Mindfulness Matters: An Exploratory Study of Its Effects on Behavioral Automaticity and Affect in Cyberloafing

Research in Progress

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Abstract

Cyberloafing is a routine workplace deviant behavior that may impose potential security threats. Prior studies have investigated the effect of conscious and unconscious deliberation, such as affect and automaticity, on employees' cyberloafing. However, the current literature offers very little insight into how to mitigate the effect of the antecedents to cyberloafing. This paper posits that mindfulness is an underexplored yet paramount concept in organizational information security research. Motivated thus, we draw on pertaining literature of mindfulness and self-regulation to propose that mindfulness influences employees' cyberloafing through attention regulation and emotional regulation. In essence, this paper sheds new light on the interplay between mindfulness and cyberloafing through the mediating effects of behavioral automaticity and affect. Our proposed model will be empirically estimated using data collected from a field experiment and an online survey. Our findings are expected to greatly contribute to the information security literature by unveiling the importance of mindfulness.

Keywords: Cyberloafing, mindfulness, automaticity, affect

Introduction

Organizations have encountered an exponential growth of information security attacks in recent years (Beer, W. 2011), and worse yet a large portion of loss was caused by employees' deviant security behaviors. Cyberloafing, as one of the routine deviant security behaviors at the workplace, refers to employees' access to Internet during working hours for personal activities, such as downloading illegal software and browsing social networking websites (Lim, 2002). Prior research has shown that cyberloafing significantly increases organizational security risks (Liberman et al., 2011).

Most of prior research has focused on the impact of conscious deliberation on employees' cyberloafing, such as attitudes and perceived consequences (D'Arcy, et al, 2009; Henle & Blanchard, 2008; Lim, 2002; Lim & Teo, 2005; Moody & Siponen, 2013; Ugrin & Pearson, 2013). However, recent studies have revealed that conscious deliberation might not function for security behaviors in a routine environment (Khansa et al., 2017). Habitual and emotional factors have been regarded as important complements for understanding routine aspects of deviant security behaviors (Moody & Siponen, 2013; Pee et al., 2008). For example, Moody and Siponen (2013) suggested that habit and affect significantly predict the use of the internet at work for non-work purposes based on the theory of interpersonal behavior (TIB). Another recent study has also examined the roles of habit and affect on cyberloafing (Khansa et al., 2017). Yet, the current literature offers very little insight into how to mitigate the effect of habit and affect on cyberloafing behaviors.

In the past decades, mindfulness has been studied in a variety of disciplinary domains, such as learning (Levinthal & Rerup, 2006), decision making (Fiol & O'Connor, 2013), and safety (Timothy & Kathleen, 2007). The strand of applied psychology suggests that mindfulness enhances attention and awareness of present situation (Brown & Ryan, 2003) and reduces experience of anxiety under stress and anxiety (Shapiro et al., 1998). Yet, there is a lack of understanding of the potential influence of mindfulness vis-à-vis employees' security behaviors in IS. The gap that we identified resonates with recent calls for research on mindfulness in IS (Thatcher et al., 2018). As such, we conjecture that mindfulness is an underexplored yet paramount concept in information security research. Motivated thus, we propose a theoretical model to answer the following research question: How can mindfulness mitigate cyberloafing? To develop the model, we draw on mindfulness literature (Langer, 1989) and self-regulation theory (Glomb et al., 2011) and understand how mindfulness can influence cyberloafing through automaticity and affect.

Our research contributes to the information security research by ushering the crucial role of mindfulness in morphing employees' routine deviant behavior. By uncovering the critical impact of mindfulness on deviant behaviors in organizations, our research extends the research on conscious factors and identifies how mindfulness influences cyberloafing by reducing the effect of automaticity and affect.

