Extending the social network site adoption model

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ABSTRACT

For several decades, researchers have been interested in why individuals adopt social network sites (SNS). Sledgianowski and Kulviwat (2009) introduced the Social Network Site Adoption Model to predict an individual's intention to use Social Network Sites (SNS). The model produced promising results, however, the generalizability of the study was limited due to the fact that respondents were college students. This study extends the earlier Social Network Site Adoption Model. First, the generalizability of the original model was expanded by sampling the general population in the U.S. Second, additional analyses beyond the original model showed privacy concerns and social network site experience as having moderating effects on the relationships between Playfulness, Trust, and Normative Pressure and the Intention to Use SNS.

Key Words: social media sites, moderating effects, need for privacy, experience

INTRODUCTION

The use of social network sites (SNS) continues to grow both in the United States and worldwide. Users of SNS are now spending an average of 2 hours and 24 minutes per day across an average of 8 social networks and messaging apps**.** Active social media users have passed the 3.8 billion mark with this number increasing by more than 9 percent (321 million new users) since this time last year (Kemp, 2020). Social media, such as Twitter, Facebook, Google+, and LinkedIn, have been defined as a group of internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow for the creation and exchange of user generated information (Kaplan and Haenlein, 2010). SNS have changed the way individuals share information, create knowledge, and socialize with family and friends Individuals use SNS for a variety of purposes: to pass time, maintain relationships, meet new people, keep up with current trends, and gather social information.

With this change in the way people communicate and consume information, marketers are challenged on how best to use the various SNS to interact with consumers in the promotion of their products and services, because what started out as media platforms designed to connect people, express opinions, and strengthen relationships, are now widely seen as marketing tools to promote products and gain customer feedback. Kumar, Bhaskaran, Mirchandani, and Shah (2013) argue that SNS can be used to increase sales, return on investment, word of mouth communication, as well as to enhance overall brand knowledge. Luo, Zang, and Duan (2013) reported a strong positive relationship between the use of social media and a firm's equity value.

As the use and importance of SNS continue to grow, researchers have sought to understand the factors that impact an individual's likelihood to use SNS. The purpose of this study is to extend the Social Network Site Adoption Model introduced over a decade ago by Sledgianowski and Kulviwat (2009) in two ways. First, this study seeks to generalize the findings of the original work, which sampled college students, by sampling the general population in the U.S. and testing the relationships found in the original Social Network Site Adoption Model. Second, this research is one of the first studies to further investigate the moderating effects of user's need for privacy along with site experience on the relationships of playfulness, trust, and normative pressure with intention to use SNS.

Social Network Sites

SNS have gained significant importance in recent decade and became extremely popular due to capability of content sharing and Web 2.0 technology. Facebook remains the most popular social media site today. The seven most popular social media platforms are: 1) Facebook – 2.45 billion active users; 2) Instagram – 1 billion active users; 3) Reddit – 430 million active users; 4) Snapchat – 360 million active users; 5) Twitter – 330 million active users; 6) Pinterest – 322 million active users; and 7) LinkedIn – 310 million active users (Kellogg, 2020). According to a recent Pew Research Center Report, there are substantial age-related differences in platform use. This is especially true of Instagram and Snapchat, which are used by 67% and 62% of 18- to 29-year-olds, respectively. Facebook use is relatively common across a range of age groups, with 68% of those ages 50 to 64 and nearly half of those 65 and older saying they use the site. Women are nearly three times as likely as men to use Pinterest (42% vs. 15%). Around half of college graduates and those who live in high-income households use LinkedIn, compared with

10% or fewer of those who have not attended at least some college or those in lower-income households (Perrin & Anderson, 2019).

Burke, Kraut, and Marlow (2011) identified three types of behaviors on a SNS, such as Facebook. The first type of behavior is "directed communication with friends" and consists of personal, one-on-one exchanges. A second type of behavior is "passive consumption of social news" and involves reading others' updates. The final behavior is writing for others' consumption, which is labeled "broadcasting". Hoffman and Novak (2012) examine how and why people use social media in the context of their basic needs for autonomy, competence and relatedness, intrinsic and external motivations, and well-being perceptions.

CONCEPTUAL FRAMEWORK AND HYPOTHESES

As per the Social Network Site Adoption Model introduced by Sledgianowski and Kulviwat (2009), we investigate both internal and external influences on individuals' intentions to use SNS. Internal influences are divided into two components: 1) cognitive factors, and 2) psychological factors. The cognitive factors are captured through the use of the Technology Acceptance Model (TAM) as developed by Davis (1989). Those factors include Ease of Use and Usefulness. These two factors are common in technology-usage settings and are applicable in all phases of adoption (Wu and Chen 2005). The psychological factors are operationalized through the use of Playfulness and Trust constructs. The external influences are measured using the Critical Mass and Normative Pressure constructs.

Usefulness

The original TAM proposes that the intention to use technology is impacted by perceived usefulness and perceived ease of use of the technology. Usefulness refers to the degree to which the user believes the technology will increase his or her performance on the job.

For this study, Usefulness refers to the degree an individual believes that using social media helps them attain goal-driven needs. Usefulness has been found to be a significant predictor of either the intent to use or actual use of SNS (Choi and Chung, 2013; Lane and Coleman, 2011; Rauniar et al., 2014). Based on prior research showing usefulness having a direct influence on intention to use technology based products, and as shown in Figure 1, we propose the following hypothesis:

H1: Usefulness has a significant positive effect on Intention to Use SNS.

Ease of Use

Ease of use refers to the level of belief that, using specific new technology will be hassle-free and user-friendly (Davis, 1989). Ease of use has been found to be a significant predictor of either the intent to use or actual use of SNS (Cho and Chung, 2013; Lane and Coleman, 2011; Rauniar et al., 2014). Ease of Use has also been shown to have a positive effect on perceived usefulness of computer technology (Davis, 1989; Davis et al., 1989). Based on prior research showing ease of use having a direct influence on intention to use technology based products, and as shown in Figure 1, we propose the following hypothesis:

H2: Ease of Use has a significant positive effect on Intention to Use SNS.

