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RESEARCH NOTE

# CYBERSLACKING IN THE WORKPLACE: ANTECEDENTS AND EFFECTS ON JOB PERFORMANCE[1]

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*Employees' nonwork use of information technology (IT), or cyberslacking, is of growing concern due to its erosion of job performance and other negative organizational consequences. Research on cyberslacking antecedents has drawn on diverse theoretical perspectives, resulting in the lack of a cohesive explanation of cyberslacking. Further, prior studies have generally overlooked IT-specific variables. To address cyberslacking problems in organizations, as well as research gaps in the literature, we used a combination of a literature-based approach and a qualitative inquiry to develop a model of cyberslacking that includes a 2×2 typology of antecedents. The proposed model was tested and supported in a three-wave field study of 395 employees in a U.S. Fortune-100 organization. This study organizes antecedents from diverse research streams and validates their relative impact on cyberslacking, thus providing a cohesive theoretical explanation of cyberslacking. This study also incorporates contextualization (i.e., IT-specific factors) into theory development and enriches the IS literature by examining the nonwork aspects of IT use and their negative consequences to organizations. In addition, the results provide practitioners with insights into the nonwork use of IT in organizations, particularly regarding how they can take organizational action to mitigate cyberslacking and maintain employee productivity.*

**Keywords:** Cyberslacking, cyberdeviance, counterproductive IT use, counterproductive workplace behaviors, job performance, literature-based approach, work stressors, IT policy

## Introduction

As information technologies (ITs) continue to permeate and restructure our work lives, opportunities for cyberslacking (also called cyberloafing), i.e., the use of IT for nonwork activities in the workplace during work hours (Whitty & Carr, 2006), have increased greatly (Holland & Bardoel, 2016; Mazmanian et al., 2013). Examples of cyberslacking include spending work time shopping online, sending personal email messages, visiting pornographic websites, accessing social

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networking sites for personal use, sending personal chat messages, and playing online games (Askew et al., 2014). Such counterproductive use of ITs has received significant industry attention because it has resulted in not only the loss of productivity (Wushe & Shenje, 2019) but also public embarrassment, legal bills, compensation claims, and clean-up costs for many companies (Kuschnaroff & Bayma, 2014; Zhang et al., 2015). Further, employees who engage in cyberslacking are often reprimanded or even fired (Khansa et al., 2017). Also, the personal use of workplace systems can overload bandwidth and undermine the security of organizational networks (Hernandez-Castro, 2016). Thus, research on cyberslacking is relevant to organizations, especially to maintain employee productivity.

Understanding why employees engage in cyberslacking is an important research topic (Khansa et al., 2017; Venkatraman et al., 2018; Wagner, 2012). However, our review of prior literature (see Table A1 in Appendix A) reveals two gaps in cyberslacking research. First, researchers studying cyberslacking have approached the topic with different theoretical perspectives, yielding many antecedents that are often tested in isolation. Little is known about the extent to which the different perspectives used in the cyberslacking literature complement each other. Thus, a cohesive theoretical explanation of cyberslacking is lacking (see Ones et al., 1993). Second, most prior work does not include IT-specific variables. For example, many studies (e.g., Betts et al., 2014; Bock et al., 2010; Pee et al., 2008; Sheikh et al., 2015) draw on the theory of planned behavior (TPB; Ajzen, 1991) or the theory of interpersonal behavior (TIB; Triandis, 1977) to examine how personal motivation factors influence cyberslacking, while overlooking IT-specific variables. Researchers have been encouraged to identify and examine IT-specific variables more closely tied to the context of cyberslacking (Aghaz & Sheikh, 2016), which could provide more specific guidance to direct design and practice (Hong et al., 2014; Venkatesh & Bala, 2008; Venkatesh et al., 2016). This is consistent with the calls to leverage context in theoretical inquiry (Johns, 2006; Johns, 2017).

Against the backdrop of organizational efforts to curb cyberslacking and the gaps in the research on cyberslacking, we present the following three objectives: (1) conduct a systematic literature review of extant cyberslacking research to identify and organize antecedents of cyberslacking, (2) identify and examine IT-specific factors affecting cyberslacking, and (3) understand the relative importance of cyberslacking antecedents that stem from diverse theoretical underpinnings. To address these objectives, we used a literature-based approach (Webster & Watson, 2002) and a qualitative inquiry (see Venkatesh et al., 2010; Zhang & Venkatesh, 2017) to develop our research model and hypotheses. We specifically focused on integrating cyberslacking research from four dominant perspectives: organizational justice, control and deterrence mechanisms, planned behavior, and personality. To support the diagnosis of cyberslacking antecedents and guide the design of practical interventions, we then classified and organized cyberslacking antecedents into a 2×2 conceptual typology along two dimensions: their underlying nature (i.e., situational vs. personal factors) and their motivation-control orientation (i.e., enabler vs. inhibitor). We used a qualitative inquiry based on focus groups (see Venkatesh et al., 2010; Zhang & Venkatesh, 2017) to identify IT-specific factors affecting cyberslacking, and then developed and tested a research model in a three-wave field study of 395 employees in one organization. This field study employed multiple methods, multiple data sources, and data collection at multiple points in time to enhance methodological rigor.

