Using the theory of interpersonal behavior to explain non-work-related personal use of the Internet at work

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Abstract
Non-work-related personal use of the Internet within organizations has received increased attention from scholars. We increase previous understanding of this phenomenon by proposing a novel model based on the theory of interpersonal behavior (TIB). The TIB includes previous researched constructs (i.e., attitudes, social influence, and intentions) as well as emotional factors, habits, and different sources of social influence. Our results (N = 238) suggest that the model well predicts the use of the Internet at work for non-work purposes. Our results shed new light on the influence of habit, affect, role, and self-concept in the use of the Internet.

1. Introduction

Organizations have increased their use of and reliance upon computers and networks. With the increased availability of computers and the Internet at work, however, employees also have increased opportunities to use these same devices for personal reasons [6,12,30,35]. We refer to such behavior as personal use of the Internet. The research findings on personal Internet use are twofold. On the one hand, scholars have noted that when employees use the Internet and related applications (e.g., messenger and email applications), the employees suffer from a decrease in work output efficiency [21,26,35], with a decrease in productivity of 20% [19] or 24% [20]. This reduction in efficiency is costly for the organization in terms of reduced employee output and the costs associated with the potential for increased spyware, viruses, security leaks, and use of IT resources (e.g., the use of bandwidth for Skype, video, or Internet radio) [43,78]. Estimates have placed this loss in the billions of dollars annually [6]. On the other hand, research shows positive effects associated with personal Internet use, such as stress relief [7,45]. With the contradictions in the current empirical findings, it is important to continue studying this topic to determine which motivations lead to personal use of the Internet. By understanding the motivations behind the personal use of organizational resources, companies will be able to adopt practices and develop training methods to reduce the amount of inappropriate personal use of the Internet, if needed. We seek to further previous understanding of personal use of the Internet by proposing and testing a novel theoretical model, namely, Triandis’s theory of interpersonal behavior (TIB). Triandis [67] not only included new antecedents of personal use of the Internet that had not yet been studied but also compared multiple motivations for personal use of the Internet concurrently rather than separately, as done in previous work on this topic [21,26,34,35,40,77].

The TIB includes the theory of reasoned action (TRA) and theory of planned behavior (TPB) concepts (i.e., attitudes, social influence, and intentions). New factors are also included in this context, namely, emotional factors, habits, and different sources of social influence. In so doing, the TIB provides a broader understanding of what may lead to personal use of the Internet in the workplace. As a result of such a broad theoretical framework, we shed new light on the influence of habit, affect, role, and self-concept on Internet use. We also show that widely advocated methods of control or deterrence in the IS literature are unable to reduce personal use of the Internet.

The remainder of this paper is structured as follows. We review the literature and findings regarding personal use of the Internet in the Section 2. We then examine the theory of interpersonal behavior in the third section. Using this theoretical basis, we explicate our model and its hypotheses in Section 3. We then describe our study and the analysis of the subsequent data. The results are then provided, along with implications for research and practice.
2. Literature review

This section will briefly describe two main literature streams that are relevant for this study. First, we will review the literature related to personal use of the Internet. Second, we will explain the theory of interpersonal behavior. For the purposes of this study, we define personal use of the Internet as any use of a computer that does not involve completing work-related tasks [34]. Such use may include, for example, web surfing, chatting, or online shopping. This definition is more expansive than those of previous work in this area, as this definition includes the use other applications (e.g., messengers, video conferencing, Skype, online gaming, online communities) rather than focusing only on the use of an Internet browser for personal use while at work [26,35,58,61].

2.1. Use of the Internet at work for personal reasons

With the increasing presence of the Internet in the workplace, researchers initially focused on the extent to which personal use of the Internet was prevalent in the workplace. This type of research typically emphasizes that businesses should be aware of employees’ personal use of the Internet and the detrimental effects it has on the organization [35,61]. Such studies have found that at least 20% of employees in an organization engage in such an action and have posited that it lowers employees’ performance and productivity [19,20].

This line of research has led to the provision of advice for reducing personal use of the Internet. Researchers and practitioners have advised organizations to adopt Internet use policies [60] that would help employees understand what constitutes suitable use of the Internet, thus deterring unsuitable use within the organization. The other common types of advice of this earlier work on personal use of the Internet prescribe the use of monitoring tools, reports, and devices to ensure compliance with said policies [47,61,69]. However, empirical work has found that the use of monitoring lowers the overall job satisfaction of the employees being monitored [69].

Building on the initial studies measuring the prevalence of personal use of the Internet, later studies began profiling personal Internet users in an attempt to provide tools and procedures for managers to use in identifying users. It was hoped that through profiling, management would be enabled to proactively address, train, and punish individuals who continued to be personal users of

| Table 1 |
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| Author | Year | Theoretical framework | Methodology | Findings |
| Cheung et al. | 2000 | TIB | Survey | The Internet is more likely to be used at work when it is not viewed as complex, the individual perceives near-term benefits from his or her behavior, personal use of the Internet is socially accepted at the organization, and the individual has access to the Internet at work. Using the Internet at work is more likely to occur when the individual perceives near-term benefits, he or she feels good about using the Internet, the organization provides access to the Internet, and use of the Internet is socially acceptable. |
| Chang and Cheung | 2001 | TIB | Survey | AI-based behavior models can be used to profile employees’ Web use behavior on an a priori basis. |
| Anandarajan | 2002 | Artificial neural networks approach | Simulation. survey for testing the simulation | Internet policies and monitoring of employee behavior will lead to optimal levels of employee freedom while minimizing costs and risks for the organization. |
| Simmers | 2002 | None | Case studies | Workplace recreation using the Internet can increase employee morale and creativity and, therefore, productivity. |
| Gravec | 2002 | Social capital theory | None | Personal use of the Internet is common in the workplace. Individuals are more prone to this type of abuse if they perceive that the organization overworks them or does not provide adequate compensation. |
| Lim et al. | 2002 | None | Survey and focus groups | Frequent cyberloafers have higher levels of job and pay satisfaction, satisfaction with promotion opportunities, and higher ratings of organizational support than non-abusers. |
| Stanton | 2002 | None | Survey | Monitoring decreases personal use of the Internet but also decreases the user’s level of satisfaction. |
| Urbaczewski and Jessup | 2002 | Theory X/Y | Observation and experiment | Personal use of the Internet is most predicted by employees’ attitudes (job satisfaction and Internet addiction) toward personal use of the Internet and norms within the workplace environment. |
| Galletta and Polak | 2003 | TPB | Survey | Personal use of the Internet decreased when employees had intentions to cyberloaf, a habit of personal use of the Internet, and conditions that increased the likelihood of personal use of the Internet. Furthermore, job satisfaction, affect toward personal use of the Internet, and social factors all increased these mediating constructs, while perceived consequences reduced intentions to engage in personal use of the Internet. |
| Woon and Pee | 2004 | TIB | Survey | Only managerial supervision affected the level of personal use of the Internet; other hypothesized TPB constructs were not significant. |
| Seymour and Nadasen | 2007 | TPB | Survey | Habit, intention, and facilitating conditions all increased personal use of the Internet; these factors were increased by affect, social factors, and perceived consequences. |
| Pee et al. | 2008 | TIB | Survey | Minor and serious types of non-work-related use of the Internet exist. Minor non-work-related use of the Internet is correlated with norms regarding this behavior among peers or supervisors, but serious non-work-related use of Internet is not. |
| Blanchard and Henle | 2008 | None | Survey | Employees are more likely to engage in non-work-related use of Internet in response to role ambiguity and role conflict but less likely to do so as a result of role overload. Furthermore, employees are more likely to participate in non-work-related use of the Internet to cope with role ambiguity or role conflict when they perceive minimal sanctions. |
the Internet. Most approaches focused on varying dimensions of satisfaction or attitudes held toward the organization [35,63]. These studies found that various attitudes toward the organization and social norms do, in fact, alter the levels of personal use of the Internet in the organization. Simmers [61] also reported a neural network approach based on genetic algorithms that would capture usage statistics to predict users' inclinations toward personal use of the Internet.

