Three Processes that Form Online Social Networking Post-Adoptive Use Intention

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ABSTRACT

Not all individuals log into an online social networking (OSN) website because they have deliberately reflected on how useful and fun it will be. For some users, this post-adoptive use decision requires a less deliberate process based on past experience. For still others, the decision is automatic and requires little, if any, reflection on beliefs or prior experiences. While past research has examined these different post-adoptive thought processes, no research to date has done so in an OSN context. This study develops a research model that combines reflective, transitional, and non-reflective thought processes into a comprehensive model of post-adoptive OSN intention. We test the hypotheses with cross sectional data collected from Facebook users. We find that all three thought processes predict intention, although the effects of experience on intention during the transitional and non-reflective thought processes are strongest. Results also show that habit, enjoyment, trust, usefulness, and privacy concern predict OSN continuance intention.

Keywords

Online Social Network, Habit, Enjoyment, Privacy concern, Trust, Perceived Usefulness, Continuance Intention

INTRODUCTION

Online social networking (OSN) is an emerging technology that many people use to post personal information and connect with friends. The number of OSN users has increased dramatically. According to a 2011 Pew Internet research report, 65% of adult Internet users in the U.S. are using OSN websites such as Facebook, MySpace, and LinkedIn (Madden and Zickuhr, 2011). Today, even companies and universities use OSN websites to increase business value. There are many emerging OSN sites, with Wikipedia showing well over 100 active OSN websites. Because of the staggering growth and importance of OSN sites, researchers are interested in studying why people use them.

Current research on OSN adoption generally considers only one process in individuals’ decisions to use an OSN website. For example, Sledgianowski and Kulviwat (2009) examine a variety of beliefs that influence OSN adoption assuming that all individuals will deliberately assess these beliefs in forming their intentions and use behaviors. While this enhances our understanding of the deliberate or reflective process of OSN adoption, researchers acknowledge that individuals use different thought processes to decide whether to continue using IT, dependent on their experience. For example, users with more experience may spend less time reflecting on their initial beliefs, and spend more time making sense of the technology and updating their beliefs to reflect these experiences (Jasperson, Carter and Zmud, 2005; Kim and Malhotra, 2005). Positive experiences with the technology can later lead to behavior that is non-reflective and automatic in nature (Jasperson et al., 2005; Kim and Malhotra, 2005). These different thought processes are important for researchers and practitioners to understand because they can determine the success of changes and interventions (Jasperson et al., 2005).

To fill this research gap, our research objective is to develop and test the different mechanisms individuals use in developing post-adoptive OSN website use intentions. We create hypotheses related to reflective, transitional, and non-reflective processes, and test them with users of Facebook, one of the most popular OSN websites.
THEORETICAL MODEL AND HYPOTHESES DEVELOPMENT

Recently, researchers have proposed that post-adoptive IT use contains multiple processes that individuals use as they gain experience with the technology. For example, Jasperson et al. (2005) developed a conceptual post-adoption model that depicts the individual cognitions, thought processes, and behaviors made after an IT has been installed, made accessible to and used by the individual. In Jasperson et al.’s (2005) conceptual model the individual factors are connected by two feedback loops or thought processes. One process represents reflective thought about early use behaviors. The other process represents non-reflective thought and becomes active once individual behavior has become habitual. Another example of a post-adoption model portraying different thought processes is that of Kim and Malhotra (2005). They developed and empirically tested a longitudinal IT use model that depicts how individuals update and adjust cognitions related to a technology. They propose four mechanisms that range from reflective to non-reflective thought processes, and that involve direct cognition effects, belief updating, self-perception, and habit.

We use the above research to develop hypotheses about three thought processes OSN users undergo in making post-adoptive IT use decisions, including reflective, transitional, and non-reflective thought processes (Figure 1). Our model depicts the thought processes adopted by OSN users with different experience levels (Kim and Malhotra, 2005). Also, while often depicted as such, the processing types are not exclusive. For example, many behaviors include both reflective and non-reflective processing, while other behaviors result from differing effects of a given processing type (Ajzen, 2002). In this way, our model is a more comprehensive model of OSN post-adoptive intention.