This work provides a more systematic understanding of cyberslacking antecedents and contributes to research and practice in several ways. First, we identify and organize antecedents of cyberslacking according to the underlying nature and motivation-control orientation. Although most studies used one or two perspectives to explain cyberslacking (see Appendix A), we integrate antecedents from the four dominant research perspectives, enabling the advancement of a research program on understudied phenomena (Marcus & Schuler, 2004). Our results demonstrate that these diverse theories and models complement each other to explain cyberslacking. Second, by adding IT-specific factors to predict cyberslacking and employee job performance, we incorporate contextualization into our theory development approach. Specifically, we incorporate IT-specific variables to provide a foundation for future work on understanding the role of IT characteristics in cyberslacking. Third, our work contributes to the broader IS literature on negative IT use in the workplace. Given that most IS studies have focused on positive IT use in the workplace and its desired outcomes (e.g., Bala & Venkatesh, 2016; Hu et al., 2016; Yen et al., 2015), we enrich the IS literature by focusing on negative IT use—*nonwork IT use in the workplace during work hours*. Finally, we provide managers with a holistic view of cyberslacking from various theoretical perspectives, which can help organizations better manage cyberslacking and its impact on job performance.

## Theory Development

### *Conceptualization of Cyberslacking*

Cyberslacking refers to *the use of IT for nonwork activities in the workplace during work hours* (Whitty & Carr, 2006). Some researchers refer to such nonwork use of IT in the

workplace using various terms interchangeably: cyberslacking (Greengard, 2000), cyberloafing (Polito, 1997), internet abuse (Urbaczewski & Jessup, 2002), or non-work-related computing (Pee et al., 2008). Although we use the term "cyberslacking" in this paper, our literature search and analysis, as well as our theoretical foundation and arguments, were built upon prior studies that more broadly represent nonwork use of IT in the workplace. Cyberslacking is considered a form of counterproductive workplace behavior because it violates the legitimate interests of an organization by being potentially harmful to its members and the organization (Sackett & DeVore, 2001). For instance, employees' nonwork activities (e.g., sending personal emails and messages) during work hours represent a loss of productive time at work. Such undesirable behaviors at work have captured the attention of researchers and practitioners because of their considerable costs to organizations (O'Neill et al., 2014a).

## Theoretical Underpinnings of Cyberslacking Research

We followed the procedures suggested by Webster and Watson (2002) to identify studies on cyberslacking in the workplace. Prior work on cyberslacking has explained its antecedents using diverse theoretical perspectives. We also observed that prior cyberslacking articles use only one or two theoretical perspectives to explain cyberslacking (see Appendix A). Further, most studies, including IS studies, have overlooked IT-specific variables. Based on our literature review, we identified four dominant theoretical underpinnings of cyberslacking research (see Table 1). We reviewed and synthesized prior studies to understand the key drivers of cyberslacking from different theoretical perspectives and reveal the complementarity of the diverse perspectives.

The first theoretical perspective draws from the organizational justice literature and explains cyberslacking using perceived organizational justice (i.e., distributive justice, procedural justice, and interactional justice) (e.g., Betts et al., 2014; Lim, 2002). The basic tenet of this theoretical perspective is that employees are likely to engage in misconduct (Greenberg, 1987) if they feel that they are being treated unfairly by the organization.

The second theoretical perspective focuses on the control and deterrence mechanisms. These studies examine the effectiveness of diverse control mechanisms, such as monitoring, IT control policies, punishment, organizational policies, and sanctions, in mitigating cyberslacking (e.g., Jia et al., 2013; Khansa et al., 2017).

The third theoretical perspective uses planned behavior theories, such as the theory of planned behavior (TPB; Ajzen, 1991) and the theory of interpersonal behavior (TIB; Triandis, 1977), to explain cyberslacking. This theoretical perspective has received support in prior cyberslacking studies (e.g., Askew et al., 2014; Bock et al., 2010; Pee et al., 2008). Attitude toward cyberslacking, subjective norms (i.e., prescriptive norms and descriptive norms), and perceived behavioral control (e.g., facilitating conditions and cyberslacking self-efficacy) are drivers of nonwork IT use in the workplace (e.g., Bock et al., 2010; Pee et al., 2008).

The fourth theoretical perspective focuses on personality traits (e.g., Andreassen et al., 2014; Jia et al., 2013). Although there are many ways to conceptualize personality traits, the five-factor model (FFM) is the most widely used (see Venkatesh & Windeler, 2012).

Although these four theoretical perspectives do not exhaustively cover all theoretical perspectives used in cyberslacking research, they are the most prominent ones. Strikingly, there is minimal overlap of antecedents across the four theoretical perspectives: a given construct only appears in a single theoretical perspective. Reliance on only one or two of the theoretical perspectives can thus limit the salience and visibility of the full range of potentially operative antecedents. Overall, the reliance on these established theoretical perspectives has perhaps inadvertently resulted in different theoretical models with incomplete subsets of relevant antecedents. If important antecedents are overlooked by a single theoretical perspective, this raises several interpretational issues concerning the results. Therefore, one of our goals is to integrate diverse cyberslacking antecedents into a more complete cross-theoretical model.