More recent work has attempted to use theoretical approaches to predict and understand why individuals engage in personal use of the Internet. The main approaches depended on specifying antecedents of attitudes and social norms from the theory of planned behavior [26,58]. These studies found that employees' attitudes toward personal use of the Internet and norms at the workplace have strong predictive power concerning employees' intentions and actual personal use of the Internet. Building on concepts from interpersonal behavior, Pee and colleagues [50,77], along with Cheung and colleagues [14,16], showed that consequences, habits, facilitating conditions, and employees' emotions also strongly predict personal use of the Internet at work. A summary of this work is shown in Table 1.

The later theoretical work on the use of the Internet at work for personal reasons shows conflicting empirical results. Despite replications from two theoretical bases (i.e., the TPB [26,58] and the TIB [14,16,50,77]), the results are inconsistent. In the first theoretical study of workplace Internet abuse, Galletta and Polak [26] found that only certain attitudes (i.e., job satisfaction and Internet addiction) and subjective norms can predict the use of the Internet at work for personal reasons. However, using the same theoretical approach, Seymour and Nadasen [58] found that no attitudes or subjective norms can predict abuse. Instead, the authors reported that only the perceived supervision of managers is able to reduce abuse. Furthermore, using portions of the TIB, Pee and his colleagues [50,77] reported conflicting findings. In the initial study [77], the authors showed that habits, intentions, and facilitating conditions all negatively affect behavior; the later study [50], in contrast, demonstrated the opposite. Meanwhile, Chang and Cheung [14] and Cheung and Limayem [15] reported that near-term consequences and facilitating conditions are conducive to the intention to use the Internet at work, and they obtained mixed results regarding the complexity of the application, social factors, and affect felt toward Internet use. With these mixed empirical findings, it is difficult to understand what motivates individuals to engage in personal use of the Internet.

The current study seeks to expand on these former studies and to provide a more complete view of the antecedents of personal use of the Internet in several ways. First, we use the TIB, which has been shown to account for more variance in a model compared with the TRA and the TPB [9]. Second, we expand the scope of personal use of the Internet to include not only personal use related to using Internet browsers but also all applications that use networking or telecommunications abilities at a computer. Third, we specifically expand upon the work of Pee and his colleagues [50,77] and Cheung and his colleagues [14,16] by including all the constructs from the TIB, with their respective antecedents as specified by Triandis [67].

3. Theoretical framework: the theory of interpersonal behavior

We believe the TIB is highly appropriate for the context of this study, as personal use of the Internet at work is a highly social behavior learned within the organization through the observation of such behaviors on the part of other employees. Although ultimately the employee is the one who engages in using the Internet for personal reasons, he or she perceives signals and cues upon entering the organization that determine whether such behaviors will be negatively or positively perceived, and therefore rewarded or punished. Only after the individual has learned the relatively informal rules regarding such behaviors will he or she be willing to engage in them. This study is in accordance with work in criminology that explains the social learning that must occur before deviance [5,13,62].

The theory of interpersonal behavior was first specified by Triandis [67] as a theoretical alternative to the TRA and the TPB (see Fig. 1). Triandis [67] argued that the TRA and the TPB suffer from several weaknesses that are overcome by this model. The TRA and the TPB focus on predicting behaviors related to intentions to perform a given behavior. These intentions are predicted by the individual's beliefs regarding the behavior and subjective norms that are relevant to the behavior [3]. The TIB builds on this work and proposes several additions to the underlying model proposed in the TRA and the TPB. Each addition is discussed in turn, and they

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Note that these studies are not focused on personal use of the Internet but on whether the Internet will be adopted by the individual to aid him or her in his or her job functions.
are adopted or extended regarding the personal use of the Internet at work.

First, by focusing on the cognitive aspects of behavior, neither the TRA nor the TPB account for the emotions involved in the eventual behavior. Triandis argued that individuals often arrive at decisions not only through focusing solely on the cognitive aspects of a situation but also by relying on their feelings. Thus, Triandis proposed that affect serves as an input in the decision-making process. For this paper, we define affect as the emotional response to a particular situation that is based on instinctive and unconscious processes in the mind [67]. Specifically, we refer to the emotional response an individual has when using the Internet at work, which is likely a source of emotional coping to address issues that may arise in the workplace [30].

Second, the TRA and the TPB assume that intentions lead to behavior, without any consideration of the previous occurrence of the same behavior [59]. The TRA and the TPB posit that intentions predict behavior, but these theories do not consider whether this behavior has been so often repeated by the individual that it has become automatic and, thus, performed without the conscious deliberation assumed by the TRA and the TPB. This type of automated response to a situation to behave in a given manner is referred to as habit [72]. For example, when someone arrives at a stop sign, deciding to slow down and stop does not require deliberate and conscious reasoning; rather, this action is dictated and automated due to the numerous times the individual has performed the same action. Thus, it is not merely intention that dictates whether a behavior will occur but also how habitual this behavior has become. It is proposed that the relationship between intention and behavior is altered by the level of habit characterizing the person’s enactment of the behavior. Specifically, the behavior will be more pronounced when intention and habit are present than when either one is evident in isolation, resulting in an additive interaction effect [25]. In adopting the theory of habit [71,72] and the TIB [67], we thus propose that the habitual use of the Internet at work for personal reasons will have its own main effect on the behavior and alter the intention to engage in the same behavior.

Third, similar to the theory of planned behavior [3], the TIB proposes that the decision to engage in a behavior will be affected by the ability of the individual to perform the behavior. Facilitating conditions refers to the lack of environmental or situational constraints that may prevent the individual from performing the desired behavior. Even if a person commonly performs a behavior and has an intention to engage in the behavior, if it is not possible to do so due to extenuating circumstances, the behavior cannot be performed. Thus, the TIB proposes that facilitating conditions will serve as a moderator of the relationship between intentions and behavior [25,67].