Reflective Thought Process

The first part of Jasperson et al.’s (2005) and Kim and Malhotra’s (2005) post-adoption models represent reflective thought about IT use. This is consistent with many IT adoption and use models like TAM and UTAUT in which individuals’ IT use intention and behavior is initially based on cognitions (Jasperson et al., 2005; Kim and Malhotra, 2005). In our model, we use four cognitions that have been proposed to affect intentions to use OSN in prior research: usefulness, enjoyment, trust, and privacy concern.

Usefulness is the belief that using the OSN website will enhance one’s social networking performance outcomes (Davis, Bagozzi and Warsaw, 1989; Venkatesh, Morris, Davis and Davis, 2003). Usefulness has a positive influence on intentions because the more individuals find the website make social networking more productive or more efficient, the more likely they will plan to use it again. OSN websites can have a “social usefulness” (Saunders and Zucker, 1999). While originally usefulness was thought to apply only to work and school situations where performance and productivity are of utmost importance, researchers also find that it significantly affects intention in a variety of more personal-use technology settings including OSN (Sledgianowski and Kulviwat, 2009).

**Hypothesis 1: Usefulness will have a positive influence on OSN continuance intention.**

Enjoyment is also an important cognition in the research model and is defined as the belief that one’s social networking website use behavior is enjoyable in its own right apart from any anticipated personal gain or performance-related outcomes. Enjoyment represents one’s intrinsic motivation to use the website, whereas usefulness represents one’s extrinsic motivation. OSN websites while offering users the electronic means to become more productive in social networking are also fun to use. Intrinsic motivation has been found to be an important predictor of intention for hedonic technologies because individuals are likely to plan to continue behaviors they find fun or pleasurable. Prior research finds that enjoyment significantly influences intention to continue using OSN websites (Sledgianowski and Kulviwat, 2009).

**Hypothesis 2: Enjoyment will have a positive influence on OSN continuance intention.**

Trusting intention or the willingness to depend on the OSN website can also influence one’s usage intentions. Trust is an especially important cognition in online environments in which the website might not function properly or be reliable. Being willing to depend on the website is a volitional preparedness to make one vulnerable that can be demonstrated by planning to continue the relationship (McKnight, Choudhury and Kacmar., 2002). There is support for this relationship in other online environments (Benamati, Fuller, Serva and Baroudi, 2010).

**Hypothesis 3: Trusting intention will have a positive influence on OSN continuance intention.**

Finally, we predict that privacy concern will negatively influence intentions to continue using the OSN website. Privacy concern is individuals’ unease or worry that their personal information will be disclosed to others. Privacy concern has been found to influence intentions to transact online (Dinev and Hart, 2005-2006). In ONS websites users post personal information, such as their real name, current address, and date of birth. While individuals may limit access to this information,
they may still have concerns that this information will be disclosed. This concern can make them less willing to share information and plan to use the website in the future.

**Hypothesis 4:** Privacy concern will have a negative influence on OSN continuance intention.

**Transitional Thought Process**

Over time as individuals use an IT, feedback from their experiences will affect these cognitions (Jasperson et al., 2005). In our model, prior experience can produce some reflective updating of the individual cognitions, i.e., belief updating, as individuals make sense of these experiences (Jasperson et al., 2005; Kim and Malhotra, 2005). For users with more prior use these cognitions can become quite well-formed, and may represent ‘average’ outcome beliefs (Ajzen, 2002; LaRose, 2010). Also, as proposed by self-perception theory (Bem, 1972), individuals may simply begin to respond more positively about their cognitions the more experience they have with the technology (Kim and Malhotra, 2005). For example, individuals may feel that they must enjoy using the technology because they have used it quite a bit in the past. In our model, we predict that through these two processes of belief-updating and self-perception, experience will positively influence usefulness, enjoyment, and trusting intention. We also predict that it will increase privacy concern as prior use experiences will make one more aware of OSN privacy issues, removing the effects of OSN privacy naivete.

