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Effects of Impulse and Habit on Privacy Disclosure in Social Networking Sites: Moderating Role of Privacy Self-Efficacy

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Research-in-Progress

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Abstract

Prior research on privacy disclosure primarily focuses on conscious factors leading to intentional disclosure. In this study, we identify two unconscious factors, i.e., the habit of self-disclosure and the impulse of self-disclosure, which lead to users' privacy disclosure behavior in social networking sites (SNS). We contribute to the existent literature by investigating the effects of these two factors on privacy disclosure behavior in SNS and examining a contingent factor for the effects of these two unconscious factors. Our results reveal that both habit and impulse have significant effects on privacy disclosure in SNS. The effects of habit and impulse are moderated by users' privacy self-efficacy. Particularly, privacy self-efficacy weakens the effects of impulse on self-disclosure but strengthens the effect of habit on self-disclosure.

Keywords: Privacy disclosure, Impulses, habits, privacy self-efficacy, Social Network Sites.

Introduction

People are known to disclose their private information despite of their privacy concerns and prior privacy invasion experiences (Barth and de Jong 2017). This phenomenon, dubbed as privacy paradox, is especially identified in a social networking site (SNS) context. Due to various cases of online privacy invasion, widespread concerns and anxieties on information privacy have been raised. As indicated by Smith et al. (2011), 84 percentage of a sample of 786 American Internet users "expressed increased concern or anxiety due to the data loss". However, it is still easily found that some highly sensitive (or intimate/private) items have been disclosed by SNS users themselves, including mobile phone numbers, intimate photos with partners, geographical locations, and credit card accounts (Junglas et al. 2017).

Previous research on privacy disclosure mostly focused on conscious factors leading to privacy disclosure intentions, including users' privacy attitudes and concerns (Bélanger and Crossler 2011; Dinev et al. 2008) and perceived benefits of privacy disclosure (Hui et al. 2007). However, privacy attitudes sometimes are found to have insignficant effect on privacy disclosure behavior (Norberg and Horne 2007). Obviously, individuals' privacy disclosure cannot be explained exclusively by such online users' attitudes towards online information privacy. We hence intend to complement the extant privacy disclosure research by investigating the effects of unconscious factors on users' actual disclosure of private information in SNS. As Barth and de Jong (2017) pointed out, there is still a lack of discussion in the prior literature on unconscious factors in affecting privacy disclosure behavior

In this study, to fill this research gap, we investigate the unconscious factors that facilitate privacy disclosure. Specifically, the first research objective is to explore the influences of habit and impulse, two quite striking unconscious factors, on users' privacy disclosure. Habit is one of the unconscious

factors. SNS providers have installed many habit-forming tactics such as "award a badge to active users" and "remind their users to post the latest photos stored on their mobile phone" (Krishan 2017). As a result of these tactics, it is reported that many of SNS users have a habit of disclosure on the Silicon Valley giants like Facebook, Instagram, and Twitter (Krishan 2017). Impulse is another striking unconscious factor. Just as Murphy (2014) reported in New York Times that SNS users want privacy, but they sometimes cannot stop their impulse to self-disclose their private information in the heat of the moment. Regarding the striking role of impulse in SNS, we consider the impulse as another unconscious factor in leading to users' self-disclosure of privacy.

Although the influences of impulses and habits are quite salient in SNS, it remains unclear about the contextual conditions under which impulses and habits will be more or less effective in driving disclosure behavior. Hence, the second objective of this research is to identify the contingent factor of habits and impulse in deciding privacy disclosure behavior and differentiate the effects of the two unconscious factors. The key difference between habit and impulse is that individual will base on their self-efficacy of a behavior to perform a habit of the behavior (Gregory and Leo 2003), while individuals need ability to control an impulse of a behavior (Turel and Qahri-Saremi 2016). Therefore, we introduce privacy self-efficacy as a representation of individuals' ability that may help differentiate the influences of impulses and habits.

The rest of the paper is organized as follows. We first describe the theoretical foundations of this paper, based on which we develop our hypotheses. We then illustrate how we test our model and report our hypotheses testing results. Finally, we make some conclusions from the hypotheses testing results and discuss the opportunities for further research.

Theoretical Background

Habit

Habit is defined as "the extent to which people have the tendency to perform behaviors automatically" (Limayem et al. 2007). Habit is useful in explaining *repeated* behaviors (Ronis et al. 1989) such as purchase (Bagozzi and Dholakia 1999). Prior IS research also suggests that habit provides an accurate account of repeated IT usage (Kim et al. 2005).