H3: Ease of Use has a significant positive effect on perceived Usefulness of SNS.

Playfulness

Playfulness has also been defined as predilection towards pleasure and enjoyment from involvement in activities (Byun, Dass, Kumar, and Kim, 2017). Playfulness is a component of intrinsic motivation and thus encourages people to display exploratory behavior and achieve satisfaction from novel experiences (Lin, Wu, and Tsai, 2005). Consumers tend to seek hedonic values such as pleasure, enjoyment or happiness (Alba and Williams, 2013). Kang, Shin, and Ponto (2020) recently characterized perceived playfulness as the degree to which a shopping environment transforms shopping activity into a recreational and playful experience. Mathwick and Rigdon (2004) also presented perceived playfulness as a concept that reflects both intrinsic enjoyment and escapism.

Hedonic stimulation is also associated with the pleasure of experiencing a technology-based product, with the user benefits being motivation, playfulness, and joy of exploring novelty (Abdul-Ghani, Hyde, and Marshall, 2011). Hedonic benefits are positive emotions towards an innovative offering resulting from the appreciation of an experience. For this reason, playful individuals tend to perform activities for mere enjoyment rather than for their instrumentality in achieving a consequent outcome (Atkinson and Kydd, 1997). Based on prior definitions, Playfulness is viewed in this study as the extent to which an individual believes using SNS will result enjoyment. Lin, et al., (2005) also found that playfulness contributed significantly to the users' intent to reuse a web site. Based on prior research showing playfulness having a direct influence on intentions to use technology based products, and as shown in Figure 1, we propose the following hypothesis:

H4: Playfulness has a significant positive effect on Intention to Use SNS.

Critical Mass

A critical mass is generally viewed as a small group of early adopters who are highly motivated to use a new technology innovation. Social media platforms such as *Facebook*, *Instagram*, and *YouTube* rely on word of mouth marketing. In other words, they rely on a network of individuals where groups of users (the critical mass) adopt and influence others to follow suit.

The actual point at which critical mass is achieved is difficult to determine and measure, but useful measures of perceived critical mass, which concerns adopter perceptions of the progress of diffusion processes, have been developed (Lou, Wand, & Strong, 2000). Perceptions of critical mass can project the feeling among likely users that critical mass exists, which can increase the diffusion process for a product.

Van Slyke, Ilie, Lou, and Stafford (2007) concluded that that perceived critical mass has both a direct and indirect effect on behavioral intentions towards the adoption of interactive communication innovations, and suggest that an individual is willing to use the new technology without having yet developed a positive perception towards the innovation. Based on prior research showing critical mass having a direct influence on intention to use technology based products, and as shown in Figure 1, we propose the following hypothesis:

H5: Critical Mass has a significant positive effect on Intention to Use SNS.

Trust

Trust has been extensively studied in the fields of social, psychology, sociology, and business, and it is considered one of the most important factors facilitating sustainable interpersonal relationships (Lewis and Weigert, 2012). Trust is also a predominant factor in human behavior (Liou, Chih, Hsu, and Huang, 2016), and influences the intention to effect transactions in e-commerce. Trust influences intentions of behavior (Alhalabi, Bawazir, Mohammad, and Sarirete, 2017) and is a key factor in the adoption of any technology (Tandon, Kiran, and Sah, 2018).

Trusting the SNS to keep information confidential is very important to most users. Institutional trust is an individual's perception that effective mechanisms are in place to assure that the social network site will behave consistently with the individual's favorable expectations (Gefen, Pavlou, Benbasat, McKnight, Stewart, and Straub, 2006). Institutional trust is the perception that SNS can be relied upon to perform role responsibilities. Based on prior research showing trust having a direct influence on intention to use technology based products, and as shown in Figure 1, we propose the following hypothesis:

H6: Trust has a significant positive effect on Intention to Use SNS.

Normative Pressure

Normative pressure is an individual's perceptions of what family and friends believe regarding the individual performing a specific behavior (Fishbein and Ajzen, 1975). Although most empirical examinations of the role of normative pressure in accepting technology have focused on the workplace, there is reason to expect that normative pressure could also play an important role in consumer adoption of technology.

A consumer's interpersonal influences could come from a variety sources, such as neighbors, relatives, family members, and friends. Moreover, it is feasible that social influences have a greater affect in the consumer context than in workplace or educational contexts, because a consumer's adoption of technology for personal use is almost always more of a voluntary decision than in contexts in which the technology choice is imposed upon the person by management or curriculum decisions (Brown, Massey, Montoya-Weiss, and Burkman, 2002).

Chang and Cheung (2001) argue that normative pressure can significantly influence intention to use the Internet at work. In addition, Lucas and Spitler (1999) found that normative pressure has a significant effect on an individuals' intention to use information technology. Based on prior research showing normative pressure having a direct influence on intention to use technology based products, and as shown in Figure 1, we propose the following hypothesis:

H7: Normative Pressure has a significant positive effect on Intention to Use SNS.

Intention to Use and Actual Use

Prior research has consistently confirmed the intention-actual use of computer technology (Davis, 1989; Davis et al., 1989). Based on prior research showing intention to use technology

based products having a direct influence on actual use technology based products, and as shown in Figure 1, we propose the following hypothesis:

H8: Intention to Use SSN has a significant positive effect on Actual Use of SNS.

Moderating Effects

Moderators are important in models that attempt to predict behavior because they can help identify the model's boundary (Carte and Russell, 2003). Moreover, Sun and Zhang (2006) stress the importance of moderating effects in helping to explain the relatively low explanatory power and inconsistent influences of predictor factors in user technology acceptance studies. The moderating effects of Need for Privacy and SNS Experience on the predictive relationship of Playfulness, Trust, and Normative Pressure to the Intention to Use SNS are examined in this study.

1) Need for privacy - Privacy refers to as "the ability of an individual to control the terms under which personal information is acquired and used" (Westin, 1967, p. 7). According to Smith, Milberg, and Burke (1996), information privacy is defined as "the ability of the individual to personally control information about one's self". The Internet has increased the concern for privacy by allowing data to be collected and shared relatively easily (Wirtz, Lewin, and Williams, 2007). The rise of security risks associated with the spread of personal information highlights that privacy protection is one of the most alarming issues in contemporary society (Tan, Qin, Kim, Hsu, 2012).