**Hypothesis 5:** Experience will positively influence usefulness.

**Hypothesis 6:** Experience will positively influence enjoyment.

**Hypothesis 7:** Experience will positively influence trusting intention.

**Hypothesis 8:** Experience will positively influence privacy concern.

**Hypothesis 9:** Experience will positively affect OSN website continuance intention.

**Non-Reflective Thought Process**

Jasperson et al.’s (2005) individual cognition model also describes the non-reflective thought process involved in IT use intentions and behavior. The authors propose that with enough repetition, thoughts about future behavior transition more fully to a non-reflective or automatic process. They predict that as this occurs, one’s use history will influence post-adoptive intentions. Use history includes both a collective, systematic account of one’s prior use and habit or one’s perceptions that a behavior has become automatic (Jasperson et al., 2005; Limayen, Hirt and Cheung, 2007).

In our model we depict the role of use history as the influence of one’s prior experiences and cognitions on habit, and as habit’s influence on continuance intentions. The former relationships are consistent with other habit literature that finds experience and cognitions can have a direct influence on habit (Lankton, Wilson and Mao, 2010; Limayem and Hirt, 2003; Turel and Serenko, 2011). Individuals will not have to think about or reflect on processes that they are familiar with and that have produced positive results in the past. Positive, well-established cognitions are critical for triggering automatic behavior (Ajzen, 2002; LaRose, 2010). Thus we predict the following hypotheses:

**Hypothesis 10:** Usefulness will positively influence OSN website use habit.

**Hypothesis 11:** Enjoyment will positively influence OSN website use habit.

**Hypothesis 12:** Trusting intention will positively influence OSN website use habit.

**Hypothesis 13:** Privacy concern will negatively influence OSN website use habit.

**Hypothesis 14:** Experience will positively influence OSN website use habit.

The final link in Jasperson et al. (2005) individual cognition model and Kim and Malhotra’s (2005) model is the link between habit and behavior. Because we do not measure one’s later behavior, we predict that one’s perception that their behavior has become automatic (i.e., a habit) will influence continuance intention. Researchers agree that automatic behaviors can be intentional, not in the sense that they are planned or conscious, but in the sense that they are goal directed and functional (Bargh, 1994, Verplanken and Orbell, 2003) Habits may seem unintentional because they are not available to conscious awareness, but they may automatically trigger intentions to achieve a goal (Ajzen, 2002; Ouellete and Wood, 1998). This makes sense because habitual behaviors require less effort and are more efficient than non-habitual behaviors, making individuals more likely to want to continue the behavior (Ajzen, 2002; LaRose, 2010). Researchers find a high correlation between habit and intention in other studies of online behavior (Wilson, Mao and Lankton, 2010).
Hypothesis 15: Even in the presence of reflective and transitional thought predictors, habit will positively influence OSN website continuance intention.

Figure 1 Research Model
METHODOLOGY

We collected data from undergraduate students enrolled in a required business course at a major U.S Midwest university. Students voluntarily participated in the survey and 481 responses were received out of 540 enrollees (89%). After removing the cases of those who did not use Facebook and those who did not complete the questionnaire, 391 usable cases were retained (81%). Survey respondents were 58% male and 42% women, with an average age of 21 years old (range from 19 to 30). On average they had used Facebook for 4 years (Std. Dev. =1.22), and used it between “at least once a day” and “several times a day” (Std. Dev. = 1.20). Although Facebook has spread across many age groups, the student sample is appropriate for the test because at the time of our study more than 48% of unique visitors to Facebook were between 18 and 35 years of age (Hampton, Goulet, Rainie and Purcell, 2011), and because this group is important to the success of Facebook as they tend to be frequent users.

We adapted a majority of the questionnaire scales from previous research including usefulness (Venkatesh and Morris, 2000), enjoyment (Venkatesh, 2000), trusting intention (McKnight et al., 2002), privacy concern (Dinev and Hart, 2006), habit (Limayem and Hirt, 2003; Limayem et al., 2007), and usage continuance intention (Venkatesh et al., 2003) (see Appendix). Most items were measured on 7-point Likert scales. Experience was measured with two items about users’ duration and frequency of OSN use. We multiplied these two items to create a total experience score. Additionally, we controlled for social influence, which we measured by capturing each user’s number of Facebook friends and the percent of their friends at the same university.