Fourth, building on concepts from neoclassical criminology [28], we extend the TIB and propose that attitudes are formed based on the beliefs individuals hold as well as the evaluations of these beliefs. Beliefs refer to internally held information that one holds to be true [24], whereas evaluation denotes the internal calculation of the individual that determines how relevant the belief is when forming an attitude in a given circumstance [24,67]. Although an individual may hold several beliefs regarding an attitude object, each belief may be of a different level of importance in a given situation. Thus, only beliefs evaluated as relevant will have significant impacts on the formation of the attitude toward the given object. Thus, we propose that an attitude is formed by an interaction of relevant beliefs and their respective evaluations [67]. In this study, we focus on two specific beliefs regarding the benefits and costs of personal use of the Internet. Thus, we ascertain the beliefs and the evaluation of benefits and penalties of using the Internet at work for personal reasons.

Fifth, the TIB proposes a more detailed explanation of how the individual’s environment will influence intentions and behaviors. The TIB expands upon the role of social influences through roles, self-concepts, and social norms. Similar to the TRA and the TPB, social norms are included in this model and refer to the pressures and expectations of others that cause an individual to behave in a given manner [67]. Similar to the TRA and the TIB, the TIB proposes that social norms increase the inclination of individuals to act in ways that will increase conformity with the known social group. However, unlike the TRA and the TPB, the TIB also proposes that social influences come from sources beyond the norms of the group in which the behavior is performed. Roles refers to the sets of actions deemed appropriate for individuals occupying a given position within the group, whereas self-concept refers to the idea that individuals have their own internal goals and values regarding which behaviors are appropriate [9,67]. For the present context, we have specifically adopted roles, norms, and concepts that address employees in an organizational setting regarding their personal use of the Internet. Whereas norms apply equally to all individuals in a group, the insertion of roles into the model allows for the variability groups experience due to the unique positions and functions of individuals within the group. For example, although a group may have a norm for individuals to be silent unless called upon, it is considered appropriate for the

![Diagram](image_url)

**Fig. 2.** Theoretical model.
group leader to lead discussion and to speak during the majority of the meeting without being called upon. Additionally, the insertion of self-concept into the model accounts for individual differences due to the values of the individual, which may be more important than desires for inclusion within a group. For example, consider a group that normally celebrates successes by attending a local bar for happy hour. One member, however, although a long-standing and reputable member of the group, does not attend these celebrations due to religious convictions. Personal convictions and central values may override social pressures to conform to desired group behaviors when these behaviors challenge an individual’s central and salient values [10].

By incorporating these additional constructs into predicting intentions, our extension of the TIB to the personal use of the Internet at work provides a more comprehensive theoretical model for predicting behaviors [67] than previous studies based on the TRA or the TPB. Due to the conflicting findings in the previous literature regarding the antecedents or motivations for employees to engage in personal use of the Internet [26,50,77], our extension of the TIB is an ideal theory for examining the antecedents of personal use of the Internet. The TIB examines cognitive, affective, social, and habitual factors that may influence personal use of the Internet rather than only a subset of this list.

4. Model development

Having reviewed the relevant literature and provided the background of the theory of interpersonal behavior, we now explain our theoretical model (see Fig. 2). We first explain the two antecedents of attitude, followed by the antecedents of social factors. Next, we explain how attitudes, affect, and social factors influence intentions. Last, we propose how habit, intentions, and facilitating conditions impact actual behavior related to personal use of the Internet.

4.1. Attitude

The neoclassical view in criminology is that people select engagement in behaviors that go against the established procedures, rules, and guidelines (i.e., personal use of the Internet in the context of this study) when it pays off, i.e., people engage in these behaviors when the benefits are high and the risk of sanctions is low [44,57]. Thus, this study adopts benefits and penalties as positive and negative antecedents of attitude, respectively. We propose that the expectation of positive outcomes due to personal use of the Internet should result in more favorable attitudes toward such behavior. First, beliefs regarding future potential outcomes serve as a motivation to engage in a given behavior [11]. This motivation is based on the attitude that the benefits are relevant and possible and will help the individual achieve their desired goals. If an individual believes benefits are possible and likely, his or her positive attitude toward the behavior should increase in an effort to achieve the benefits [18].

The connection between perceived beliefs regarding potential benefits from a behavior and the attitude toward engaging in the behavior has long been proposed and supported in prior literature in different applications of neoclassical theory of crime and motivation research [4,18,22,65,66]. We extend these findings to personal use of the Internet and propose the following:

**H1.** The perceived benefits regarding personal use of the Internet are positively related to the attitude toward the use of the Internet at work for personal reasons.

As individuals attempt to maximize benefits and minimize penalties [66], the perception of penalties associated with personal use of the Internet should also alter an individual’s attitude toward future use of the Internet at work for personal reasons. Prior work has already indicated that individuals tend to be more averse to loss and punishment than attracted by rewards [31]. Although benefits should increase an individual’s attitudes toward engaging in the behavior, perceived penalties associated with this behavior will have a stronger, negative impact on the individual’s attitude toward the same behavior. In line with the neoclassical theory of crime [57], we propose that individuals will avoid negative outcomes and punishments by forming negative attitudes toward engaging in a punishable behavior. Therefore, we propose the following:

**H2.** The perceived penalties regarding personal use of the Internet will be negatively related to attitudes toward the use of the Internet at work for personal reasons.

4.2. Social factors

Triandis [67] defined social factors as an individual’s assessment of the reference group’s culture and the specific interpersonal agreements the individual has made with others in specific social situations [77]. The TIB is more socially oriented than either the TRA or the TPB, and it proposes several sources of social influence beyond those of social norms [9]. Although other sources of social influence could be proposed and tested, this paper tests those proposed by Triandis [67].

First, Triandis [67] suggested that the first major source of social influence is the presence of social norms within referent groups. Social norms influence individuals by increasing the desire and pressure from a reference group to conform to the expected behavior. Individuals within the group, or being observed by a group, follow these unwritten rules to conform to the pressures of the group and thus act in accordance with the norms of the relevant referent group [3]. Although individuals may break norms and behavior contrary to norms, the presence of norms serves as a cue or pressure that increases the likelihood that the individual will behave in accordance with the given norm [38].

Norms are known to influence behavioral intentions of individuals in groups, which is also a central tenet of the TRA and the TPB [3,24,33,38]. However, social norms are only one source of influence that can occur within the social context of a given situation. Thus, in accordance with the TIB, we propose that the social factors should be considered jointly rather than separately. Thus, although social norms have been shown to directly impact behavioral intentions from research based on the TRA and the TPB, in accordance with the TIB, we propose that the joint effects of all social factors will mediate the relationships between each source of social influence and behavior intentions. Social norms produce an effect upon the influence the individual feels from social sources for a specific situation, which are then used to create behavioral intentions. Thus, we propose the following:

**H3.** Social norms regarding non-work-related Internet use within the organization will be positively related to the social factors regarding personal use of the Internet.

The term roles refers to the idea of what is normal and proper behavior, as determined by the position of the individual within the relevant social group [67]. Like social norms, this idea can be considered only within a social situation in which the individual is deciding how to behave. Roles are socially construed and understood [1,2,9,73]. When an individual is deciding how to
behave, the consideration of the individual's roles can be understood only by looking at social roles of relevance within the group. For example, an individual's role as sister may not be relevant in deciding whether to use the Internet at work for personal reasons, unless her sister happens to be her boss at the company.