The availability of personal data may jeopardize a user's privacy, and thus impact the perceived pleasure or enjoyment derived from using SNS unless adequate privacy restrictions exist. As a result, individuals who engage in more privacy control behaviors should enjoy a greater sense of enjoyment and pleasure from using SNS. Given that playfulness is viewed in this study as the degree to which a current or potential user believes that SNS will bring him/her enjoyment and pleasure, the following hypothesis is proposed:

H9a: Need for Privacy will moderate the relationship between Playfulness and Intention to Use SNS, such that with a high level of Need for Privacy, Playfulness will have a larger positive influence on Intention to Use SNS than with a low level need for privacy.

Since perceived need for privacy is the importance to an individual of being able to control the acquisition and usage of personal information, the collection and use of data in today's technology dependent society has dramatically increased privacy concerns (James, Pirim, Boswell, Reithel, and Barkhi , 2006). Online trust includes user perceptions of how believable the SNS's information is, how the SNS would deliver on expectations, and the level of confidence in the site.

Studies have shown that individuals utilize additional privacy control behaviors when they believe organizations are not keeping their information private (Lwin, Wirtz, and Williams, 2007; Wirtz et al., 2007). Therefore, if SNS restrict personal information, individuals may perceive more control over who can see and use their personal information, and trust may not be as important to their intention to use SNS. Based on prior research showing privacy concerns impacting the relationship between trust and intention to use technology, we propose the following hypothesis:

H9b: Need for Privacy will moderate the relationship between Trust and Intention to Use SNS, such that with a high level of Need for Privacy, Trust will have a larger positive influence on Intention to Use SNS than with a low level Need for Privacy.

Individuals tend to take more risks when they are in a group compared with when they are alone (Reynolds, Joseph, and Sherwood, 2009). Providing personal information on a SNS can be risky. However, in the opposite way, social influence on technology usage may become stronger in individuals with low privacy concerns because high privacy concerns weaken other effects (Yun, Lee, Kim, and Kettinger, 2011). Yun, Lee, Kim, and Kettinger (2011) found that social influence from significant others does not directly increase continuous usage intention for location-based service (LBS) applications for smartphones, but that the effect of social influence on continuous usage can differ according to the level of privacy concerns. Social influence showed stronger effects in conjunction with high levels of privacy concern, indicating that groups with a high degree of privacy concern may be more active LBS users than low-concern groups. Based on prior research showing privacy concerns impacting the relationship between social norms and intention to use technology, we propose the following hypothesis:

H9c: Need for Privacy will moderate the relationship between Normative Pressure and Intention to Use SNS, such that with a high level of Need for Privacy, Normative Pressure will have a larger positive influence on Intention to Use SNS than with a low level Need for Privacy.

2) Experience - A number of studies have shown that experience can moderate the relationships between predictor variables and intention to use technology, but none for the predictor variable Playfulness. As described earlier, playfulness represents the intrinsic motivation associated with using any new system (Venkatesh & Bala, 2008). When individuals are in the playfulness state, they will find the interaction intrinsically interesting, as they are involved in the activity for pleasure and enjoyment rather than for extrinsic rewards (Moon and Kim, 2001). Over time, though the experience of using a new technology repeatedly, the novelty effect will diminish, and the intrinsic motivation, pleasure, and enjoyment of using the technology will logically decrease. As a consequence, the following hypothesis is proposed:

H10a: SNS experience will moderate the relationship between Playfulness and Intention to Use SNS, such that with high SNS Experience, Playfulness will have a smaller positive influence on Intention to Use SNS than with low SNS Experience.

Lankton, McKnight, and Thatcher (2012) found that trusting beliefs affects an individual's intention to continue using SNS with low SNS experience, but not with high SNS experience. Thus, the influence of trust appears to decline with SNS experience when predicting intention to use SNS. High experience users develop confidence in SNS and have less need in monitoring trustworthiness of the sites. Based on limited prior research showing experience affecting the relationship between trust and intention to use SNS, we propose the following hypothesis:

H10b: SNS Experience will moderate the relationship between Trust and Intention to Use SNS, such that with high SNS Experience, Trust will have a smaller positive influence on Intention to Use SNS than with low SNS Experience.

There is a wide range of studies that have examined the moderating effect of usage experience on the relationship between normative pressure and Intention to Use technology. Shen, X.-L., Cheung, C., Lee, M. & Chen, H. (2011) found the effect of group norm is more significant for instant messaging users with lower usage experience. Venkatesh and Davis (2000) and Venkatesh, Morris, Davis, and Davis, (2003) also found that subjective norm functions only in the early usage stages when opinions toward an information technology are relatively ill-informed. The effect of subjective norm will decrease over time due to the actual experience gained during technology usage. Based on limited prior research showing experience affecting the relationship between normative pressure and intention to use technology, we propose the following hypothesis:

H10c: SNS Experience will moderate the relationship between Normative Pressure and Intention to Use SNS, such that with high SNS Experience, Normative Pressure will have a smaller positive influence on Intention to Use SNS than with low SNS Experience.

RESEARCH METHOLDOLOGY

Data Collection and Procedure

Data were collected from 307 respondents using Qualtrics. The survey describes social media, also known as social networking site, and provides some examples of these SNS. The questionnaire initially asked respondents how long they had been using specific social media sites, how much time they spent on each per day, and how frequently they visited them. After deleting 15 unusable responses, 292 responses were used for data analysis.

The demographic profile collected from respondents is reflective of the general population (see Table 1). Of all respondents, 53 percent were men and 47 percent were women. Respondents were generally well educated, with 30 percent having a high school diploma or equivalent, 47 percent an undergraduate college degree, and 23 percent possessing a masters degree or higher. Approximately 12 percent of respondents were 70 or older, 40 percent were 51-69, 19 percent were in the 35-50 age group, and 29 percent were 18-34 years old. The majority of respondents (51.4 percent) reported an annual income from $30,000 to $69,999.