## Classifying Antecedents of Cyberslacking

As noted earlier, in examining prior cyberslacking studies we described four major theoretical perspectives and the corresponding cyberslacking antecedents that they identified. We further organized the identified antecedents into a 2×2 typology according to their underlying nature (i.e., situational vs. personal factors) and their motivation-control orientation (i.e., enabler vs. inhibitor). The first dimension, i.e., *situational vs. personal* factors, is derived from the counterproductive workplace behavior literature. Much of the research on counterproductive workplace behavior has adopted either a situational or personal view to organize the factors (e.g., Marcus & Schuler, 2004; Martinko et al., 2002). Situational factors refer to the perceptions of the work situation (e.g., organizational justice, perceived IT control policy) and personal factors are internal dispositions (e.g., attitude toward cyberslacking, personality traits).

**Table 1. Theoretical Underpinnings of Cyberslacking Research**

| Theoretical perspective | Frequently used theories | Frequently investigated antecedents | References |
|---|---|---|---|
| Organizational justice | -Theory of organizational justice | -Organizational justice (i.e., distributive justice, procedural justice, and interactional justice) | Betts et al. (2014)<br>Henle et al. (2009)<br>Khansa et al. (2017)<br>Kim et al. (2016)<br>Lim (2002)<br>Restubog et al. (2011)<br>Son and Park (2016)<br>Zoghbi-Manrique-de-Lara (2006)<br>Zoghbi-Manrique-de-Lara (2007) |
| Control and deterrence mechanisms | -Social learning theory<br>-General deterrence theory | -Perceived IT control policy | Henle and Blanchard (2008)<br>Hensel and Kacprzak (2021)<br>Khansa et al. (2017)<br>Ugrin and Pearson (2013)<br>Zoghbi-Manrique-de-Lara et al. (2006)<br>Zoghbi-Manrique-de-Lara and Olivares-Mesa (2010) |
| Planned behavior | -Theory of planned behavior<br>-Theory of reasoned action<br>-Theory of interpersonal behavior | -Attitude toward cyberslacking<br>-Subjective norms (i.e., prescriptive norms and descriptive norms)<br>-Perceived behavioral control (i.e., facilitating conditions and cyberslacking self-efficacy) | Askew et al. (2014)<br>Askew et al. (2019)<br>Bock et al. (2010)<br>Liberman et al. (2011)<br>Pee et al. (2008) |
| Personality traits | -Five-factor model of personality | -Extraversion<br>-Neuroticism<br>-Openness<br>-Agreeableness<br>-Conscientiousness | Andreassen et al. (2014)<br>Jia et al. (2013)<br>Kim et al. (2016)<br>Sheikh et al. (2019)<br>Wagner et al. (2012) |

The second dimension, i.e., *enablers vs. inhibitors*, distinguishes motivation from control as fundamental classes of antecedents of cyberslacking. In examining cyberslacking from the perspective of a negative aspect of IT use, we attempt to contribute to the understanding of the different facets of technology use. Traditional IS research has focused extensively on the factors that drive technology use (i.e., enablers) and much less on the factors that discourage use (i.e., inhibitors). We posit that enablers and inhibitors are conceptually distinct and can coexist. Understanding IT use from both enabling and inhibiting perceptions can provide us with a more complete view of the phenomenon (Cenfetelli & Schwarz, 2011). The enabler-inhibitor perspective is consistent with the motivation-control perspective from the general theory of crime (Marcus & Schuler, 2004). Enablers are a type of external pressure or internal propensity that motivate people to engage in counterproductive behavior at work, whereas inhibitors are barriers that prevent deviant behavior. In the context of cyberslacking, enabling factors, such as cyberslacking self-efficacy, are positively oriented and expected to push individuals toward cyberslacking, whereas inhibiting factors, such as perceived IT control policy, serve as a barrier between the employees and cyberslacking acts and are expected to have a negative effect on cyberslacking. We integrate these two dichotomous dimensions to generate a 2×2 conceptual typology with four groups of factors shaping cyberslacking (see Figure 1): *situational enablers, situational inhibitors, personal enablers, and personal inhibitors*.

**Situational enablers** are triggers that can provoke cyberslacking. They are enabling factors that are related to the work situation and have a positive effect on cyberslacking. Based on our literature review, *facilitating conditions* and *subjective norms* (i.e., descriptive norms and prescriptive norms) are positively oriented factors that drive employees to engage in cyberslacking. Investigating individuals' IT use through the planned behavior perspective is one of the most mature streams in the IS literature (Venkatesh et al., 2007; Venkatesh et al., 2003; Venkatesh et al., 2016). Our review of the previous literature suggests that a large number of studies (e.g., Betts et al., 2014; Huma et al., 2017; Koay et al., 2017; Pee et al., 2008) have drawn on planned behavior theories, such as the theory of planned behavior (Ajzen, 1991) and the theory of interpersonal behavior (Triandis, 1977), to explain cyberslacking. *Facilitating conditions* and *subjective norms* are the two core situational variables in these theories.

| | Situational Factors | Personal Factors |
|---|---|---|
| Enablers | • Facilitating conditions (i.e., technology re-adaptability and limited work use of IT)<br>• Subjective norm (i.e., prescriptive norm and descriptive norm) | • Attitude toward cyberslacking<br>• Cyberslacking self-efficacy<br>• Extraversion<br>• Neuroticism |
| Inhibitors | • Organizational justice (i.e., distributive justice, procedural justice, and interactional justice)<br>• IT control policy | • Openness<br>• Agreeableness<br>• Conscientiousness |