Because individuals have numerous roles and functions, it is possible to understand the impact of roles on eventual behavior only by considering the relevant group involved in the given role \([8,68]\). Individuals will consider the various roles deemed relevant for the given context and determine what type of influence this role has on that behavior \([9,67]\). Thus, an individual's roles within the organization should significantly affect the overall social influence an individual feels toward personal use of the Internet. Therefore, we propose the following:

**H4.** Organizational roles within the organization will be positively related to the overall social factors regarding use of the Internet at work for personal reasons.

Finally, Triandis \([67]\) proposed that an individual's self-concept regarding the behavior should also affect the amount of social influence perceived by the individual. Self-concept is proposed to impact social factors due to the ability of significant and known others to observe behaviors. For example, if an individual strongly believes it is important to reduce his or her own carbon footprint on the world, he or she will experience strong pressure from known others to engage in behavior that supports this known self-concept. He or she will have an increased likelihood of riding a bike to work or using a hybrid car to publicly conform to his or her own internal value system. Individuals often assess themselves based on the opinions and feedback they receive from others \([48,56]\). Thus, in deciding how to behave in a given situation, the potential social consequences and the impact of relevant social others on the individual and his or her self-concept will alter how an individual decides to behave. Thus, we propose the following:

**H5.** Self-concepts regarding personal use of the Internet will be positively related to the overall social factors regarding use of the Internet at work for personal reasons.

### 4.3 Antecedents of intention

Previous work has long proposed and found that attitudes, emotions, and social factors influence behavioral intentions \([9,24,33,50,53,67]\). Because the relationship between attitude and emotions on intentions is well-known and specified in prior literature, we will briefly explain the relationship between social factors and intentions, as this relationship is mentioned only in the TIB. As previously stated, the TIB expands upon the social influences that may alter an individual's behavioral decisions by including other social factors beyond social norms. In the previous section, we described these sources of social factors and explained how they would affect behavior by altering the level of social influence felt by an individual in a given situation. Thus, the connection between social factors and behavioral intentions is based on the same reasoning given for each factor, or those common to social norms in the TRA and the TBP. Essentially, individuals are influenced by pressures the individuals perceive from relevant social groups where the behavior would be performed \([33,59]\). These sources of social influence increase the likelihood that an individual will desire to conform to known group norms, internal value structures, or roles to which the individual is expected to adhere.

Because these relationships have all been found in prior literature, we merely extend these previous findings to fit the context of our study, and we propose the following:

**H6.** Attitudes regarding use of the Internet at work for personal reasons will be positively related to the intention to engage in personal use of the Internet.

**H7.** Affect regarding use of the Internet at work for personal reasons will be positively related to the intention to engage in personal use of the Internet.

**H8.** Social factors regarding use of the Internet at work for personal reasons will be positively related to the intention to engage in personal use of the Internet.

### 4.4 Predicting personal Internet use behavior

Previous research has long proposed and found that the intention to engage in a behavior and a habit of performing a behavior are strong predictors of behavior \([2,9,25,33,39,59,70,73,72]\). However, the theory of interpersonal behavior builds upon this research by proposing an interaction of these constructs on eventual behavior \([10,9,25,67]\). Triandis \([67]\) originally explained that the intention to behave in a given fashion would be strongly influenced by the previous frequency of the behavior. For example, if an individual is not in the habit of checking his or her email at work, it is unlikely that the individual will check his or her email, despite a strong intention to do so at a given point in time. Likewise, if the individual has a strong habit of checking his or her email every hour, it is very likely that he or she will continue to check email at work, despite an intention not to do so. However, the joint effects of habit and intention will be magnified when they are in the same direction. If the individual has an intention to check his or her email, and he or she usually does this, it is even more likely that he or she will do so than if he or she had neither the habit nor the intention. In other words, the TIB proposes that future behavior is a function not only of what the individual intends to do but also of what the individual typically does.

Although this interaction was proposed by Triandis \([67]\), later empirical tests of the theory within this context have not considered the interaction of these constructs on behavior \([14,16,50,77]\). Thus, we extend the proposed interaction of intention and habit on behavior from the TIB, as found in prior research \([9]\), to the context of personal use of the Internet as follows:

**H9a.** The intention to use the Internet at work for personal reasons will be positively related to actual personal use of the Internet.

**H9b.** The habit of using the Internet at work for personal reasons will be positively related to actual personal use of the Internet.

**H9c.** The interactive effect of intentions and habit will strongly predict the use of the Internet at work for personal reasons.

In accordance with neoclassical theories of crime \([57]\), such as rational choice models, facilitating conditions should moderate the relationship between intentions and habit on behavior \([28,32,65]\). If an individual has an intention to engage in use of the Internet at work for personal reasons but does not have the means or opportunity to easily perform the behavior, it is not likely that personal use of the Internet will take place \([76]\). By controlling and monitoring workstations and network traffic, organizations can decrease the facility with which individuals may engage in personal use of the Internet and avoid punishment. Thus, the presence of controls and monitoring functions within the network would likely deter abuse behavior by individuals. This has been proposed in prior work \([22,32,66]\), and we likewise replicate the following prediction:

**H10a.** Having ready access to the Internet at work (facilitating conditions) is positively related to actual personal use of the Internet.
H10b. Having ready access to the Internet at work (facilitating conditions) negatively affects the relationship between intentions and actual personal use of the Internet.

5. Methodology and data analysis

5.1. Method and data collection

This study used a survey methodology. Data were collected during a two-week period from a Finnish private service company that offers electrical and related services. Following Westland's [74] guidelines, we determined that at least 100 responses should be collected to test the model. The company employs 1,150 employees, of whom 238 submitted completed surveys, for a usable response rate of 21%. The survey was anonymous; no identifying information of any type was gathered from the participants. It was also clearly communicated to the respondents that independent university researchers would analyze the results. The organization monitors Internet use at the organizational and group levels but not at the individual level, which is illegal in Finland due to European Union (EU) privacy laws. The company has a non-work-related Internet use policy.

The reliability of constructs can be improved by using previously validated and tested questions [63]. Accordingly, we used items taken from previously validated and reported instruments (with some minor wording adjustment to fit the context of this study). Appendix A provides a detailed list of the scales used for this study. Participants were asked to report their personal use of the Internet at work for non-work purposes. The participants were then asked to provide answers for the remaining constructs in the theory. These constructs were the following: attitude [51], beliefs about and evaluations of the outcome of their behaviors [50], norms [25], roles [9], self-concept [25], social factors [50], affect [50], habit [71], facilitating conditions [50], intentions [50], and behavior [50].

Because we used the TIB in a new context, we used a pilot test to ensure the readability and validity of the questions. The pilot population consisted of staff members at a public university in Finland. The pilot respondents included IT support staff, lecturers, secretaries, administrative staff, and educational planners. We obtained 43 usable responses. Our pilot study involved a paper-based questionnaire that consisted of 65 questions, including space in which respondents could leave comments and feedback about the questions. We used these responses to ascertain the validity of the questions and to identify any points of confusion within the survey. Based on the feedback and initial statistical analysis, several questions were modified slightly before the final data collection.