Measurement Scales

All the variables, except the endogenous variable of Actual Use, were measured using a five-point Likert scale ranging from “strongly disagree” to “strongly agree”. Usefulness and Ease of Use constructs were measured using five item scales each that were presented by Lund (2001). Playfulness was assessed using a three item scale developed by Moon and Kim (2001). Critical Mass was measured via a four item scale utilized by Ilie et al. (2007). Trust was measured using a five item scale developed by Sledgianowski and Kulviwat (2009). Normative Pressure was assessed using three item scales by Mathieson (1991). Need for Privacy was measured using a three-item scale developed by James et al. (2006). Experience was assessed using a one item

scale asking "How long have you been using the SNS?" Finally, Intentions to Use and Actual Use of SNS sites were both measured using a three item scale developed by the authors. (See Appendix)

DATA ANALYSES AND RESULTS

The Measurement Model

Structural equation modeling using EQS (Bentler, 1989) was used to assess relationships among theoretical constructs. Maximum Likelihood (ML) estimation was employed to analyze the covariance matrix calculated from the raw data.

The Measurement Model

We followed a two-step structural equation modeling approach proposed by Anderson and Gerbing, 1988). The data were first assessed using confirmatory factory analysis (CFA) to establish convergent and discriminant validity of the constructs. The measurement model in the CFA was then adjusted by deleting measurement items with shared high residual variance with other items to obtain the best measurement model. The proposed structural model was then evaluated by testing the hypotheses and calculating the model comparisons.

The initial model fit was not good, with comparative fit indices of (CFI = .89), non-normed fit index (NNFI = .88), Bollen fit index (IFI = .89), and root-mean-squared error of approximation (RMSEA = .09). However, the model fit was improved by using the Lagrange Multiplier by deleting measurement items that cross-loaded on more than one variable. After a series of modifications, the CFA showed an excellent model fit indices with CFI = .93; NNFI = .92; IFI = .93; and RMSEA = .06. All indices exceeded the minimum cut-off values suggested by Hu and Bentler 1999. All remaining measurement items as well as their standardized loadings are presented in Table 2. All items have large and significant loadings on their corresponding factors.

As shown in Table 2, the composite reliabilities of the revised scales, which ranged from .77 to .90, were good within the commonly accepted range greater than .60 (Fornell and Larcker 1981; Bagozzi and Yi 1988). In addition, the Cronbach's alpha reliabilities of each construct reflected good to excellent internal consistencies ranging from .84 to .95, well above the acceptable threshold value of .70. Construct validity of the resulting scales was examined via the assessment of each measure's convergent and discriminant validity. Convergent validity was validated by using the average variance extracted (AVE) between the constructs, which should exceed 0.5. As shown in Table 2, all path coefficients from latent constructs to their corresponding indicators were high (all significant at $p < .05$; $t > 2.0$), thus providing evidence of convergent validity (Anderson et al., 1988).

Discriminant validity was demonstrated in Table 3 when these items correlated more highly with items within the same factor than with items in a different factor. With all the evidences of satisfying criteria of reliabilities and convergent validity, except the slightly higher correlations among Usefulness, Ease of Use, and Normative Pressure with Playfulness than its AVE, the remaining items were retained for further analyses.

Structural Model Analyses

EQS was used to test the research model and hypotheses. The significance of path coefficients in the model provides support for the hypothesized relationship (Bentler, 1989). The structural model was examined on the cleansed measurement model. The data supported most of the individual causal paths postulated by the proposed research model (Figure 1).

H1 proposed that Usefulness would have a significant positive effect on Intention to Use SNS. Usefulness was found to have a significant effect on Intention to Use SNS. However, as shown in Figure 2, contrary to the hypothesized relationship, a significant negative/inverse effect was found ($\beta = -.10$, $p < .01$). Thus, H1 was not supported.

H2 postulated that Ease of Use would have a significant positive effect on Intention to Use SNS. This hypothesis was supported ($\beta = 0.56$, $p < .01$). Moreover, H3 was also supported, as Ease of Use was found to have a significant positive effect on Perceived Usefulness ($\beta = 0.49$, $p < .01$).

As predicted in H4, and shown in Figure 2, Playfulness was found to be a significant predictor of Intention to Use SNS ($\beta = 0.40$, $p < .01$). H5 was also supported, as Critical Mass was found to have a significant positive effect on Intention to Use SNS ($\beta = 0.15$, $p < .05$).

H6 and H7 pertained to Trust and Normative Pressure respectively, and both hypotheses were not supported, as neither had a significant effect on Intention to Use SNS (Trust $\beta = 0.02$, p = n.s.; Normative Pressure ($\beta = -.02$, p = n.s.). H8 was supported, as Intention to Use SNS was a significant determinant of Actual Use of SNS 8 ($\beta = 1.14$, $p < .01$).

Moderating Effects Analysis

1) Need for privacy

Moderator analysis was conducted using the multiple regression function on SPSS. Because Need for Privacy was a continuous variable, to test H9a, the interaction variable was created through multiplying the independent variable (Playfulness) and the moderator (Need for Privacy). Then all three of the variables, Playfulness, Need for Privacy, and the interaction of Playfulness and Need for Privacy, were entered into the multiple regression equation as independent variables using step-wise method. As presented in Table 4, Model 1 for H9a, the independent variable of Playfulness itself was significant at .01 level and explained the majority ($R^2 = .696$) of the variance of the dependent variable (Intention to Use). When adding the interaction of Need for Privacy (Model 2 of H9a), both Playfulness and interaction of Playfulness and Need for Privacy were significant at .01 level, and the interaction explained an additional 1.4% ($\Delta R^2 = .014$) of the variance of Intention to Use, which is significant at .01 level as well. With the positive standardized β coefficient of the interaction ($\beta = .253$), H9a was supported.

Likewise, the moderating effect of the Need for Privacy was tested on the path of Trust and Intention to Use (H9b). Different from the path of Playfulness and Intention to Use, the interaction explained the most of the variance ($R^2 = .400$) of the dependent variable, and Trust explained an additional 3% ($\Delta R^2 = .030$) of the variance of Intention to Use. Both Trust and the interaction were significant at .01 level, as well as the ΔR^2. In addition, the standardized β coefficient of the interaction was positive ($\beta = .348$), thus H9b was supported.