The formation of habits could be explained from the perspective of mental automaticity (Kim et al. 2005; Miller and Cohen 2001). A habit from this perspective could be understood as the mental-set that absorbs perceptual readiness from context cues and avert individuals from being distracted by other options (Limayem et al. 2007). When one behavior is repeated over time in a stable supporting context, mental-sets tend to be formed and stored in individuals' long-term memory (Kim et al. 2005; Miller and Cohen 2001). In the mental-set, the satisfaction results of the evaluation of the behavior link with the behavioral schema of behaviors due to the occurrence at the same time (Limayem et al. 2007). A habit, in such, forms and absorbs the readiness for a behavior.

An established habit will activate subsequent repeated behavior, *automatically and unconsciously.* If users have a habit in context, they tend to automatically follow their habit to save time and efforts in their familiar contexts (Kim et al. 2005; Limayem et al. 2007). That is, a habit increases the "smooth" and reduces "latency" of conducting an actual behavior. Users will be reliant on the habits firmly to take an action in such a situation. The whole process will be unconscious.

Habits may not always matter for in determining actual behavior. Particularly, the effect of a habit depends on individuals' ability in managing a context (Aarts and Dijksterhuis 2000; Limayem et al. 2007). Habits, once formed, are founded to be firmly influential when individuals have sufficient confidence because of their ability in performing in a context (Gregory and Leo 2003; Leach 2002; Ouellette and Wood 1998).

Impulse

In this paper, we define impulse as an urge to engage in a behavior to seek for the gratification of a desire (Rook 1987). Individuals may suddenly have a desire due to various stimuli. For example, they

may have a sudden desire for a product because of visual confrontation, promotion, or advertisement (Rook 1987). Afterward, the seeking for desire triggers an urge to gratify a desire via behavior (Rook 1987). Such an urge is an impulse.

Impulses toward a behavior lead individuals to engage in the behavior because an impulse reinforces the positive sides of individuals' desires (Turel and Qahri-Saremi 2016). The quickly emergent thought of immediate gratification drives people to focus on the positive sides of a desire and filter out information that could deter them from the desire (Loewenstein 2005). For this reason, an impulse will lead to a behavior to gratify the desire. Especially, individuals are susceptible to an impulse when a context could immediately gratify individuals' desires (Rook 1987). For instance, the buying impulse is especially likely to be triggered when individuals have been exposed a product in a store where they could immediately gain gratification from buying what they desire (Beatty and Ferrell 1998).

The effectiveness of impulses is contingent upon controlling conditions (Hofmann et al. 2008). Prior research contends that controlling conditions hinge on individuals' ability to control an impulse (Turel and Qahri-Saremi 2016). Individuals' ability to control an impulse enables individuals to endure their sacrifice for delayed gratification (as opposed to the immediate gratification) (Turel and Qahri-Saremi 2016).

Hypothesis Development

Our research model, as shown in Figure 1 includes both habit and impulse as the unconscious antecedents of actual privacy disclosure in SNS. We further complement the two unconscious determining factors with privacy efficacy to moderate their effects on behavior.
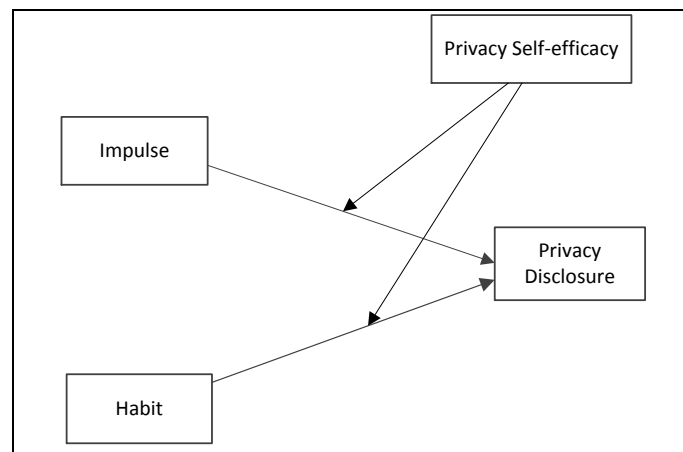
Figure 1. Research Model

An impulse of self-disclosure in SNS will lead to privacy disclosure because such an impulse reinforces the positive sides of individuals' desires in SNS (Turel and Qahri-Saremi 2016). Individuals expect to gratify their desires. As such, they may be oblivious to information that could deter them what they desire (Turel and Qahri-Saremi 2016). SNS users are likely to follow their impulse to perform a behavior in order to gratify their desires (Verheul et al. 1999).