**Figure 1. A 2×2 Conceptual Typology of Cyberslacking Antecedents**

*Facilitating conditions* refer to factors in an individual's environment that provide an opportunity to act intentionally and thus it is also called a motivating factor (i.e., enabler) for the behavior (Robert & Sykes, 2017). Given that prior cyberslacking work has not considered IT-specific factors as facilitating conditions, especially as they relate to cyberslacking, we conducted focus group studies to identify the two IT-specific variables, namely technology re-adaptability and the limited work use of IT (see the Qualitative Inquiry and IT-Specific Variables section). *Subjective norms* refer to the beliefs held by specific individuals or groups regarding the appropriateness of specific behaviors (Bock et al., 2010). It serves as an enabler for individuals to engage in deviant behaviors. Drawing on the theory of interpersonal behavior (Triandis, 1977), prior cyberslacking work has used the term *social factors* to capture beliefs about the approval of cyberslacking in the workplace (e.g., Betts et al., 2014; Huma et al., 2017; Koay et al., 2017) and studies based on the theory of planned behavior (Ajzen, 1991) have used the term *subjective norm* (e.g., Bock et al., 2010; Sheikh et al., 2015). Askew et al. (2014; 2019) and focused on two specific types of norms: *prescriptive norms* (i.e., referent others say cyberslacking is acceptable behavior) and *descriptive norms* (i.e., referent others engage in cyberslacking).

**Situational inhibitors** refer to barriers that prevent an individual from engaging in cyberslacking. They are inhibiting factors that are related to one's work situation and they have a negative effect on cyberslacking. Based on our literature review, *organizational justice* (i.e., distributive justice, procedural justice, and interactional justice) and *perceived IT control policy* are frequently investigated situational inhibitors in prior cyberslacking studies. Prior studies have adapted the perspective of organizational justice as the theoretical lens to investigate cyberslacking. Although some researchers examine organizational justice as a broad concept (e.g., Betts et al., 2014; Khansa et al., 2017; Kim et al., 2016), others focus only on procedural justice and examine its impact on cyberslacking (e.g., Son & Park, 2016; Zoghbi-Manrique-de-Lara, 2009). *Perceived IT control policy*, which is based on the theoretical lens related to control and deterrence mechanisms, has been widely investigated in prior cyberslacking studies. Researchers have examined the effectiveness of various forms of formal controls such as blocking (Glassman et al., 2015), organizational policies and sanctions (Ozler & Polat, 2012), electronic monitoring (Wang et al., 2013), and punishment (Zoghbi-Manrique-de-Lara & Olivares-Mesa, 2010). By consolidating prior findings, perceived IT policy control is defined as perceptions regarding organizational policies that monitor and prohibit the nonwork use of IT in the workplace.

**Personal enablers** refer to the motivating personal factors that can drive employees to engage in cyberslacking. They are enabling factors that are related to individual differences and have a positive effect on cyberslacking. Based on our literature review, *attitude toward cyberslacking*, *cyberslacking self-efficacy*, *extraversion*, and *neuroticism* are frequently investigated personal enablers of cyberslacking. Similar to situational enablers, *attitude toward cyberslacking*, and *cyberslacking self-efficacy* stem from planned behavior theories (Ajzen, 1991). Although personal enablers can encourage or discourage cyberslacking, depending on their valence, we focus on the favorable *attitude toward cyberslacking*, which refers to the degree to which a person has a favorable evaluation of cyberslacking. *Cyberslacking self-efficacy* represents an internal form of the perceived behavior control construct in the theory of planned behavior. It refers to individuals' beliefs about their ability to perform a specific task (Ajzen, 1991). Previous studies have investigated how these two personal enablers affect cyberslacking (e.g., Askew et al., 2014; Betts et al., 2014; Bock et al., 2010). Extraversion and neuroticism are personality traits drawn from the five-factor model (Venkatesh & Windeler, 2012) that encourage individuals to engage in cyberslacking (Andreassen et al., 2014; Jia et al., 2013). *Extraversion* refers to the propensity to be talkative, sociable, and dominant, and *neuroticism* refers to the propensity to demonstrate anxiety, hostility, and impulsiveness.

**Personal inhibitors** refer to factors that impede employees from performing acts of cyberslacking. They are inhibiting factors that are related to individual differences and have a negative effect on cyberslacking. Based on our literature review, *openness, agreeableness,* and *conscientiousness* are frequently investigated personal inhibitors of cyberslacking. These three personality traits are from the five-factor model (see Venkatesh & Windeler, 2012) and discourage individuals from engaging in cyberslacking (see Jia et al., 2013; O'Neill et al., 2014b). *Openness* refers to the propensity to try new and different things. *Agreeableness* refers to the tendency to be kind, trusting and trustworthy, and warm. *Conscientiousness* refers to the tendency to be orderly, responsible, and dependable.

### *Qualitative Inquiry and IT-Specific Variables*

IT-specific variables are seldom found in prior cyberslacking studies. In response to the call for incorporating specific variables that are tied more closely to the research context, we conducted focus groups to identify IT-specific variables and examine their impacts on cyberslacking. This approach is also suitable for a situation where the extant theories and constructs are inadequate to explain the phenomenon of interest (see Zhang & Venkatesh, 2017).