DATA ANALYSIS AND RESULTS

We used EQS 6.1, a structural equation modeling software to analyze the data. Following Anderson and Gerbing (1988), we first tested the measurement model via a confirmatory factor analysis to validate the constructs. After that, we analyzed the structural model to test the hypotheses. Before these steps, we performed item culling by running a principle components factor analysis in SPSS with varimax rotation (Table 1). This analysis showed that all loadings were greater than .70 and the cross-loadings were less than .30. Therefore, we kept all items in our model. We also confirmed the normal distribution of items by checking skew and kurtosis, which demonstrated that all constructs were statistically normally distributed.

The measurement model fit adequately with a comparative fit index (CFI) of .97, a non-normed fit index (NNFI) of .96, and a root mean square error of approximation (RMSEA) of .07. For convergent validity, the standardized items loading were greater than .80 and were statistically significant. The average variances extracted (AVEs) and the composite reliabilities (CRs) were above the recommended values of .50 and .70 (Fornell and Larcker, 1981), supporting construct reliability and convergent validity (Table 2). Discriminant validity was also supported because the correlations between construct pairs were lower than the square root of the AVEs (Fornell and Larcker, 1981) (Table 2), and the Lagrange Multiplier test did not show any large item cross-loadings.

We also tested for possible common method variance in our data using Harman’s single-factor test (Podsakoff and Organ, 1986) and the marker-variable technique (Lindell and Brandt, 2000; Lindell and Whitney, 2001). Harman’s single factor test revealed that the first factor explained only 38.7% out of the 84.8% total variance in our study’s constructs. For the marker variable technique we chose a construct assessing Microsoft Access reliability as the marker variable. We found that the highest correlation between the marker variable and the variables under investigation was 0.16. These two analyses suggest that our data set does not have significant common method bias.

We present the structural model results and fit statistics for three models: the model that depicts the reflective thought process only (H1-H4), the model that depicts the reflective and transitional thought processes (H1-H9), and the model that depicts all three thought processes (H1-H15) (Figure 2 and Table 3). The analyses required that the error term between usefulness and enjoyment be allowed to covary, which is reasonable given these constructs correlate highly in other studies (e.g., Sledgianowski and Kulviwat, 2009). The fit statistics for all three models are adequate. The RMSEA is high for the model that tests only the reflective thought model, but is lower for the model testing all three thought processes (Browne and Cudeck, 1993). We also present the akaike information criterion (AIC) and the conditional akaike information criterion (CAIC), which can be used to compare models. There are no suggested minimum or maximum values for these statistics, however lower values (sometimes the values can even be negative) indicate better fitting and more parsimonious models (Byrne, 2006). Our results show that the model depicting all three thought processes has the lowest AIC and CAIC values.
### Table 1 SPSS Principal Components Factor Analysis

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### Table 2 Correlations, AVE, CR and descriptive statistics (* p< .05)

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Table 2 Correlations, AVE, CR and descriptive statistics (* p< .05)
Examining the model testing all three thought processes, we find that the most of the hypotheses were supported. Perceived usefulness ($\beta_1 = .15^{***}$), enjoyment ($\beta_2 = .26^{***}$), and trusting intention ($\beta_3 = .19^{***}$) positively influenced continuance intention, supporting H1, H2 and H3. Although the effect was not strong, privacy concern ($\beta_4 = -.07^{*}$) negatively affected continuance intention, thus H4 was also supported. We observed that all factors related to the reflective thought process significantly influenced OSN continuance intention. Experience significantly influenced perceived usefulness ($\beta_5 = .22^{***}$), enjoyment ($\beta_6 = .38^{***}$), trusting intention ($\beta_7 = .32^{***}$) and continuance intention ($\beta_9 = .10^{*}$), thus H5, H6, H7, H9 were supported. However, experience did not significantly influence privacy concern, so H8 was not supported. Except H8, all factors related to the transitional thought process were supported. Enjoyment ($\beta_{11} = .30^{**}$) strongly influenced habit, supporting H11. Privacy concern ($\beta_{13} = .08^{*}$) also significantly influenced habit, but it positively affected habit rather than negatively, thus H13 was not supported. Neither perceived usefulness nor trusting intention influenced habit, so H10 and H12 were not supported. Lastly, habit ($\beta_{15} = .20^{***}$) significantly influenced continuance intention to use OSN, supporting H15.