Finally, the Need for Privacy moderating effect was tested on the path between Normative Pressure and the Intention to Use (H9c) with the same method used above. Similarly, the interaction explained the most (R^2 =.381) of the variance of Intention to Use, and Trust explained an additional .5% (ΔR^2 =.005) of the variance. Both Normative Pressure and the interaction with Need for Privacy were significant at the .01 level with respect to influencing Intention to Use. The ΔR^2 was also significant at .01 level. The direction of the standardized β coefficient of the interaction was positive (β=.372), so H9c was supported as well.

These moderating effects might partially reveal why both the paths of Trust and Normative Pressure to Intention to Use were not significant in the EQS main effect testing. Specifically, both Trust and Normative Pressure effects were significantly moderated by the Need for Privacy. When the Need for Privacy was not taken into consideration in the SEM, the independent variables of both Trust and Normative Pressure did not significantly contribute to the Intention to Use. However, it became significant when Trust and the interaction with the Need for Privacy were put into the multiple regression equation, where both of them became significant at .01 level. This is the same as Normative Pressure in which it became significant when the interaction with the Need for Privacy and itself were put into the multiple regression equation, where both of them became significant at .01 level.

2) SNS experience

The moderator of SNS Experience was also tested on the same three paths as Need for Privacy. SNS Experience was first categorized into a dichotomous variable, creating a low vs. high SNS Experience. Respondents having one year or less experience on SNS were categorized as a low SNS Experience group (N=191). Respondents having one year or more experience on SNS were categorized into a high SNS Experience group (N=101). The interaction variable, which indicates the moderating effect of SNS Experience, was then created by multiplying the independent variable and SNS Experience. Because SNS Experience is a dichotomous variable, the two block enter method was used to test the moderating effect.

To test H10a, the Playfulness and SNS Experience were entered into multiple regression in block 1, and the interaction of Playfulness and SNS Experience was entered into block 2. As presented in Table 5, both Playfulness and SNS Experience were significant at the .01 level in Model 1, and together they explained 72.1% of the variance of Intention to Use. With the interaction being added to Model 2, all three independent variables were significant at the .01 level, and .5% (ΔR^2 =.005) of additional variance was explained by the interaction. The ΔR^2 was significant at the .05 level. Moreover, the standardized β coefficient of interaction (β= -.376) was negative; therefore, H10a was supported.

The SNS Experience moderating effect was then tested on the path between Trust and Intention to Use (H10b). Both Trust and SNS Experience were significant at the .01 level, and together explained 47.4% of the variance of Intention to Use. The interaction was then entered into the multiple regression equation, and the results show in Table 5 that all three independent variables were significant at the .01 level. By adding the interaction into the regression equation, 1.2% additional variance was explained, and the ΔR^2 =.012 was significant at the .01 level. The direction of the standardized β coefficient was negative (β= -.562), which was consistent with H10b, thus H10b was supported.

Lastly, the SNS Experience moderating effect was tested on the path of Normative Pressure and Intention to Use (H10c), and the same pattern of results as H10a and H10b were

found. Both Normative Pressure and SNS Experience were significant at the .01 level, and explained 46.9% of the variance in Intention to Use. After adding the interaction variable, an additional 1.4% of the variance was explained. All three independent variables, as well as the ΔR^2, were significant at the .01 level. In addition, the standardized β coefficient presents a negative direction, thus H10c was supported.

DISCUSSION/IMPLICATIONS

This study examined the factors influencing an individual's intention to use SNS. This study sought to validate the generalizability of the Social Network Site Adoption Model to the general public. The results of this study support a number of the findings in the 2009 study. Similar to the 2009 study, the empirical test of the hypotheses shows that Ease of Use, Playfulness, and Critical Mass all have a positive and significant effect on Intention to Use SNS. Moreover, the strongest indicators of Intention to Use SNS in this study were Playfulness and Critical Mass, which also supports the findings of the 2009 study. Also supporting the findings of Sledgianowski and Kulviwat (2009), Normative Pressure was found not to be a significant contributor to an individual's Intention to Use SNS. Surprisingly, however, Trust was found not to be a significant contributor to an individual's Intention to Use SNS, and Usefulness was found to have a significant inverse (negative) influence on Intention to Use SNS, which differs from the findings of the 2009 study.

The above findings have significant implications for SNS, such as Facebook, Instagram, Snapchat, etc. The results support the theory that hedonic stimulation (playfulness) associated with the pleasure of experiencing technology-based products plays a more important role in predicting an individual's intention to use a SNS than does the individual's trust that there are safety mechanisms built into the SNS to protect privacy, or social pressure felt from family and friends to use the SNS. Similarly, the findings also suggest that an individual is more likely to have intention to use a SNS because of the ease of use than his/her ability to accomplish goal-driven needs (usefulness).

The inverse relationship found between Usefulness and Intention to Use SNS could be partially explained by the fact that people engage in conversations on SNS primarily because of the social/hedonic aspect of the experience, and not because they view the experience from a utilitarian perspective, such as a means to increase their job performance or attain a particular goal. The findings support earlier studies that found Playfulness to be a stronger predictor of Intention to Use SNS than Usefulness (Dickinger, Arami, and Meyer, 2008; Van der Heijden, H., 2004).

Another contribution of this study is the testing of the moderating effect of Need for Privacy and SNS Experience on the Intention to Use SNS. The findings of this study suggest that using Playfulness, Trust, or Normative Pressure to predict Intention to Use SNS should take into account privacy concerns a user may have. Although we found a direct effect of Playfulness on Intention to Use SNS, its interaction effect was also significant and worth noting. This means that when SNS users feel that they have control over their privacy, the joy of intention to use SNS will be more pronounced.