We grounded our theorizing in a qualitative field study in which we conducted six focus groups, each with 20 employees from three different Fortune-100 companies. These 120 employees were knowledge workers with different job roles in the company. Their profiles were consistent with the sampling frame of the field study, and these employees were not included in the main study. We followed the guidelines and suggestions provided by Morgan (1997) to conduct the focus groups. The moderator in four of the focus groups was someone who was not involved in the research and followed a script to foster the basic dialog in the sessions. The script and session plans were discussed between one of the authors and the moderator to ensure that it had no value judgments and was unbiased. A co-facilitator in all sessions was someone who was not involved in the research, kept track of time, facilitated the discussions, and took notes. The facilitation by an individual who did not know the research or its objectives allowed the discussion to be free-flowing yet not steered in any biased direction. At the beginning of each focus group session, the specific activities for the session were explained to the participants. In two of the sessions, which were conducted online using a collaborative tool that allowed for anonymous sharing by participants, one of the authors served as the moderator and followed the script. This approach also allowed the authors to engage more deeply engage in the phenomenon. Further, the similarity in the pattern that emerged in the two sets of focus groups adds to the robustness of the knowledge gained.

We used a top-down approach and asked open-ended questions. The questions focused on technology-related factors that drive employees to engage in cyberslacking (e.g., Please identify technology-related factors that may facilitate someone using IT for nonwork activities during work hours in the company.) Each session lasted between 40 and 90 minutes, depending on the number of factors the interviewees provided. Based on the focus group sessions, a list of IT-specific variables related to cyberslacking was identified. Since we asked the participants to state the cyberslacking behaviors that *others* have performed, we believe that this approach encouraged the honest voicing of opinions while limiting social desirability bias.

The focus group data were transcribed and then read by one of the authors who used a data reduction and presentation technique for analyzing, triangulating, and documenting the contents of the transcripts (Miles & Huberman, 1984) to identify and group similar quotes. In addition, we used software (i.e., NVivo) to further content-analyze the focus group data. We followed examples in research where qualitative data were used to identify constructs of relevance (e.g., Bala & Venkatesh, 2007; Sherif et al., 2006). We further followed the steps used in Zhang and Venkatesh's (2017) study to identify key IT-specific factors (see Appendix B). This approach to the identification of factors is consistent with the *development* purpose in mixed methods research (Venkatesh et al., 2013). The entire coding process was repeated by another researcher who was not aware of our research objectives. The coding by both coders was highly consistent. Based on the quotes, the labels for the two identified IT-specific variables were *technology re-adaptability* and the *limited work use of IT*.

## Research Model and Hypotheses

We used a combination of a literature-based approach and a qualitative inquiry to develop the research model. Figure 2 depicts our research model of cyberslacking.

### *Performance Consequences of Cyberslacking*

*Job performance* refers to the degree to which individuals fulfill their job duties effectively, efficiently, and responsibly to the employer's satisfaction (Zhang & Venkatesh, 2017). There is consensus that employees' engagement in cyberslacking affects job performance due to the time wasted on nonwork activities during work hours. This dominant view is consistent with the empirical evidence found in the workplace deviant behavior literature (Bennett & Robinson, 2000; Griffin & Lopez, 2005; Herschcovis & Barling, 2010; Rotundo & Sackett, 2002).