Literature Review

Cyberloafing

The negative consequences of cyberloafing subsume decreased work performance and potential threats for increased consumptions of IT resources, information leakage, viruses, and other security incidents (Yasin, 2000). Given the potential severity of cyberloafing, researchers have explored this phenomenon through many theoretical approaches. Lim (2002) leveraged the underpinnings of social exchange, organizational justice, and neutralization to explain why employees participated in misbehaviors, and found that metaphor of the ledger as one type of neutralization techniques positively influenced cyberloafing. In addition, as suggested in recent empirical studies, job satisfaction and compensation were related to behavioral intentions to undertake deviant actions (Galletta & Polak, 2003; Lim et al., 2002; Stanton, 2002). Later, Henle and Blanchard (2008) asserted that employees engaged in non-work-related use to cope with role ambiguity or role conflict when they are conscious of a low level of punishment in organizations.

IS scholars have recommended a deterrence approach to mitigate the misuse behaviors by enhancing security policies, security awareness efforts, and monitoring mechanism (D'Arcy et al., 2009). In specific, perceived severity and certainty of sanctions deterred employees from cyberloafing, and other factors, such as moral beliefs and computer self-efficacy, strengthened or weakened the relationship between sanction perceptions and misuse intentions (D'Arcy et al., 2009; D'Arcy & Hovav, 2009). Liao et al. (2009) concerned the impact of punishment-related policies and found that attitude, perceived control, and subjective norms influenced employees' intentions to avoid punishments. Moody and Siponen (2013) later suggested incorporating previous constructs (i.e., attitudes, intentions, and social influences) with affect, habit, and facilitating conditions to depict employees' decisions toward cyberloafing. The recent work of Khansa et al. (2017) found that both neutralization and perceived risk were related to the intentions of cyberloafing only after the announcement of formal controls.

In general, prior IS studies primarily focused on sanctions, social influences, attitudes, and behavioral intentions. The subsequent studies considered emotional factors and automaticity, and found that both significantly influenced employees' misbehaviors in the organization. Recent research suggests that cyberloafing might be insufficiently explained by conscious deliberation such as attitudes since it could be highly routine (Khansa et al., 2017). In this study, drawing on the assumptions that employees' automaticity and affect play a significant role in the personal use of the Internet, we take a further step by shedding new light on regulating such behaviors in the organization through mindfulness.

Mindfulness

Mindfulness refers to a dispositional trait that shapes the individuals' engagement with the environment (Bishop et al., 2004; Dane, 2011). A mindful individual stays alerted with contextual changes and adapts to such changes to achieve desired outcomes (Teo et al., 2011). The concept of mindfulness has been extensively studied in psychology, where researchers suggest that mindfulness-based interventions are effective for emotional and behavioral disorders (Bishop et al., 2004; Kabat-Zinn et al., 1998; Shapiro et al., 2006). For example, mindfulness is considered an adequate approach to reducing cognitive vulnerability, such as stress and emotional distress (Bishop et al., 2004). Brown and Ryan (2003) demonstrated empirically that individuals with a higher score of mindfulness measures showed the greater capability of self-regulating emotion and behavior. An individual being mindful has an awareness of his/her emotion and keeps being neutral in terms of the unbiased receptivity of mind.

Another aspect of mindfulness is related to automaticity or patterned behaviors (Panek et al., 2015). Automaticity is characterized by limited conscious attention, awareness, and intentions, while mindfulness technique allows individuals to bring awareness to current experience and change the focus of attention (Bishop et al., 2004; Panek et al., 2015). In fact, individuals avoid routine behaviors through mindfulness technique by being more conscious and alerted to environmental changes. Jensen et al. (2017) proposed mindfulness training to mitigate phishing attacks. Participants were educated to "dynamically allocate attention" and "increase more awareness of context" when assessing the messages. The results indicated that the participants received training handled phishing messages better. Thus, we argue that being mindful becomes an important factor in responding to cybersecurity threats.

Recently, Thatcher et al. (2018) suggested IT mindfulness could be described by four dimensions. This IT-specific trait is evident when working with IT-related tasks. Despite the potential of mindfulness, few articles have examined the impact of mindfulness in a security context. Thus motivated, in an effort to address the research gap, we attempt to explore how mindfulness influences employees' cyberloafing by regulating affect and automaticity.