### DISCUSSION AND CONCLUSION

This paper contributes to IS research by developing and testing a post-adoptive model of individuals’ intentions to continue using an OSN website. We find that the model depicting all three thought processes generally fits the best with the lowest RMSEA, AIC, and CAIC values. We also find that this model explains the most variance in usage continuance intentions (39.8% versus 37.9% and 33.4% in the two more intermediary models). Using a $f^2$ statistic (Cohen, 1988) and assessing the $f^2$'s significance based on a pseudo F test (Chin, Marcolin and Newsted, 1996)\(^1\), the increase in the adjusted $R^2$ is significant at $p < .001$ among the three models. Thus, the integrated model reflecting all three thought processes best represents OSN usage continuance intentions.

First, we examined how factors related to the reflective thought process influence OSN users’ continuance intention. The empirical results support the significant effects of perceived usefulness, enjoyment, trusting intention, and privacy concern on OSN users’ continuance intention. Enjoyment has the largest effect, which is consistent with prior OSN research that reflects that OSNs are used more for hedonic purposes than for utilitarian purposes (Sledgianowski and Kuviwat, 2009). Future research can explore the different facets of OSN and hedonic use.

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\(^1\) $f^2 = [R^2(\text{Full model}) – R^2(\text{Nested model})]/[1 – R^2(\text{Full model})]$. The pseudo F statistic is calculated as $f^2 \ast (n-k+1)$, with p, n-(k+p+1) degrees of freedom where n is the sample size, k is the number of constructs in the simplified model, and p is the number of additional constructs in the complete model.
Results: Reflective Thought Process

- Perceived Usefulness (0.82)
- Enjoyment (0.72)
- Trusting Intention (0.019)
- Privacy Concern (0.004)

Results: Transitional Thought Process

- Experience
- Perceived Usefulness (0.056)
- Enjoyment (0.146)
- Trusting Intention (0.203)
- Privacy Concern (0.004)

Results: Non-Reflective Thought Process

- Experience
- Perceived Usefulness (0.20)
- Enjoyment (0.146)
- Trusting Intention (0.101)
- Privacy Concern (0.004)

Figure 2 SEM Results
Usefulness and trusting intention, while having less of an effect, are also important beliefs influencing OSN continuance intention. The former means that users find utility in the website. The latter effect reflects that they are willing to move ahead and use the website perhaps because it has trusting attributes like functionality, reliability, or helpfulness (McKnight, Carter, Thatcher and Clay, 2011). Future research can explore how OSN trusting intention is formed through these attributes. We also find that while significant, the influence of privacy concern on intention was weak in comparison to prior studies on privacy and e-commerce (e.g., Dinev and Hart, 2005-2006). OSN users may not consider privacy issues as much as e-commerce users because in OSN, users have more control over the content they post and who can have access to it.

In the transitional process we find that experience strongly influences perceived usefulness, enjoyment, and trusting intention. These results suggest that some OSN users engage in belief-updating and self-perception processes. They also rely on these prior experiences directly when planning to use OSNs. Although we expected that as people have more prior experience they will become more aware of OSN privacy issues, we did not find a significant effect of experience on privacy concerns. Perhaps this is because users can control their privacy on OSN websites. While more experience may heighten privacy concern in some, experience may also alleviate privacy concerns because it gives individuals the know-how both to use the various privacy settings and to vary the content they post, thereby helping users believe (right or wrong) that their privacy behaviors are adequate.