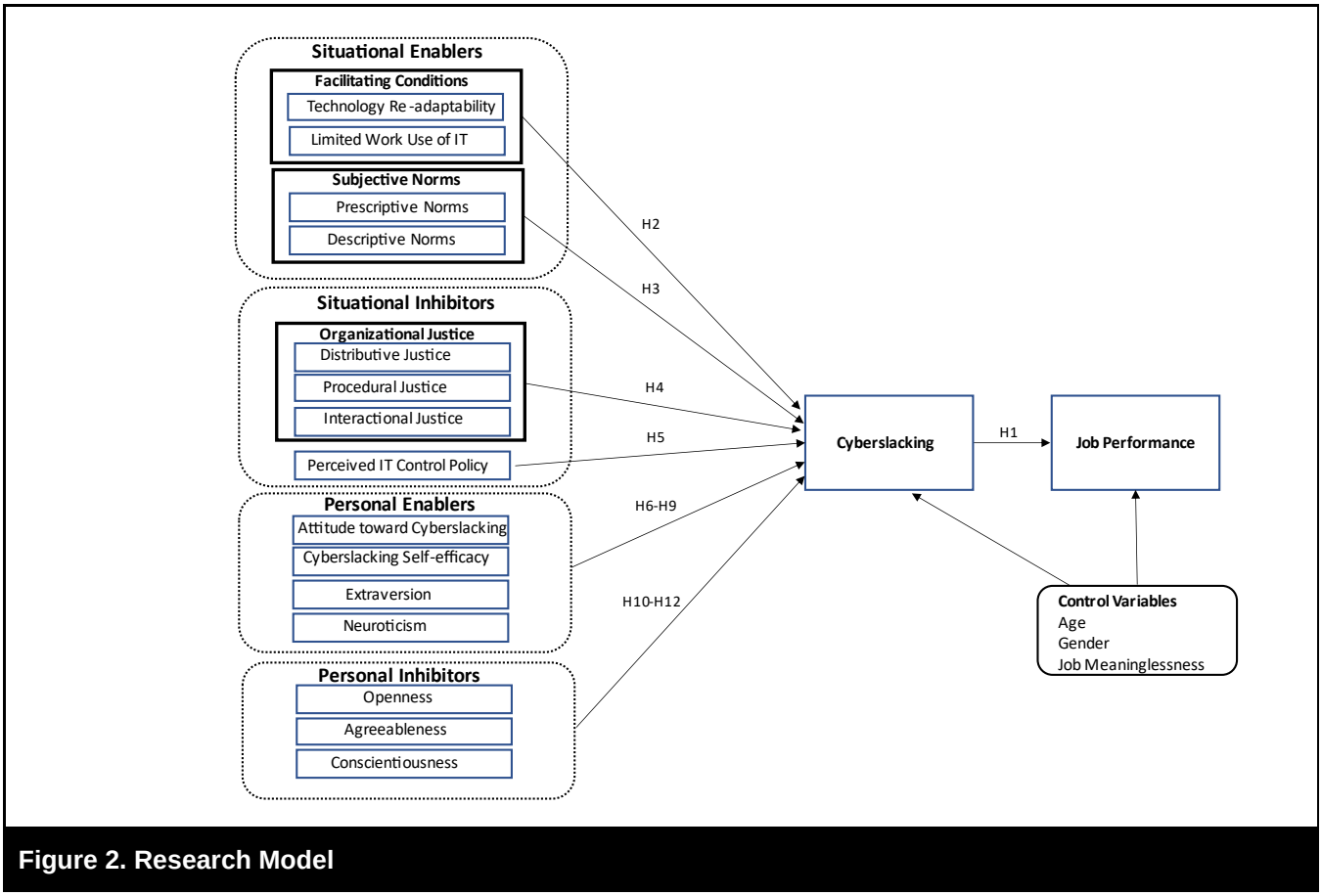


**Figure 2. Research Model**

When employees engage in cyberslacking, they are less likely to complete their job duties effectively, efficiently, and responsibly from the employer's perspective. Such interference means that employees take more time to complete tasks (Addas & Pinsonneault, 2015). Studies have found that employees are constantly interrupted by personal communications, such as personal emails and instant messaging, and the recovery time results in a great deal of time wasted, leading to a decline in job performance (Jackson et al., 2003). Prior work has found support for the negative effect of cyberslacking on job performance (e.g., Jia et al., 2013). Thus, we hypothesize:

**H1:** *Cyberslacking in the workplace negatively influences job performance.*

## *Antecedents of Cyberslacking*

As discussed earlier, we identified four groups of antecedents of cyberslacking: situational enablers (i.e., facilitating conditions and subjective norms), situational inhibitors (i.e., organizational justice and perceived IT control policy), personal enablers (i.e., attitude toward cyberslacking, cyberslacking self-efficacy, extraversion, and neuroticism), and personal inhibitors (i.e., openness, agreeableness, and conscientiousness). We expect that variables from this 2×2 conceptual typology (see Figure 1) will have effects on cyberslacking.

### Situational Enablers

**Facilitating conditions:** Adapted from TPB, facilitating conditions refer to factors within an individual's environment that are perceived to facilitate the performance of a particular behavior (Ajzen, 1991). In the context of cyberslacking, employees are likely to engage in cyberslacking when they have helpful external conditions, right settings, or access to the right resources (Betts et al., 2014). In order to identify facilitating conditions specific to the context of cyberslacking, as discussed earlier, we conducted focus groups. The focus groups suggested the two core IT-specific variables: technology re-adaptability and the limited work use of IT. Drawing on the IS and reference discipline literatures, we then developed our theoretical arguments.

Technology re-adaptability is defined as the degree to which an individual thinks the IT can be adapted for nonwork purposes in the workplace. In the technology adaptability literature, researchers have focused on how employees appraise a newly implemented IT and perform technology adaptation behaviors for work-related tasks. For example, Bala and Venkatesh (2016) identified four different technology adaptation behaviors that employees perform to cope with a newly implemented IT in organizations, i.e., exploration-to-innovate, exploitation, exploration-to-revert, and avoidance. Beaudry and Pinsonneault (2005) developed a coping model of user adaptation and derived four different technology adaptation behaviors, i.e., benefits maximizing, benefits satisficing, self-preservation, and disturbance handling. Sun (2012) examined four different technology adaptation behaviors, including trying new features, feature repurposing, substituting features, and feature combining. These works clearly suggest that individuals believe they can actually modify the characteristics of IT (Chin et al., 1997). However, previous work has primarily examined IT adaptation behaviors for *work-related purposes*. We identify a new concept, *technology re-adaptability*, which focuses on the adaptation of IT for *non-work-related purposes*, which are typically different from the originally intended goal of the technology and its intended focus on work purposes. According to the technology affordance literature (Treem & Leonardi, 2013), IT can be adapted and used in different ways by different individuals who may have different perceptions about the role and utility of the IT and how it can be tailored to their activities. By applying the affordance perspective in this work, we expect that when employees find that IT at work can afford them engagement in nonwork activities, they are likely to use it for cyberslacking. In other words, the perception of technology re-adaptability represents a condition that enables employees to engage in cyberslacking.