5.2. Construction of benefits and penalties

This section will briefly emphasize how the benefits and penalties were created from subjects’ respective beliefs and matching evaluations. The TIB proposes that weighted beliefs form initial attitudes that serve as antecedents for intentions. For each relevant belief in this context, participants were asked to judge the likelihood of the benefit or penalty occurring and the magnitude of the impact on the participant. The two scores (i.e., belief and evaluation) for each item were then multiplied to form an evaluated belief score for each respective item. For example, suppose a participant gave a score of 6 (fairly likely) that she would receive a warning for using the Internet at work for non-work-related purposes and that she rated the severity of this warning as a 2 (lenient). Her evaluated belief score would then be 12 (6 × 2). These formed scores were loaded onto their respective construct (i.e., benefits or penalties) as described by the literature on the TIB [25,67].

5.3. Data analysis

5.3.1. Establishing factorial validity

Before the hypotheses were assessed, several steps were taken to ensure the reliability and accuracy of the collected data. First, we ascertained the types of constructs used in this study. Using Diamantopoulos and Winklhofer [23] and the sources of the instruments, we determined whether the constructs were formative or reflective. The remainder of this section reports our procedures for establishing factorial validity tests for reflective and formative constructs using the respective tests.

5.3.1.1. Reflective constructs. To analyze the factorial validity of the constructs, we applied partial least squares (PLS) using SmartPLS version 2.0 [55]. To establish the validity of our reflective indicators, we followed the procedures outlined in [27]. To establish convergent validity, we generated a bootstrap with 200 resamples and examined the t-values of the outer model loadings. All retained items were significant at the .05 α level (see Table A2.1 in Appendix B). This demonstrates strong convergent validity for the reflective constructs.

We then used two conventional methods for establishing discriminant validity: correlating the latent variable scores against the indicators, also known as a confirmatory factor analysis (see Table A2.2), and calculating the square root of the average variance extracted for each reflective construct (see Table A2.3). Both demonstrated strong convergent validity for all retained items.

Finally, to establish reliability, PLS computes a composite reliability score as part of the model analysis (see Table 1). This score is a more accurate assessment of reliability than Cronbach’s alpha because it does not assume that the loadings or error terms of the items are equal [17]. Each reflective construct in our research model demonstrates high composite reliability that exceeds standard thresholds (Table 2).

Convergent and discriminant validities were also assessed using STATA’s (version STATA/SE 12.1) confirmatory factor analysis (CFA) (see Table A2.5). The model fit was good, with values that were all within acceptable parameters: $\chi^2/df = 4375.211$, $p < .001$; $CFI = .947$; $TLI = .931$; $RMSEA = .062$; $SRMR = .039$; $CD = 1.000$, [29,75]. Convergent validity was supported by large and standardized loadings for all constructs ($p < .001$) and t-values that exceeded statistical significance. Convergent validity was also supported by calculating the ratio of factor loadings to their respective standard errors, which exceed 10.0 ($p < .001$).

Discriminant validity was tested by showing that the measurement model had a significantly better model fit to a competing model with a single latent construct and to all other competing models in which pairs of latent constructs were joined. The $\chi^2$ differences between the competing models (omitted for the sake of brevity) were significantly larger than those of the original model.

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Composite reliability</th>
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<tr>
<td>Construct</td>
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<tr>
<td>Affect</td>
<td>0.962</td>
</tr>
<tr>
<td>Attitude</td>
<td>0.910</td>
</tr>
<tr>
<td>Behavior</td>
<td>0.952</td>
</tr>
<tr>
<td>Habit</td>
<td>0.959</td>
</tr>
<tr>
<td>Intention</td>
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</tr>
<tr>
<td>Roles</td>
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</tr>
<tr>
<td>Self-concept</td>
<td>0.895</td>
</tr>
</tbody>
</table>
as also suggested by factor loadings, modification indices, and residuals [42]. In sum, these tests confirm convergent and discriminant validities.

5.3.1.2. Formative constructs. Before discussing the validation of our formative measures, we explain the operationalization of benefits and penalties. The TIB proposes that attitudes are created based on the joint beliefs and evaluations of outcomes in the given circumstance, such as use of the Internet at work for personal reasons. For each item regarding benefits and penalties, the subjects were asked about their beliefs regarding that item and for an evaluation of that item. We then interacted the belief and evaluation scores to form an evaluated belief item score for each respective item. These scores then served as formative indicators for the respective benefits and penalties constructs.

Validating formative indicators is more challenging than validating reflective indicators because the established procedures that exist to determine the validity of reflective measures do not apply to formative measures [52], and the procedures validating formative measures are less known and established [23]. Researchers have generally used theoretical reasoning to support the validity of formative constructs [23], although approaches can be used beyond theoretical reasoning alone [41,52]. Although no technique has been widely established for validating formative measures, we used the modified multitrait-multimethod (MTMM) approach, as presented in [36,37,41], which is a promising solution.

For each formative item, we created new values that were the product of the original item values by their respective PLS weights (representing each item's weighted score). We then created a composite score for each construct by summing all the weighted scores for a construct. Next, we produced correlations of these values, providing inter-measure and item-to-construct correlations (see Table A2.4).

To test the convergent validity, we checked whether all the items within a construct correlated highly with each other and whether the items within a construct correlated with their construct value; this was mostly true in all cases, implying convergent validity. Although we would ideally want inter-item correlations to be higher within a given construct, this cannot be strictly enforced, as there are exceptions depending on the theoretical nature of the formative measure [23,36]. Thus, we believe that the most meaningful discriminant validity check with formative measures involves looking at the degree to which items within a construct correlate to the given construct.

Finally, we used another approach to assess formative validity, as suggested by Petter et al. [52], which involved testing the multicollinearity among the indicators. This step is particularly important with formative indicators because multicollinearity poses a much greater problem than with reflective indicators. Hence, low levels of multicollinearity are usually indicated with levels of the variance inflation factor (VIF) below 10, but in the case of formative indicators, the VIF levels need to be below 3.3 as a more stringent test [52]. In our case, the VIFs for five indicators (an item from benefits, from penalties, two from norms, and one from social factors) were above 3.3, and these were all subsequently dropped from the final analysis.

In sum, using MTMM analysis and assessing the VIF levels, we concluded that there was reasonable discriminant validity with our formative constructs. Finally, because of the nature of formative measures, reliability checks could not reasonably be carried out [23].

5.4. Testing for common methods bias

Because the data were collected using one method, we used two methods to test for the presence of common methods bias. First, we used Harman’s single factor test [54]. This required that we run an exploratory unrotated factor analysis on all the first-order constructs. The aim of this test is to determine whether a single factor emerges that explains the majority of the variance in the model. If a factor emerges, then common methods bias likely exists at a significant level. The result of our factor analysis for our study produced 35 distinct factors, the largest of which accounted for only 15.8% of the variance of the model.