An impulse of self-disclosure especially effects in SNS as SNS providers now install many features that help their users disclose immediately to gratify their desires such as the feature "we guess you want to post this photo" on Snapchat. With this feature, individuals' latest photos can be easily uploaded to SNS for disclosure, and the only thing the users need to do is to confirm whether or not to disclose the photos. SNS is just "snap fingers" to provide them the immediate gratification of desires, whereas individuals are susceptible to impulses when the context could provide immediate gratification (Rook 1987). By privacy disclosure in SNS, they could immediately gratify their desires for socializing with others, presenting themselves and entertaining themselves. These users may find it is difficult for them to resist the immediate gratification of such desires. Therefore, we hypothesize:

H1: Impulse of self-disclosure influences users' privacy disclosure in SNS.

Repeating self-disclosure behaviors for numerous times allow SNS users to form a disclosure habit and act in SNS automatically (Kim et al. 2005). In SNS, users could be trained very well by past experience. They are familiar with functions provided by SNS and exactly know how to disclose. For example, some individuals repeatedly disclose their selfies every day to update their latest personal status. In this routinized way, a habit of self-disclosure forms in SNS.

Such a habit of self-disclosure then will influence privacy disclosure. For those individuals who have a habit, the values and threats may have been considered before and the results are saved in their mental-set (Chen and Bargh 2016). It is nearly impossible to take time to evaluate their self-disclosure behavior every time. They will just believe the same result will happen and automatically take an action without wasting time. A habit of self-disclosure, in this way, will drive to privacy disclosure. Thus, we hypothesize:

H2: Habit of self-disclosure influences privacy disclosure via photo SNS;

Privacy Self-efficacy is defined as the individuals' ability to protect their privacy in SNS from invasions (Hichang 2014). Privacy self-efficacy is identified in the context that individuals' privacy is threatened in context (Hichang 2014). In such a context, some individuals may seek and apply different methods to protect their privacy. In this way, their ability to protect their privacy will be at the different level and matters in the context where privacy invasions exist.

Privacy self-efficacy will inhibit the effect of an impulse of self-disclosure in SNS. A high level of privacy self-efficacy suggests that SNS users have enough ability to manage and control their privacy well (Hichang 2014). The ability also helps individuals be able to sacrifice the immediate gratifications of desires via privacy disclosure, to balance immediate gratifications and delayed gratifications (Turel and Qahri-Saremi 2016). These users may be able to control their impulses. So their ability in controlling privacy will inhibit the effect of impulse on privacy disclosure in SNS.

H3: Privacy self-efficacy will weaken the effects of impulse on privacy disclosure via photo.

We contend that privacy self-efficacy will also strengthen the effect on the habit in SNS. Prior research believed that for the task that is difficult, the specific ability will matter on the effectiveness of habits in determining behavior (Limayem et al. 2007). In SNS, the ability to manage privacy may trigger individuals' confidence even over-confidence in their habit because they may acquiesce their ability will protect their habit from potential negative privacy invasions just as before (Chen and Lin 2002). These users will not challenge their habit and tend to perform better in response to the habit. With such an over-confidence, the whole automatic process becomes smooth and trustworthy. So the effect of habit on disclosure behavior in SNS will be stronger with high privacy self-efficacy.

H4: Privacy self-efficacy will strengthen the effect of habit on privacy disclosure.

Measurement Development and Data Collection

To validate our research model, we conducted a survey of Weibo users. We chose weibo.com as our SNS context because weibo.com is one of the leading SNSs in China. Respondents were college students invited from a public university in China. The sample in our study consisted of 221 students (41.2% female) with ages ranged from 20 to 25 years old.

Our survey consists of two parts: a self-reported part and a peer-rated part. In the self-reported part, we measured independent variables from respondents. In the peer-rated part, we measured the dependent variable (i.e., privacy disclosure) from respondents' partners. Peer-rated disclosure is expected to control the common method bias like social desirability since the source of the independent variable and the dependent variable is not the same (Podsakoff et al. 2003). Respondents were required to find a partner and come to a laboratory in a pair and then evaluate their peer's disclosure behavior in SNS. We required participants and their peers to be close friends both offline and online. So they could know whether their peers' disclosure in SNS is honest or not. The participant was asked to read more than 3 pages of content disclosed by their partner in SNS and then measure their partner's actual disclosure behavior correspondingly.

We adapted all the measurement items from existing, well-established scales. To measure habit in SNS, we adapted 3 items from on our SNS context Limayem et al. (2007); Verplanken and Orbell (2003) to fit our SNS context. The impulse in SNS is adapted from Rook and Fisher (1995). We then adapted privacy self-efficacy with three items from Kankanhalli et al. (2005). Our control variables include general privacy concerns that were developed based on Dinev et al. (2008), privacy invasion experiences (Smith et al. 1996), age and gender.