Finally, we find strong support for the non-reflective thought process. Our study is one of the first to show that habit is a strong predictor of OSN usage intention in the presence of four other predictors. These results support the feelings by many users that they are “addicted” to using OSN websites (Turel and Serenko, 2011). Habit will be an important variable in future OSN research. The strong effects of experience and enjoyment are consistent with prior habit research that suggests repeated behaviors with positive outcomes are more likely to become habitual (Limayem et al., 2007; Turel and Serenko, 2011). Future research can explore the influence of other habit antecedents such as satisfaction and involvement (Lankton et al., 2010; Limayem et al., 2007). Contrary to our expectations, privacy concern has a significant positive effect on habit. While this result should be interpreted with caution because the effect size is small, it indicates that individuals whose behavior has become automatic have more realistic beliefs about privacy issues regardless of the privacy control it offers. This is encouraging for those who feel some OSN users do not take privacy seriously enough, although future research is needed to link this finding with their actual privacy behaviors. We did not find significant effects of perceived usefulness and trusting intention on habit indicating that these beliefs are not as important to users’ habit formation.

We also calculated the total (direct and indirect) effects of the different factors on OSN continuance intention, and find that experience has the largest total effect (.41***), then enjoyment (.33***), habit and trusting intention (.20***), and usefulness (.16***). This finding highlights the importance of the transitional process where experience influences the cognitive factors, and the non-reflective process where experience has a large role in forming habit. Future research can investigate how experience’s effects might differ with the ways in which individuals use the OSN website.

There are several practical implications. First, OSN providers should consider the different cognitive mechanisms OSN use in forming their OSN continuance intentions. For example, users with more experience are likely to rely on belief updating or an automatic thought process. Providers should develop more favorable incentives and personalized services to ensure OSN users update their beliefs in a positive manner. They can also monitor what makes for favorable experiences on an OSN website. Second, because enjoyment is a strong predictor of OSN users’ continuance intention, OSN providers should continue developing new features that are perceived as fun. Third, companies should consider educating users about privacy concerns earlier as having more sophisticated privacy concerns can help form continuance intention.

This research also has limitations. First, we only investigated one OSN website, Facebook. Different OSN websites might generate different effects, especially those used for more utilitarian purposes like LinkedIn. Second, unlike Kim and Malhotra (2005) we used cross sectional rather than longitudinal data to explain different thought processes in the post adoptive decision process.

REFERENCES


**APPENDIX. MEASUREMENT ITEMS**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
<th>Scale</th>
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| Usage Continuance Intention | In the near future, I intend to continue using MySNW.com.  
I intend to continue using MySNW.com.  
I predict that I would continue using MySNW.com. | Not true at all (1) to Absolutely true (7) |
| Perceived Usefulness  | Using MySNW.com improves my performance in online social networking.  
Using MySNW.com increases my productivity in online social networking.  
Using MySNW.com enhances my effectiveness in online social networking.  
I find MySNW.com to be useful for online social networking. | Strongly disagree (1) to Strongly agree (7) |
| Enjoyment             | I find using MySNW.com to be enjoyable.  
The actual process of using MySNW.com is pleasant.  
I have fun using MySNW.com. | Strongly disagree (1) to Strongly agree (7) |
| Trusting Intention    | When I network socially online, I feel I can depend on MySNW.com  
I can always rely on MySNW.com for online social networking  
I feel I can count on MySNW.com when networking online. | Not true at all (1) to Absolutely true (7) |
| Privacy Concern       | I am concerned that the information I submit on MySNW.com could be misused.  
I am concerned that a person can find private information about me on MySNW.com.  
I am concerned about submitting information on MySNW.com, because of what others might do with it.  
I am concerned about submitting information on MySNW.com, because it could be used in a way I did not foresee. | Not at all concerned (1) to Very concerned (7) |
| Habit                 | The use of MySNW.com has become a habit for me.  
Using MySNW.com is natural to me.  
I don’t even think twice before using MySNW.com  
Using MySNW.com has become automatic to me.  
When faced with a particular task, using MySNW.com is an obvious choice for me. | Strongly disagree (1) to Strongly agree (7) |
| Experience            | How long have you been using MySNW.com?  
How frequently do you use MySNW.com? | Have not used at all (1) to More than 5 years(7) and Not at all (1) to Many times a day (6) |
| Control: Social Influence | Approximately how many MySNW.com friends do you have from your university?  
Approximately what percentage of all your MySNW.com friends are from your university? | (1) 1-50 to (6) Greater than 350 and (1)0-15% to (7) 87-100% |