This study did not find Trust to have a significant effect on Intention to Use SNS, however, when the interaction of Need for Privacy with Trust was tested, we found not only that the interaction explains the most of the variance, but also that Trust and Intention to Use SNS relationship became significant. Seemingly, this shows the importance of the Need for Privacy

from users of SNS in that the more users feel that they have control over their personal information or feeling that their privacy is protected, trust will even have greater impact on Intention to Use SNS. Evidently, this shows the importance of the need for privacy from users of SNS in that the more users feel that they have control over their personal information or feeling that their privacy is protected, trust will even have greater impact on Intention to Use SNS. In other words, it means that privacy restrictions may reduce the perceived risk regarding sharing of information on SNS enough to remove the need for trusting beliefs for users of SNS.

Similarly, Normative Pressure when used as the only independent variable was found not to be a significant predictor of Intention to Use SNS, however, when the interaction of Need for Privacy with Normative Pressure was tested, a significant relationship was found with Intention to Use SNS. Moreover, the interaction of Normative Pressure and Need for Privacy explained the most of the variance. This suggests that privacy restrictions may also reduce the importance of social pressure towards using SNS enough to at least minimize the need for social acceptance for users of SNS. Or looking at it from a different perspective, users of SNS with high Need for Privacy, Normative Pressure will have a higher impact on their Intention to Use SNS than users with low Need for Privacy.

An additional contribution is that a number of studies have shown that experience in using SNS can moderate the relationships between predictor variables and intention to use technology, but few studies have examined experience's effect on intention to use SNS. The findings of this study suggest that using Playfulness, Trust, or Normative Pressure to predict Intention to Use a SNS should take into account the level of experience an individual has. The reason for that is the effects of Playfulness, Trust, and Normative Pressure differ for different levels of user SNS Experience.

Although the direct effect of playfulness is significant, examining the interaction effect could further uncover more information. As shown in Table 5, the significant and negative interaction effect shows that there are differences in terms of experience levels interacting with Playfulness on Intention to Use SNS. This means that the group with lower experience, Playfulness will have a greater impact on Intention to Use SNS compared to high experience group.

As for Trust, it has different effects for those with lower experience group versus those with high experience group as well. In other words, with the lower experience SNS users, Trust will even have a greater impact on Intention to Use compared to the higher experience SNS users. Finally, the magnitude of the effect of Normative Pressure on Intention to Use differs for different levels of experience. This means that for the lower experience SNS users, Normative Pressure produces a greater impact on Intention to Use compared to the high experience group.

SNS need to consider individual differences in Need for Privacy and SNS Experience, as these differences may impact the intention to use SNS. Both of these factors can help to offset users' lack of trust and social pressure felt from family and friends when deciding to use SNS. Privacy restrictions is a powerful variable that can be controlled by SNS, and should be appealing to a large group of users of SNS.

LIMITATIONS AND FUTURE RESEARCH

One limitation of this study is that the Social Network Site Adoption Model was not tested under different respondent goal conditions. For example, Intention to Use a SNS might be driven by different factors based on whether the individual is using it for utilitarian reasons

(e.g., consumption of news) versus hedonic reasons (e.g., communicating with friends). Another limitation is that the actual uses of SNS were self-reported as opposed to objectively measured. Also, since usage was reported on the same questionnaire used to measure perceived usefulness and perceived ease of use, the possibility of a halo effect should not be overlooked (Davis, 1989).

Additional research is needed to assess if there are differences across the various types of SNS with respect to predicting intentions to use the sites. For example, are there different and stronger predictors of intentions to use Facebook versus Snapchat? This study grouped all SNS into one broad social media platform, but there may be differences as to why individual's use specific SNS. Finally, future research should also focus on testing more complex models of assessing usage intent of SNS. Expanding the Social Network Site Adoption Model to include additional predictors of intent to use SNS would enhance the understanding of the personal intentions and motives driving SNS usage.

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Figure 1
Proposed Social Network Site Model

