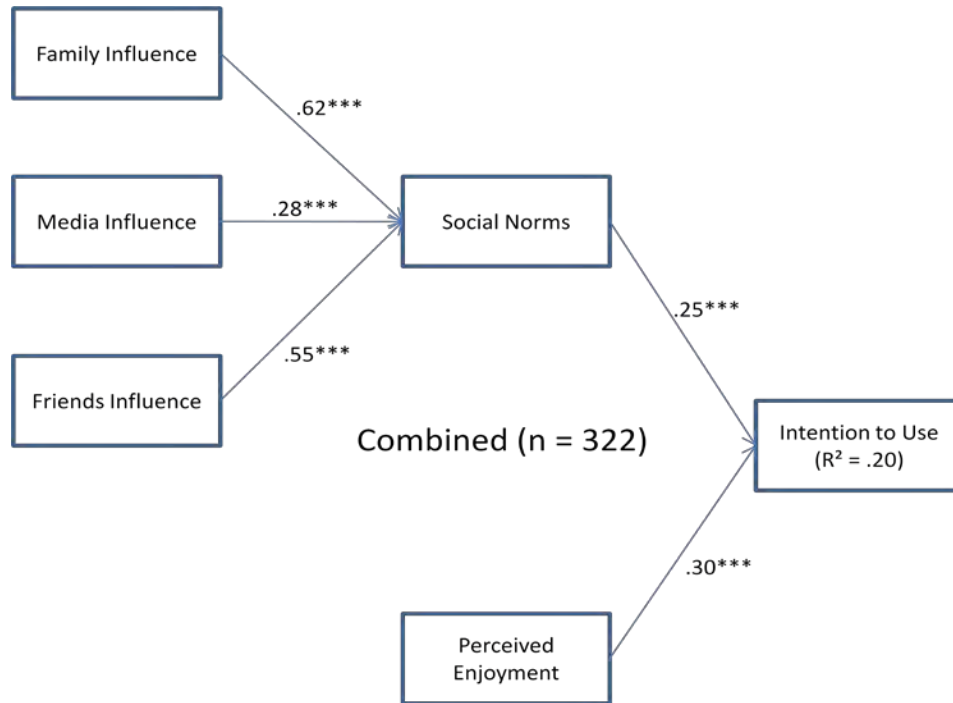


Figure 2. PLS Test Results of Combined Gender

Table 2. Comparison of the Path Coefficients in both Samples

Hypotheses	Male (n=138)		Female (n=184)		T-value comparing the two genders
	Path coefficients	Standard Error	Path coefficients	Standard Error	Male – Female
H3: Social Norms will have a stronger effect on Intention to Use in Female.	<b>0.21***</b>	0.079	<b>0.28***</b>	0.068	<b>-8.574***</b>
H4: Perceived Enjoyment will have a stronger effect on Enjoyment in Male.	<b>0.40***</b>	0.077	<b>0.25***</b>	0.067	<b>18.429***</b>
H5-1: Family Influence will have a different effect on Social Norms in Gender.	<b>0.78***</b>	0.154	<b>0.51***</b>	0.140	<b>16.195***</b>
H5-2: Media Influence will have a different effect on Social Norms in Gender.	<b>0.27*</b>	0.240	<b>0.18**</b>	0.182	<b>3.702***</b>
H5-3: Friends Influence will have a different effect on Social Norms in Gender.	<b>0.37**</b>	0.243	<b>0.64***</b>	0.084	<b>-14.233***</b>

Note. \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

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