Second, we examined a correlation matrix of our latent constructs to determine whether any of the correlations were above .90, which is strong evidence that common methods bias exists [49]. None of the correlations were near this threshold. Because our data passed both tests for common methods bias, we concluded that there was little reason to believe that our data exhibit any of the negative effects from common methods bias.

6. Results of hypotheses testing

Because our data displayed factorial validity and did not display common methods bias, we continued to test our model. We also validated these results through CB-SEM analysis using STATA/SE 12.1. As an additional verification of our theory, we ran the model

![Fig. 1. Model results (the R-squared values are in parentheses).](image-url)
using a PLS-based and CB-SEM-based analysis. The model results from both tools were equivalent, and we report the results from the CB-SEM analysis for brevity.

The common fit indices show that the model fit is acceptable, with values that are all within acceptable parameters: $\chi^2 = 4372.511, \ p < .001; \ \chi^2/df = 3.45; \ \text{CFI} = 0.947; \ \text{TLI} = 0.931; \ \text{RMSEA} = 0.062; \ \text{SRMR} = 0.039; \ \text{CD} = 1.000, \ [29,75]$. Because numerous indices provide moderate to adequate results, we report the results of our CB-SEM-based model in Fig. 3. The results of our hypotheses, as based on the model testing, are shown in Table 3.

Because the hypothesized relationship of intention-predicting behavior is interacted by habit, we now graphically depict the nature of this interaction (see Fig. 4). To depict this interaction, we extrapolated from our model results, and holding all other variables constant, predicted the behavioral score given a standard deviation change in both interacting variables as depicted above.

6.1. Results of hypothesis tests

We found that the majority of our hypotheses were supported. First, we report that the benefits (H1) and penalties (H2) associated with using the Internet at work for personal reasons were significant predictors of attitudes toward engaging in this behavior.

Second, we found that all antecedents of social factors were significant in predicting social factors. Specifically, we determined that the most significant predictor of social factors was one’s self-concept associated with personal use of the Internet (H5; $\beta = 0.568$). Norms (H3) and roles (H4) only moderately predicted social factors ($\beta_{\text{norms}} = 0.301; \ \beta_{\text{roles}} = 0.229$).

Third, we found that the main structure of the TIB was supported. That is, attitude (H6), affect (H7), and social factors (H8) of personal Internet use all significantly affected one’s intention to use the Internet for personal purposes at work. We also found that intention to engage in this behavior (H9a) and the habits based on this behavior (H9b) were significant in predicting actual personal Internet use at work. Moreover, we found that the proposed interaction of intentions and habits was highly significant (H9c; $\beta = 0.726$). Further exploration of the interaction revealed that intentions have more pronounced effects on behavior while the effect of habit was small, with high intentions leading to using the Internet at work for personal reasons correlating to such behaviors, whereas lower intentions were less likely to lead to those behaviors at work. However, we found that because the habit of using the Internet at work for personal reasons was average compared with the sample, low and high intentions resulted in increased behaviors toward this type of use. Finally, we observed that as habits increased, compared with the rest of the sample, the difference between low or high intentions decreased, which resulted in smaller differences between behaviors at that range.

However, we found no support for either hypothesis involving the facilitating conditions around the personal use of the Internet at work. The hypothesized main effect of this construct on actual behavior was nonsignificant (H10a; $\beta = -0.017$), and the hypothesized interaction between facilitating conditions and the intention to engage in personal Internet use was insignificantly related to the behavior (H10b; $\beta = -0.023$).

7. Discussion

7.1. Summary

Here, we briefly emphasize a number of findings based on our empirical study. First, our results indicate that all antecedents of the intention to engage in personal use of the Internet are of relatively equal strength. Individuals who have emotions, attitudes, and social influences that positively regard the use of the Internet are more likely to use it at work for non-work purposes. This is consistent with the TIB [67] as well as previous studies on personal use of the Internet by Pee et al. [50] and Chang and Cheung [14].

Second, our results show that one’s attitude toward personal use of the Internet is differentially influenced by the benefits perceived in personal use of the Internet as opposed to the perceived penalties for engaging in this behavior. The importance of benefits, penalties, and attitude support the TIB [9,50,67]. However, previous research by Seymour and Nadasen [58] demonstrated that attitudinal variables do not promote personal use of the Internet. We explain these differences through the different operationalization of the attitude construct. For Seymour and Nadasen [58], attitude includes low job satisfaction, inadequate rewards, and long working hours. We used a measure for attitude, and attitude was predicted by the perceived benefits and penalties associated with personal use of the Internet. Because attitude was measured directly, we believe this construct is more accurately operationalized as specified by the TIB.

Third, we found that social factors also represent a significant antecedent of the intention to engage in personal Internet usage at work. Further, we found that all three predicted antecedents of social factors are significant in predicting this construct, which is consistent with the TIB [67]. Related studies on personal use of the Internet have reported mixed findings regarding social factors. Galletta and Polak [26] reported that subjective norms, operat-

<table>
<thead>
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<th>#</th>
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<th>Coef.</th>
<th>Supported?</th>
</tr>
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</tr>
<tr>
<td>2</td>
<td>Penalties $\rightarrow$ attitude</td>
<td>$-1.26$</td>
<td>* Yes</td>
</tr>
<tr>
<td>3</td>
<td>Norms $\rightarrow$ social factors</td>
<td>0.301</td>
<td>*** Yes</td>
</tr>
<tr>
<td>4</td>
<td>Roles $\rightarrow$ social factors</td>
<td>0.229</td>
<td>* Yes</td>
</tr>
<tr>
<td>5</td>
<td>Self-concept $\rightarrow$ social factors</td>
<td>0.568</td>
<td>** Yes</td>
</tr>
<tr>
<td>6</td>
<td>Attitude $\rightarrow$ intention</td>
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<tr>
<td>7</td>
<td>Affect $\rightarrow$ intention</td>
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<td>*** Yes</td>
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<tr>
<td>8</td>
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<tr>
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<td>ns No</td>
</tr>
<tr>
<td>10b</td>
<td>Facilitating conditions $\times$ intention $\rightarrow$ behavior</td>
<td>$-0.023$</td>
<td>ns No</td>
</tr>
</tbody>
</table>

ns = not significant.

\* $p < .001$

\* * $p < .05$

Fig. 4. Interactive effects of habit on the relationship between intentions and behaviors.
nalized in terms of peer culture and supervisor culture, increase personal use of the Internet. However, Seymour and Nadasen [58] found that supportive peer and supervisor cultures do not lead to an increased intention to engage in personal use of the Internet. We expanded on this previous work by exploring not only the norms associated with personal use of the Internet but also an individual’s role within the organization and the individual's concept regarding personal use of the Internet. Furthermore, we reported the first test to show that one's self-concept regarding one's personal use of the Internet at work is the strongest predictor of social factors regarding this intention.

Fourth, our results show that, as predicted by the TIB, TRA, and TPB, the intention to engage in personal use of the Internet strongly predicts actual behavior related to personal use of the Internet. Previous work on personal use of the Internet also found support for this relationship [50,77]. However, unlike those predicted by the TIB, the facilitating conditions that would more easily enable an individual to engage in personal use of the Internet show no significant effects on actual personal use of the Internet behaviors or an interaction with the intention to use the Internet at work for personal reasons.