Research model and hypothesis

This paper aims to investigate the effect of mindfulness on the relationships between automaticity, affect and cyberloafing behavior. Based on prior research, mindfulness increases individuals' attention and awareness of current situation. There are two mechanisms explaining the effect of mindfulness: attention regulation and emotional regulation (Feldman et al., 2011). Attention regulation refers to individuals' ability to pay attention to immediate experience and reduce automaticity. Emotional regulation indicates that mindfulness enhances individuals' ability to control emotional reactions to stimulus. Our research model is described in Figure 1.

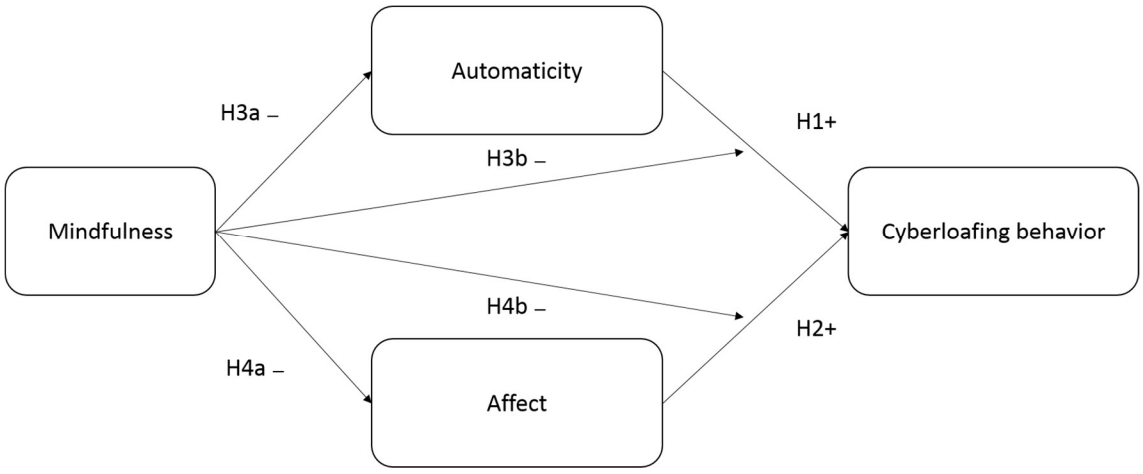

Figure 1. Proposed Research model

The effect of automaticity and affect on cyberloafing behavior

The theory of interpersonal behavior has proposed that habitual factor and affect play an important role in explaining individuals' decision to engage in a behavior (Triandis, 1977). Khansa et al. (2017) suggested that cyberloafing, as with other routine activities, are determined by habits rather than deliberate evaluations. Prior research has empirically estimated the positive effect of habit on cyberloafing behavior (Moody & Siponen, 2013; Pee et al., 2008). For example, Moody and Siponen (2013) found that individuals with a strong habit of using the internet at work for personal reasons will be more likely to use the internet at work for personal reasons. The most prevalent measurement of habit subsumes three characteristics, including automaticity, frequency, and identification (Verplanken & Orbell, 2003). Prior research attributes the effect of habit on behavior to automaticity and considers automaticity as a better predictor for behavior than frequency and identification (Gardner et al., 2012).

In addition, affect refers to individuals' emotional reaction to the cyberloafing behavior. Employees who experience leisure or entertainment for using the internet at work for personal reasons will be more likely to cyberloaf. Prior research has estimated the significant and positive effect of affect on cyberloafing intention (Pee et al., 2008). Emotion has also been considered as having a direct effect on workplace behavior (Judge et al., 2006). Therefore, we propose that automaticity and affect will be positively related to cyberloafing behavior.

H1: Automaticity is positively related to cyberloafing behavior.

H2: Affect is positively related to cyberloafing behavior.

The inhibiting effect of mindfulness

Mindfulness enhances the attention and awareness of present situation (Brown & Ryan, 2003). Individuals who demonstrate a higher level of mindfulness will exhibit stronger attention regulation and emotional regulation (Feldman et al., 2011). Individuals with high mindfulness will intentionally focus on their experience of current situation and interrupt their habitual behavior and emotional reactions.