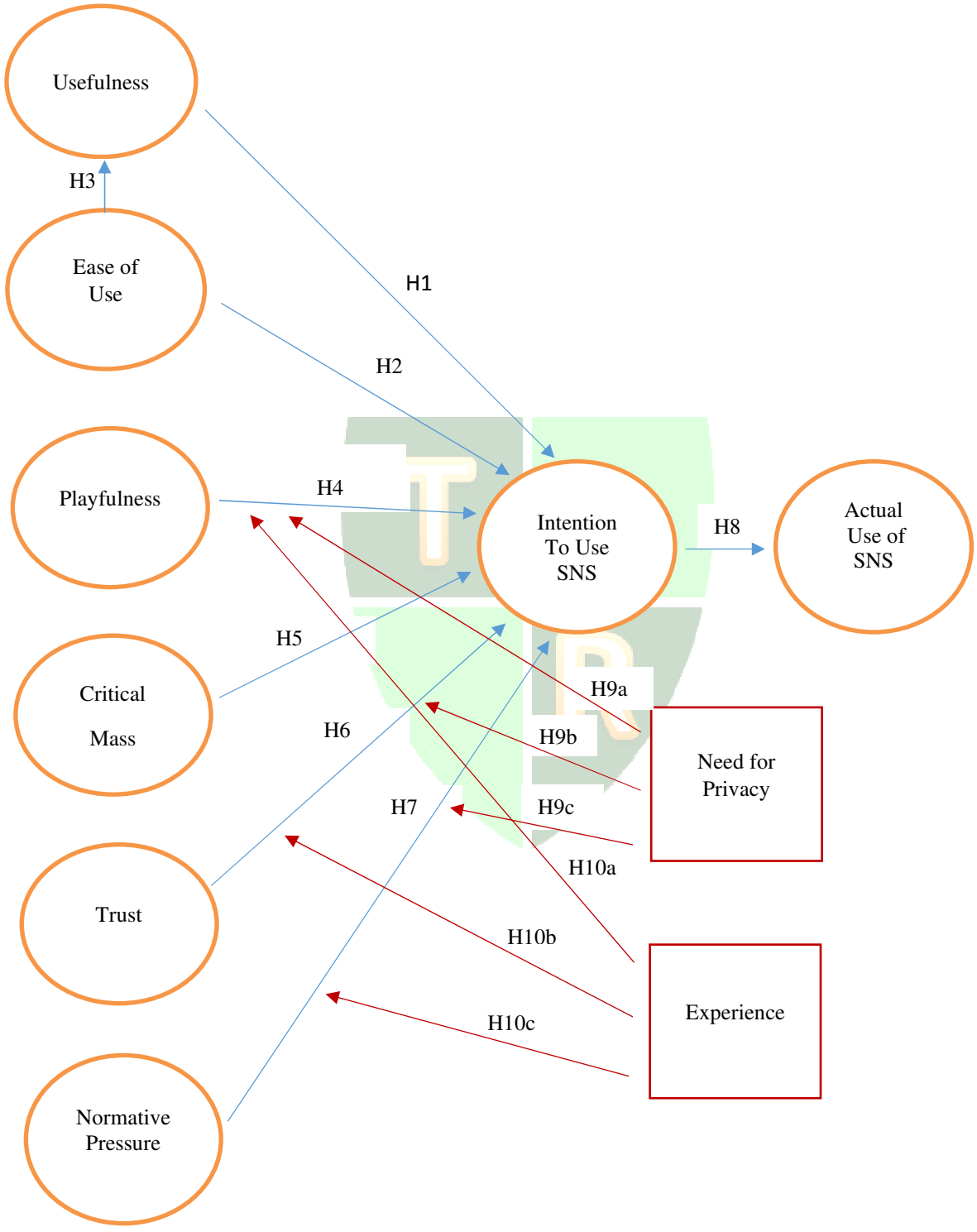
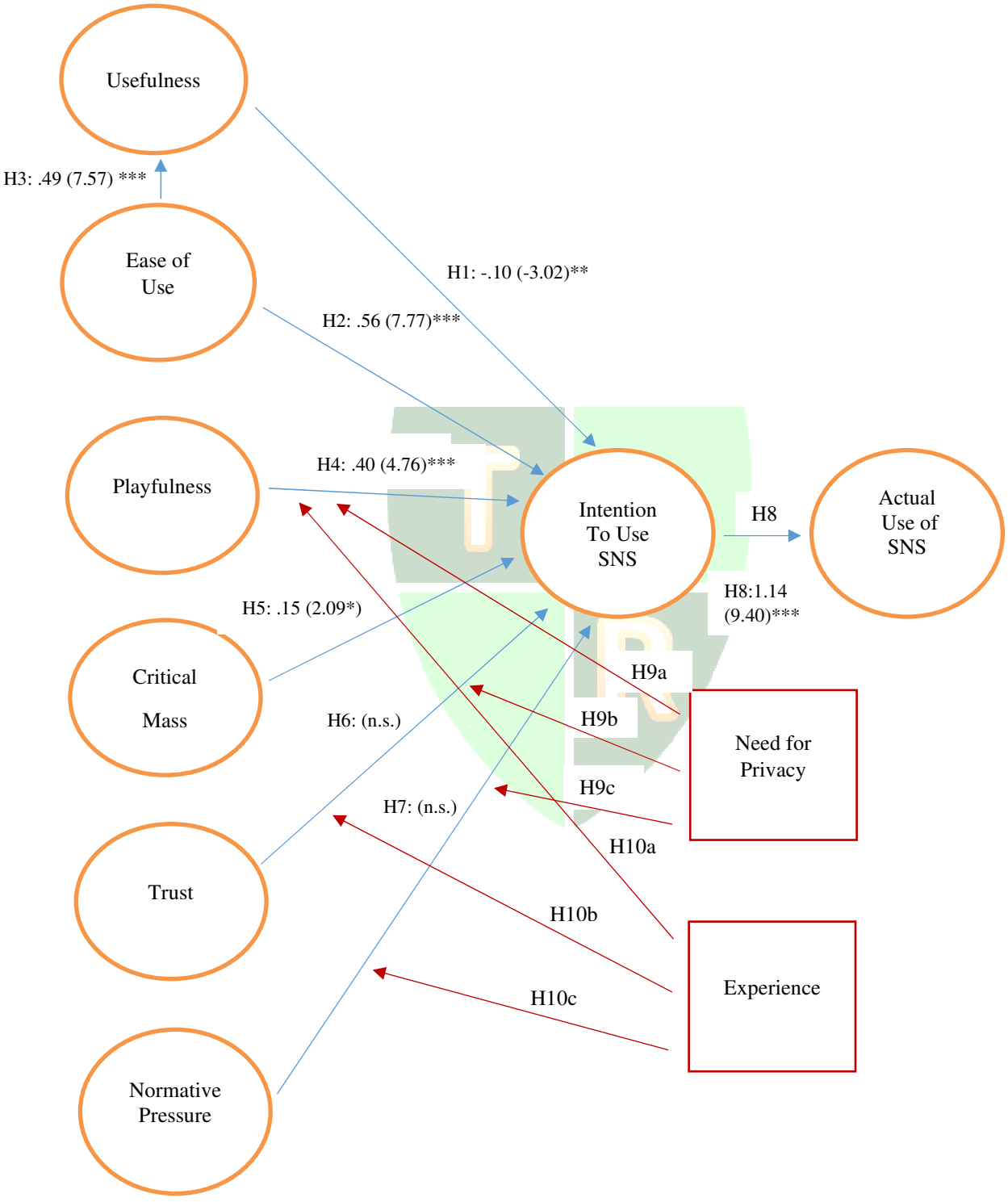


Figure 2
Standardized EQS Social Network Sites Solution



***Significant at .001 **Significant at .01 *Significant at .05

Table 1
Sample Characteristics

Characteristics	Percentage of All Respondents
Gender	
Male	52.8 %
Female	47.2 %
Age	
18-34	28.8%
35-50	19.4%
51-69	39.6%
70+	12.2%
Marital Status	
Single	28.8%
Married or Domestic Partnership	57.3%
Separated or Divorced	9.7%
Living with Significant Other	4.2%
Education	
High school or equivalent	29.5%
Undergraduate degree	46.9%
Graduate degree or higher	23.6%
Income	
< $10,000	9.7%
$10,000 - $29,999	17.7%
$30,000 - $49,999	25.0%
$50,000 - $69,999	26.4%
$70,000 - $89,999	8.0%
$90,000 - $109,999	5.6%
>= $110,000	7.6%