To measure our dependent variables, which is peer-rated disclosure behavior, we use items from the measurement of self-disclosure in Posey et al. (2010) and then adapted them as appropriate for the respondents' partners to evaluate. To further ensure the content validity, we invited three subject experts to review the items for respondents' peers and all items have been accepted by them.

Data Analysis and Results
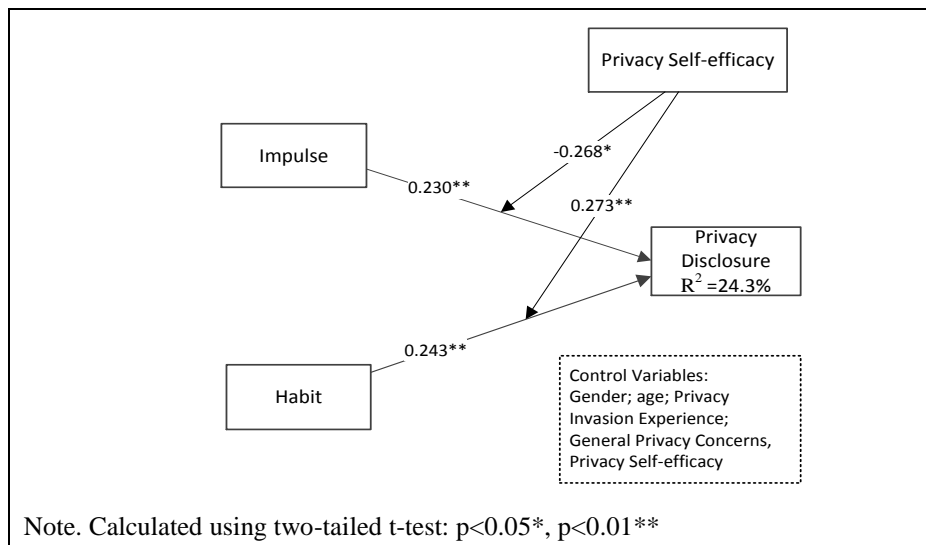

Figure 2. Research Results

SmartPLS 2.0 was used for data analysis (Ringle et al. 2005), because it is especially effective for preliminary model establishment (Gefen et al. 2011). We followed the standard two-step approach used in PLS-SEM by first assessing the reliability and validity of the measurement model, and then testing the structural model (Anderson and Gerbing 1988). The results of measurement model assessment suggested a good validity and reliability of our measures. All Cronbach's alpha of the latent constructs are above 0.7, AVEs are above 0.5, composite reliabilities are above 0.7, and outer loadings of all indicators are above 0.7. Moreover, as shown in Table 1, the square root of the AVE of each construct (along with the diagonal in the correlation table) was significantly higher than the corresponding construct correlations.

Table 1. Properties of Measurement Scales

	Composite Reliability	AVE	Habit	Impulse	PD	PSE	PE	PC
Habit	0.887	0.723	1					
Impulse	0.896	0.872	0.516	1				
PD	0.920	0.589	0.375	0.342	1			
PSE	0.925	0.805	0.037	0.025	0.099	1		
PE	0.871	0.772	-.076	0.001	-.064	-.309	1	
PC	0.860	0.673	0.013	-.075	-.105	-.232	0.403	1
Notes. PD = Privacy Disclosure; PSE = Privacy Self-Efficacy; PE = Privacy Invasion Experiences; PC = Privacy Concerns								