Finally, our results indicate that an individual’s habitual personal use of the Internet is a very important and strong indicator to consider when predicting actual behaviors related to personal use of the Internet. An individual’s habit of engaging in personal use of the Internet in the past is the strongest antecedent of current, actual personal use of the Internet, which is in alignment with previous research on habits [73,72]. Additionally, we found that the interactive effect of intentions and habit strongly predicted actual personal use of the Internet. Our finding is consistent with the TIB [67]. We found no studies looking at the interaction effect between intention and habit in relation to personal use of the Internet. Previous related research that built on the TIB either did not investigate this interaction [50,77] or ignored the effect of habit. Cheung and colleagues [14,16], for example, focused on the adoption of the Internet in the function of the employees’ role within the organization.

7.2. Contributions

Our study makes several important contributions to the literature on personal use of the Internet. First, our model indicates that the largest predictor of this behavior is based on the interaction of an individual’s habits regarding personal use of the Internet and the individual's intention to use the Internet at work for personal reasons. Specifically, individuals who have this intention and have a habit of such behavior are even more prone to engaging in personal use of the Internet than when they exhibit either indicator on its own. This multiplicative effect is an important contribution to this research stream for several reasons. First, because this is the first study to include the effect of habits on personal use of the Internet at work, we have also shown why the inclusion of this variable is an important consideration for future research. This interaction is important in that management and researchers are unable to directly alter the habits individuals may have concerning personal use of the Internet, but it is possible to alter the organizational environment and thus reduce the intention to engage in personal use of the Internet. This interaction increases the importance of habit and intention constructs when attempting to predict or control behaviors related to personal use of the Internet. Thus, future research should continue to emphasize factors that can be used to attenuate the intention to engage in this behavior, especially with the differing perspectives afforded through the TIB that are based on emotional or socially related constructs.

Second, this study also emphasizes the advantage of adopting either the TIB or the theory of habit when studying the personal use of the Internet at work. The predominant theories of the TRA and the TPB do not account for habit, which was shown in this study to have a significant impact on this behavior. This finding alone indicates the importance of adopting the alternative viewpoint afforded by the TIB. Future research on the personal use of the Internet at work should account for, or at least control for, the habits regarding this behavior, which would then allow for a more accurate measurement of other factors being studied. Habits are strong predictors of behaviors and should be considered in future work on this phenomenon. Given the strong effect of habit on personal use of the Internet, it would stand as a primary candidate for interventions to reduce personal use of the Internet. However, habit research [73,72] has found that deprogramming habits is very difficult and that interventions that attempt to reduce habit strength are likely to fail. Due to the difficulty involved in such an endeavor, it is more important to prevent habits from forming regarding personal use of the Internet.

Third, our model indicates that certain interventions may have limited ability to reduce personal use of the Internet in an organization. First, we see that the effect of penalties is minor compared with the relevant benefits, indicating that deterrent methods of controlling personal use of the Internet have very modest impacts on eventual personal use of the Internet compared with the benefits of doing so. This finding is interesting because it is contrary to the general approach to reducing undesired behaviors as proposed by control and deterrence theories [28,46]. Second, an individual’s affect toward personal use of the Internet is largely outside the ability of organizational interventions to alter. Affect is an internal construct formed from prior experience and is based on the individual’s emotional make-up [64]. However, organizational interventions are generally unable to alter these types of emotions. Rather, emotion-based training must be implemented that could alter affect over time.

Furthermore, most extant research in IS usually proposes or supports the notion that negative factors outweigh positive factors, as proposed in prospect theory [31]. However, we found that, contrary to many results in IS research, this behavior occurs in the opposite direction. We propose that given the main outcome of personal use of the Internet, it is counterproductive rather than useful, from the managerial perspective, for the methods of controlling this behavior to also be reversed. Future research into other similar “negative” behaviors should thus consider that the same general findings may hold true and that carrots rather than sticks would produce more beneficial or motivational outcomes. One reason for the non-significant influence of penalties on non-work-related Internet use is that individual-level monitoring of web traffic is illegal in Finland due to EU privacy laws. As a result, the risk of getting caught is low.

Finally, our model reports the highest reported R squared regarding personal use of the Internet to date in an IS journal. For example, Blanchard and Henle's [12] most predictive model reported only an adjusted score of .21, while Manrique de Lara [40] reported .142 and Galletta and Polak [26].192. Extant research has had limited predictive power regarding the intention to use the Internet at work for personal reasons, much less the actual behavior. Much of the previous work on personal use of the Internet has stopped at the intention level, and when actual behavior has been documented, lower R squared values were reported than in this study. By building on previous research and including many of the antecedents reported in these researchers' studies, we report the most powerful model for predicting personal use of the Internet to date.
7.3. Implications for practice

Here, we discuss five strategic implications for practice based on our findings. First, given that our results show that penalties and controls have limited effect on personal use of the Internet, we suggest that organizations need to establish other means for addressing non-work-related Internet use other than penalties and control-based means. These means are related to habitual behavior, norms, roles, and benefits and are discussed next.

Second, our finding on the role of habitual behavior behind Internet use implies that if employees’ Internet use becomes habitual, the behavior will be difficult to unlearn. This suggests that if organizations want to intervene in their employees’ Internet use behavior, it is easier to do so if the non-work-related Internet use has not become habitual. Thus, for organizations preferring to take a stance on Internet use, early intervention is advised.

Third, given the significant role of norms behind Internet use, for organizations preferring to intervene in their employees’ Internet use it is important that top management, superiors, and the IT department take a visible stand on Internet use. Here, the communication channel may not matter; instead, the key is to make employees believe that this is the expectation for their work role as determined by management and IT. It is important that such a stand should not be mere lip service; rather, it should be visible in the daily actions of the management and IT department. Our findings regarding norms suggest that management and IT should make a normative statement and create normative expectations for appropriate use of the Internet at work. Again, the key is not the medium through which this is communicated; the key is that the normative stand be believable as normative expectations set by management and IT.

Fourth, our findings on the importance of roles imply that organizations that want to limit Internet use by their employees need to explain why the non-work-related use of the Internet is not necessary in terms of carrying out work tasks.

Fifth, benefits represent another challenge for organizations aiming at reducing employees’ non-work-related use of Internet. Because our results suggest that employees want to save personal time and expense through non-work-related Internet use and to develop a more interesting work life through the non-work-related use of the Internet, organizations need to ensure that their employees’ work motivation is supported by appropriate leadership approaches. This also has implications for recruitment: it is important to recruit people who are motivated by their work.