Mindfulness enhances individuals' attention and reduces mindless actions. Mindful individuals will pay more attention to current situation and reduce behavioral automaticity (Wadlinger & Isaacowitz, 2011). Automaticity indicates that individuals effortlessly engage in behaviors without conscious deliberation (Verplanken, 2006). Individuals with high mindfulness will consciously regulate their behaviors and change their automaticity. For example, prior research concludes that mindfulness negatively influences individuals' cigarette cravings (Westbrook et al., 2013) and negatively moderates the relationship between cravings and smoking (Elwafi et al., 2013). In the same vein, Moore and Brown (2019) found out that mindfulness negatively moderates the relationship between habitual text of messaging and texting while driving.

In the context of cyberloafing, we conjecture that mindfulness enhances employees' attention to current situation and reduces their habitual reactions to cyberloafing. Therefore, we propose that mindfulness will promote individuals to consciously regulate their behavioral automaticity and dampen the effect of automaticity on cyberloafing behavior. Therefore, we hypothesize that:

H3: Mindfulness negatively influences employees' automaticity (H3a) and negatively moderates the relationship between automaticity *and cyberloafing behavior (H3b).*

Mindfulness increases individuals' emotional regulation to mitigate the effect of emotions. Mindfulness will alter individuals' appraisal of stimuli and influence their emotional reactions to stimuli (Good et al., 2016). Prior research suggests that mindfulness plays a buffering effect for emotionally charged work (Good et al., 2016; Smallwood & Schooler, 2015). Mindfulness will lead to individuals' more neutral evaluation. For example, Arch and Craske. (2010) suggested that mindfulness reduces the experience of negative affect under stress. Brown et al. (2013) investigated the inhibiting effect of mindfulness on positive emotional reaction to positive stimuli. Individuals with high mindfulness will be less likely to emotionally react to stimuli.

In the context of cyberloafing, we posit that mindfulness enhances employees' emotional regulation and reduces their emotional reactions to cyberloafing behavior. We argue that mindfulness will buffer employees' experience of entertainment and leisure for using the internet at work for personal reasons. Therefore, we propose that mindfulness is negatively related to affect and will counteract the effect of affect on cyberloafing behavior.

H4: Mindfulness negatively influences employees' affect (H4a) and negatively moderates the relationship between affect and cyberloafing behavior (H4b).

Proposed research method

Study 1

We plan to recruit university staff at a Southeastern university in the U.S. to conduct a field experiment. Before the start of daily work, participants will be randomly assigned to the condition of mindfulness and mind wandering. Following the approach of Kiken and Shook (2011), participants in the condition of mindfulness will listen to a 12-min audio recordings which include 4-min instructional segment and 8-min practice. This type of manipulation has been shown to be effective to induce mindful states (Hafenbrack et al., 2014). Participants in the control condition will listen to the audio recordings related to wandering. After that, participants will be asked to immediately rate their experience for mindfulness manipulation

check. Next, participants will continue their daily working activities using computers. At the end of the working day, they will complete a questionnaire including the measurement of cyberloafing, automaticity, affect, and demographic information. All items are adapted from Moody and Siponen (2013) and Gardner et al. (2012).

Study 2

We will perform a replication using a second sample, which will be collected from Amazon's Mechanical Turk. We aim to collect 300 samples of full-time employees based on an online survey. Participants who respond to the survey will be rewarded. Participants will be asked to complete a questionnaire that includes the measurement of trait mindfulness, automaticity, affect, cyberloafing behavior, and demographic information. Compared with study 1, we will measure individuals' trait mindfulness (Brown & Ryan, 2003) and self-reported actual cyberloafing behaviors (Moody & Siponen, 2013).

Conclusion

This paper aims to identify how mindfulness influences cyberloafing behavior. Given the research gaps identified, we strive to estimate the influence of mindfulness on automaticity and affect and the moderating effect of mindfulness on the relationship between automaticity, affect, and cyberloafing behavior. Recent behavioral security research has attempted to explore the role of unconscious factors, such as automaticity, in explaining employees' security behavior. However, it is not clear how to intervene the effect of these factors. This paper will contribute to information security behavior research and provide important guidance to mitigate cyberloafing with the underexplored influence of mindfulness.

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