Table 2
Across-Construct Confirmatory Factor Analysis

Constructs and Measurement Items	Standardized Loadings [a, b]	Construct Reliability	Cronbach's Alpha
Perceived Usefulness (PU)		.85	.93
PU1	.89		
PU2	.95		
PU3	.87		
Perceived Ease of Use (PEU)		.90	.95
PEU1	.86		
PEU2	.89		
PEU3	.94		
PEU4	.93		
PEU5	.89		
Playfulness (PL)		.89	.94
PL1	.86		
PL2	.88		
PL3	.86		
PL4	.85		
PL5	.85		
PL6	.81		
Critical Mass (CM)		.85	.93
CM1	.89		
CM2	.91		
CM3	.90		
Trust (TR)		.84	.84
TR2	.86		
TR3	.92		
TR4	.90		
Normative Pressure (NP)		.84	.92
NP1	.89		
NP2	.93		
NP3	.86		
Intention to Use (INT)		.86	.93
INT1	.95		
INT2	.95		
INT3	.84		
Actual Use (USE)		.77	.87
USE1	.86		
USE2	.90		

Notes - a: All factor loadings are significant at p = .05
b: Individual items shown represent items left after the purification process.

Table 3
Discriminant Validity Matrix

Construct	PU	PEU	PL	CM	TR	NP	INT	USE
PU	**.66**	.42	.63	.41	.58	.57	.45	.21
PEU	.17	**.68**	.59	.61	.45	.54	.62	.46
PL	.39	.34	**.58**	.62	.58	.67	.60	.49
CM	.16	.37	.38	**.65**	.39	.60	.67	.44
TR	.33	.20	.35	.15	**.64**	.46	.45	.38
NP	.32	.29	.46	.36	.21	**.64**	.53	.25
INT	.28	.38	.36	.44	.20	.28	**.68**	.53
USE	.04	.21	.24	.19	.14	.06	.28	**.63**

PU = Perceived Usefulness PEU = Perceived Ease of Use
PL = Playfulness CM = Critical Mass
TR = Trust NP = Normative Pressure
INT = Intention to Use USE = Actual Usage

Diagonal elements (bold) represent the average variance extracted between the constructs.

Table 4
Need for Privacy Moderating Effects

Hypothesis		**R Square Change**	**Sig. F Change**	**IV**	**Standardized Coefficients**	**Sig.**
H9a Playfulness→ Intention	Model 1	.696	.000	Playfulness	.834	.000
	Model 2	.014	.000	Playfulness	.610	.000
				Interaction	.253	.000
H9b Trust→Intention	Model 1	.400	.000	Interaction	.632	.000
	Model 2	.030	.000	Trust	.334	.000
				Interaction	.348	.000
H9c Normative Pressure →Intention	Model 1	.381	.000	Interaction	.617	.000
	Model 2	.017	.005	Normative Pressure	.278	.005
				Interaction	.372	.000

Table 5
SNS Experience Moderating Effects

Hypothesis		R Square Change	Sig. F Change	IV	Standardized Coefficients	Sig.
H10a Playfulness→ Intention	Model 1	.721	.000	Playfulness	.783	.000
				Experience	.168	.000
	Model 2	.005	.026	Playfulness	1.025	.000
				Experience	.382	.000
				Interaction	-.376	.026
H10b Trust→Intention	Model 1	.474	.000	Trust	.568	.000
				Experience	.285	.000
	Model 2	.012	.012	Trust	.912	.000
				Experience	.646	.000
				Interaction	-.562	.012
H10c Normative Pressure →Intention	Model 1	.469	.000	Normative Pressure	.556	.000
				Experience	.322	.000
	Model 2	.014	.006	Normative Pressure	.964	.000
				Experience	.658	.000
				Interaction	-.580	.006

APPENDIX

Measurement Scales

Perceived Usefulness (Lund 2001, α = .88)*
1. It helped me be more effective.
2. It helped me be more productive.
3. It saved me time to use it.
4. It required the fewest steps to accomplish what I wanted to do with it.
5. It made the task I wanted to accomplish easier to get done.

Perceived Ease of Use (Lund 2001, α= .93)*
1. It was easy to use.
2. I learned to use it quickly.
3. It was simple to use.
4. I easily remember how to use it.
5. It was easy to learn to use it.

Perceived playfulness (Moon and Kim 2001, α = .96) *
1. Using ____ gives enjoyment to me.
2. Using ____ gives fun to me.
3. Using ____ keeps me happy.
4. Using ____ stimulates my curiosity.
5. Using ____ leads to my exploration.
6. Using ____ arouses my imagination.

Perceived Critical Mass (Ilie, Van Slyke, Green, & Lou 2005, α = .93) *
1. Many people I communicate with use _____.
2. The people I communicate with will continue to use ____ in the future.
3. The people I communicate with using _____ will continue to use ____ in the future.
4. Of the people I communicate with regularly, many use ____.

Perceived Trust (Sledgianowski & Kulviwat 2009, α = .84) *
1. I feel that this website is honest.
2. I feel that this website is responsible.
3. I feel that this website understands its customers.
4. I feel that this website cares about me.

Normative Pressure (Mathieson 1991, α = .86) *
1. People who are important to me would (strongly support/oppose) my using ____ rather than _____.
2. I think that those people who are important to me would want me to use ____ rather than _____.
3. People whose opinions I value would prefer me to use _____ rather than ____.

Need for Privacy (James, Pirim, Boswell, Reithel, and Barkhi, 2006, α = .85) *
1. I feel that having control over my own personal information is very important to me.
2. I feel it is important to avoid having personal information released that I think could be socially damaging to me.
3. I feel personal information that has been released by me but is used in a manner not intended by me is unacceptable.

Behavioral Intention (MacKensie, Lutz, and Belch 1986, α = .92) *
1. I plan to use this website over the next 6 months.
2. I intend to use this website over the next 6 months.
3. I intend to use this website frequently over the next 6 months.

Experience
How long have you used ____?

Actual Use
1. How much time have you spent using ____?
2. How long have you used____?
3. How frequently do you use ____?

*Likert-type items anchored by 1 = Strongly Disagree; 5 = Strongly Agree