7.4. Implications for future research

Based on our findings, we emphasize five topics for future research. Future research needs to examine how a habit develops over time. Previous studies on habitual IT use have been based on variance models. These models are important in that they help us measure whether IT users have a habit or not and whether the habit predicts behavior in the given context. However, these models do not provide any information on how to change the habit or how the habit develops, in other words, how employees acquire the habit of non-work-related Internet use and the necessary steps employees need to take if they want to eliminate the habit. We observe that examining habit from such a perspective requires understanding of the dynamic nature of habits, perhaps something that can be provided by applying a process theory viewpoint. To close this gap in the research, we suggest that process theories be used to unveil the steps of habit development and the conditions of transformation from one stage to another. Then, we suggest that interventions be implemented that aim to move people through these stages, for example, by unlearning the habit.

Second, certain issues for future research stem from our findings on roles. Future researchers need to study why employees think it is appropriate to engage in non-work-related Internet use when working. We suggest the use of qualitative research methods, especially interview techniques, to uncover these reasons. In the same vein, given the significant role of self-concept, the third issue that future research could examine is why employees feel that non-work-related use of Internet does not contradict the individuals’ moral principles.

For the fourth future research issue, our finding regarding benefits related to employees’ non-work-related use of the Internet calls for more research. Future studies need to examine what aspects of non-work-related Internet use make employees’ work life more interesting and productive, according to their perception. A similar examination is required for attitude and affect. In particular, future researchers need to conduct qualitative interviews to generate a deeper understanding of why Internet use is a good idea (attitude) and why it is pleasant (affect) for employees. Here, we call for a grounded theory type of research, which also reveals the dynamic aspects of attitude and affect, including how they develop and change over time.

The fifth issue for future research is the role of national culture in non-work-related Internet use. One aspect of cultural research is the role of sanctions. In Finland, where our data are from, individual-level monitoring and respective sanctioning are restricted due to privacy laws. Thus, future research could study the influence of monitoring and sanctions in other countries, especially those with less-strict privacy laws, allowing monitoring of individuals’ web traffic at work.

8. Conclusions

Using the Internet at work for personal reasons is becoming increasingly common. On the one hand, scholars argue that personal use of the Internet entails a number of problems, including decreased efficiency of work output, increased risk of getting viruses and spyware, and waste of IT resources. On the other hand, other researchers have shown a positive effect associated with personal Internet use.

Studies have focused on understanding the type of individual likely to engage in this behavior and what leads to these acts \([6,14,16,26,35,50,58,63]\). However, these studies have reported conflicting results. In the present work, we built on previous research by including these antecedents in one model in an attempt to compare their effects on personal use of the Internet. If organizations do not understand why employees engage in personal use of the Internet, then the organizations cannot modify their practices to reduce the likelihood of this behavior and its subsequent cost to the organization.

This study used a theoretical approach to explore the various motivations that may lead to personal use of the Internet. We found that organizations need to consider several factors if they are attempting to reduce this behavior. The key factors include the perceived benefits involved with personal use of the Internet, the emotions attached to engaging in this act, and the habit that these employees have developed by which they continue to behave in this fashion. More practically, organizations should ensure through recruitment that they have highly motivated and committed employees in each work role. In addition, organizations that want to influence their employees’ Internet behavior should establish educational sessions and campaigns that stress the negative implications of personal use of the Internet for the organization. Interestingly, our results show that penalties and controls have limited effects on personal use of the Internet.
Future research should use interviews to obtain a deeper understanding of why employees feel that they can save time and increase work productivity through personal use of the Internet. In addition, the interviews should examine why employees believe that personal use of the Internet fits their work roles.

Appendix A. Instruments

All items are measured on a standard 7-point Likert scale (strongly disagree to strongly agree), unless otherwise indicated.

A.1. Attitude [51]

1. Using the Internet at work for non-work reasons is a bad idea
2. Using the Internet at work for non-work reasons is a good idea
3. Using the Internet at work for non-work reasons is a ___ idea (foolish idea to wise idea)²

A.2. Beliefs about outcomes [50]

Using the Internet at work for non-work-related purposes will result in . . . (7-point scale: very unlikely – 50% chance – very likely)

A.3. Penalties – FORMATIVE

1. Warnings
2. Reprimands
3. My Internet access privileges being restricted by the organization

A.4. Benefits – FORMATIVE

1. Saving personal time using private Internet access
2. Saving personal expense for using private Internet access
3. Convenience
4. More interesting work life
5. Increase in my work productivity

A.5. Evaluation of outcomes [50]

Evaluate each of the items in the list below as a penalty for using the Internet at work for non-work purposes: (7-point scale: very lenient – just right – very harsh)

A.6. Penalties – FORMATIVE

1. Warnings
2. Reprimands
3. My Internet access privileges being restricted by the organization

A.7. Benefits – FORMATIVE

1. Saving personal time using private Internet access
2. Saving personal expense for using private Internet access
3. Convenience
4. More interesting work life
5. Increase in my work productivity

² An ***” indicates that the item was reverse coded.


Evaluate each item in the list below as pertaining to his/her/their approval of you using the Internet at work for non-work-related purposes: (7-point scale: very low – moderate – very high)

1. My family's
2. My friends' (outside of work)
3. My co-workers’
4. My immediate supervisor’s
5. My IT department’s
6. My top management’s


1. My family would expect that I use the Internet at work for non-work purposes
2. My friends outside of work would expect that I use the Internet at work for non-work purposes
3. My clients would expect that I use the Internet at work for non-work purposes
4. My co-workers would expect that I use the Internet at work for non-work purposes
5. The IT department at work would expect that I use the Internet at work for non-work purposes
6. Top-level management would expect me to use the Internet at work for non-work purposes

A.10. Roles [9]

1. For me, as an employee of X, it is (appropriate/not appropriate) to use the Internet at work for non-work purposes
2. Using the Internet at work for non-work purposes is (fitting/not fitting) for my position as an employee of X
3. Due to my role at work, it is (justified/not justified) to use the Internet for non-work-related purposes

A.11. Self concept [25]

1. I would feel bad if I was not using the Internet at work for non-work purposes
2. Using the Internet at work for non-work purposes would conform to my principles
3. It would be unacceptable to not use the Internet at work for non-work purposes

A.12. Affect [50]

I feel that using the Internet provided by the organization for non-work related purposes is . . .

1. Pleasant–unpleasant
2. Boring–interesting* 
3. Gratifying–displeasing

A.13. Habit [72]

In regard to using the Internet at work for non-work related reasons, answer the following questions.

In my organization (7-point scale: never – sometimes – very often)

1. My ability to use the Internet at work is high
2. My access to the Internet at work is high
3. The Internet connection at work is fast

A.15. Intention [50]

1. I intend to use the Internet at work for non-work-related purposes in the future (strongly disagree – neutral – strongly agree)
2. I will use the Internet at work for non-work-related purposes in the future (7-point scale: very unlikely – 50% chance – very likely)
3. I expect to use the Internet at work for non-work-related purposes in the future (strongly disagree – neutral – strongly agree)

A.16. Behavior [50]

1. In general, I use the Internet at work for non-work-related purposes
2. I access the Internet at work for non-work-related purposes several times each day (7-point scale: very unlikely – 50% chance – very likely)
3. I do not spend a significant amount of time on the Internet at work for non-work-related purposes*

Appendix B. Supplementary data

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.im.2013.04.005.

References


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