For hypotheses testing, both the PLS algorithm and the bootstrap algorithm with 500 resamples were performed in SmartPLS. Analysis results were shown in Figure 2. Impulse significantly influenced privacy disclosure (β=0.230, t=3.552, p<0.01), Thus, H1 was supported. Habit also significantly influenced privacy disclosure (β=0.243, t=3.593, p<0.01), so H2 was supported. The results from PLS-SEM showed that privacy self-efficacy significantly weakened the effect of impulse on privacy disclosure (β=-.268, t=1.966, p<0.05), and significantly strengthened the effect of habit on privacy disclosure (β=.273, t=3.421, p<0.01). Therefore, H3 and H4 were supported. Furthermore, we plotted the interaction effects of habits and privacy self-efficacy as shown in figure 3, and the interaction effects of impulses and privacy self-efficacy as seen in Figure 4 via median split method (Aiken et al. 1991). The results showed that privacy self-efficacy will strengthen the effect of habit on privacy disclosure, while weaken the effect of impulse on privacy disclosure.
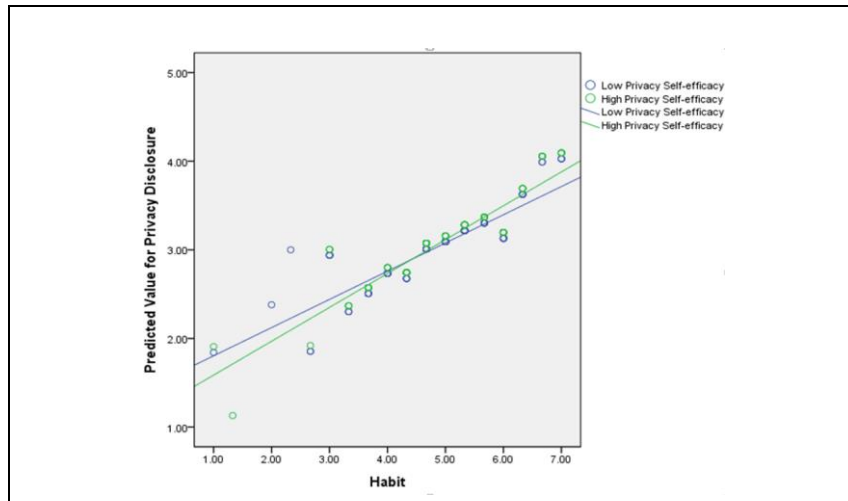
Figure 3. Interaction Effect of Privacy Self-efficacy and Habit
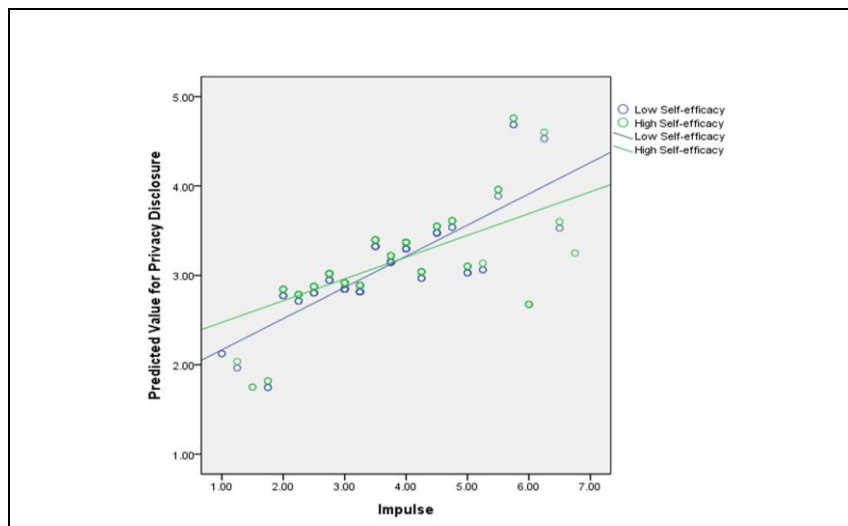
Figure 4. Interaction Effect of Privacy Self-efficacy and Impulse

Theoretical Implications and Future Research

This research reveals that both impulses and habits exert a positive influence on self-disclosure behavior. We also found that privacy self-efficacy will strengthen the effect of habit on self-disclosure, while weakening the effect of impulse on privacy disclosure.

Our study progress the understanding of self-disclosure behavior in SNS. Firstly, the study fills the gap to investigate the effects of unconscious factors on disclosure behavior in existent privacy literature. Prior research suggests that habits and impulses are common in deciding repeated and immediate

behaviors. Privacy disclosure in SNS is such a behavior. Despite the striking importance of unconscious factors in leading to self-disclosure, prior research predominantly focuses on conscious factors of self-disclosure. We contribute to the existent research by exploring unconscious factors. In other IS contexts when individuals may repeatedly or immediately take an action such as online purchase and cyberbullying, research may also consider habits and impulses as the determinants of behavior. We will further look into the antecedents of impulse and habit to understand the formation process of them.

Secondly, we further advance the understanding of the influence of unconscious factors on self-disclosure by differentiating the two unconscious factors of self-disclosure. We specifically found that privacy self-efficacy, which serves as the support for a habit, will strengthen the impact of habit but weaken the effect of impulse on privacy disclosure behavior. Our future research will consider different forms of self-efficacy (such as social self-efficacy) in firming relevant habits, or consider awareness of potential negative consequences or general concerns as the contingent factors of impulses.

Acknowledgements

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