The *limited work use of IT* refers to the degree to which an individual thinks there is limited use of an IT for work tasks. When employees find that IT characteristics do not fit their current work tasks, they tend to either reduce the use of the IT or use it inappropriately (Orlikowski et al., 1995). This is aligned with the task-technology fit that occurs "when a technology provides features and support that 'fit' the requirement of a task" (Goodhue & Thompson, 1995, p. 214). However, most studies have focused on how task-technology fit influences work-related activities and job performance (Fuller & Dennis, 2009), and there is limited understanding of how the limited use of IT due to misfit (IT characteristics vs. work tasks) affects non-work-related activities. According to structuration theory (Giddens, 1984), when underutilized, organizational resources for the purpose of producing institutional outcomes become a target resource for self-development and self-expression, thus altering the established modes of proper conduct and the proper use of resources. Human agents always strive to put resources to use but when resources do not fit the original purposes, such underutilized resources may be used for personal benefit, thus constituting a violation of norms. Thus, this work suggests that when individuals find that they have limited use of an IT for work purposes, they might try to use it for the purpose of cyberslacking. In other words, the limited work use of an IT represents a facilitating condition that encourages employees to use the IT for nonwork purposes. For example, when an individual finds a video conferencing system that is not frequently used for work tasks, they might use it, when available, to communicate with friends and family. Together, these facilitating conditions motivate employees to use IT for nonwork activities. Thus, we hypothesize:

**H2a:** *Technology re-adaptability positively influences cyberslacking in the workplace.*

**H2b:** *The limited work use of IT positively influences cyberslacking in the workplace.*

**Subjective norms:** Adapted from TPB, *subjective norms* are defined as "the perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991, p. 188). There are two broad types of norms: what referent others say is acceptable behavior—i.e., prescriptive norms—and what referent others actually do—descriptive norms (Cialdini et al., 1990). With regard to cyberslacking, prescriptive norms refer to the extent that employees' referent others would approve of their engagement in cyberslacking, and descriptive norms refer to the extent to which the employees' referent others, such as co-workers and supervisors, are involved in cyberslacking. In general, people seek social acceptance. They tend to use social norms to guide their own behaviors so that they can fit with their referent groups (Cheung & Lee, 2010; Gong et al., 2019). In a workplace environment, employees tend to comply with the expectations of others and follow their co-workers' and supervisors' acts (Sykes, 2015). Specifically, in the case of cyberslacking, others' overt support and/or encouragement (prescriptive norms) and others' actual engagement in cyberslacking (descriptive norms) provide both explicit and tacit approval, respectively. Such norms have impacts on different outcomes, particularly given a counterproductive and possibly organizationally restricted behavior like cyberslacking. Subjective norms have been shown to be significant in enabling cyberslacking (Askew et al., 2014; Blanchard & Henle, 2008; Liberman et al., 2011; Lim & Teo, 2005; Restubog et al., 2011). Thus, we hypothesize:

**H3a**: *Prescriptive norms (i.e., referent others' approval of cyberslacking) positively influence cyberslacking in the workplace.*

**H3b**: *Descriptive norms (i.e., referent others' involvement in cyberslacking) positively influence cyberslacking in the workplace.*

### Situational Inhibitors

**Organizational justice:** The organizational justice literature suggests that if employees feel they are being treated unfairly by the organization, they are likely to engage in misconduct (Greenberg, 1987). Individuals seek to engage in deviant behaviors by working less or performing low-quality work, stealing from the organization, engaging in vandalism, sabotaging, engaging in aggression, and retaliating to counter unfair treatment. Three components of justice perceptions have been examined in the literature—distributive justice, procedural justice, and interactional justice (Lim, 2002). Distributive justice refers to the perceived fairness of outcomes relative to one's contribution, procedural justice refers to the perceived fairness of procedures used to determine outcomes, and interactional justice refers to the perceptions of interpersonal treatment meted out by supervisors. Prior studies have found that individuals are able to distinguish across the different types of justice experiences (Ambrose & Schminke, 2009). Thus, we examine how different forms of justice influence cyberslacking. In today's work environment, when employees perceive that they are unjustly treated by their employers, they can discreetly engage in nonwork behaviors within the confines of their cubicles without directly demonstrating that they are not working. For instance, they can retaliate against the organization by engaging in cyberslacking—for example, by chatting, emailing friends, or messaging friends and family during work hours. Examples of situations in which employees are likely to engage in counterproductive behaviors like cyberslacking include: when they are unhappy with their pay or other forms of compensation (distributive justice), when they find the procedure for providing feedback on a company's decision or appealing/challenging the decision to be unfair (procedural justice), or when they find that their immediate work supervisor is unable to suppress personal bias (interactional justice). Prior studies have demonstrated a negative relationship between organizational justice and cyberslacking (e.g., Restubog et al., 2011; Zoghbi-Manrique-de-Lara, 2007). Thus, we hypothesize:

**H4a:** *Distributive justice negatively influences cyberslacking in the workplace.*

**H4b:** *Procedural justice negatively influences cyberslacking in the workplace.*

**H4c:** *Interactional justice negatively influences cyberslacking in the workplace.*

**Perceived IT control policy** refers to the perception regarding organizational policies that monitor and prohibit the nonwork use of IT in the workplace. Currently, most firms monitor employees' workplace activities through cameras and other detection devices to minimize deviant behaviors (Glassman et al., 2015; Holland et al., 2015). Based on the IT control and compliance literature (e.g., Liang et al., 2013; Xue et al., 2011), formal controls can increase employees' perceptions of accountability and risk of punishment, making them more likely to follow rules and less willing to engage in the nonuse or misuse of IT. Organizational control and sanctions have also been found to be important in inhibiting employees' engagement in the nonwork use of IT at work (Andreassen et al., 2014; Henle & Blanchard, 2008; Henle et al., 2009; Wang et al., 2013). The monitoring and enforcement of rules (sanctions/punishments) are factors that likely determine perceptions of the effectiveness of the IT control policy. Thus, we hypothesize:

**H5:** *Perceptions of a highly effective IT control policy negatively influence cyberslacking in the workplace.*

### Personal Enablers

**Attitude toward cyberslacking:** Adapted from TPB, *attitude toward cyberslacking* refers to the degree to which a person has a favorable evaluation of cyberslacking. One's attitude toward a behavior is a good predictor of the behavior (Ajzen, 1991). Similarly, prior work on counterproductive work behaviors (Lau et al., 2003) found that employees' attitude toward the performance of a specific counterproductive work behavior drives the extent to which they engage in the behavior. Similarly, we expect that employees with a more favorable attitude toward cyberslacking will engage in the behavior. Prior work has also shown that when employees view cyberslacking as acceptable, they are more willing to engage in cyberslacking (Andreassen et al., 2014; Liberman et al., 2011; Vitak et al., 2011). Thus, we hypothesize:

**H6:** *Attitude toward cyberslacking positively influences cyberslacking in the workplace.*

**Cyberslacking self-efficacy:** Adapted from TPB, self-efficacy is an internal form of the perceived behavioral control variable that represents one's beliefs about people's ability to perform a specific task (Ajzen, 1991). According to our literature review, cyberslacking self-efficacy, an employee's beliefs regarding their ability to perform nonwork IT tasks, has been frequently investigated and found to be significant in enabling employees' participation in cyberslacking (e.g., Askew et al., 2014; Pee et

al., 2008). Employees' confidence in their ability to perform such behaviors, both in terms of actual behavioral performance and doing so without being seen or caught, likely contributes to cyberslacking. Thus, we hypothesize:

**H7:** *Cyberslacking self-efficacy positively influences cyberslacking in the workplace*.

Personality is defined as "a dynamic and organized set of characteristics possessed by a person that uniquely influences his or her cognitions, motivations and behaviors in various situations" (Ryckman, 2004, p. 5). Although there are many ways to conceptualize personality traits, the five-factor model (FFM) is the most widely used (Venkatesh & Windeler, 2012) and is used to assess human personality along five main dimensions: extraversion (defined by characteristics such as talkative, assertive, and energetic), neuroticism (defined by characteristics such as anxiety, hostility, and impulsiveness), openness (defined by characteristics such as intellectual, imaginative, and independent-minded), agreeableness (defined by characteristics such as sympathetic and warm), and conscientiousness (defined by characteristics such as being organized and structured). The impact of personality on human behavior has been studied in various realms (Digman, 1990). In IS research, personality has been integrated to predict IT use (McElroy et al., 2007; Venkatesh et al., 2003; Venkatesh et al., 2016), including nonwork IT use at work (e.g., Andreassen et al., 2014; Jia et al., 2013; O'Neill et al., 2014a; O'Neill et al., 2014b).

**Extraversion** is the propensity to be talkative, sociable, and dominant. Individuals who have high levels of extraversion are social, active, and outgoing and focus on interpersonal relationships (Watson & Clark, 1997). Behaviors that are intuitively linked to sociability have been correlated with high scores for extraversion (Wilt & Revelle, 2019). Individuals who score high on extraversion also derive pleasure and energy from interacting with others (Digman, 1990) and are likely to devote more time to online social interactions (Bowden-Green et al., 2020). In the case of cyberslacking, employees who score high on extraversion are likely to send emails and exchange instant messages with friends and family during work hours with the intention of building and maintaining social networks and relationships. Prior studies have also found that extraversion is positively associated with cyberslacking (Jia et al., 2013; Wyatt & Phillips, 2005). Thus, we hypothesize:

**H8:** *Extraversion positively influences cyberslacking in the workplace.*

**Neuroticism** is the propensity to demonstrate anxiety, hostility, and impulsiveness. Individuals who have high levels of neuroticism are anxious, self-conscious, and prone to negative reactions to work-related stimuli (Devaraj et al., 2008). They tend to focus on the negative side of issues (Sheikh et al., 2019) and are likely to experience stress and anxiety at work. Prior studies found that individuals who score high on neuroticism tend to have a lower ability to focus on tasks for an extended period of time because they are worriers (Mark et al., 2016). They stress about decisions they have made and replay conversations in their mind. This focus on the past makes individuals who are neurotic less likely to stick to one task for a long period of time. In the case of cyberslacking, employees high on neuroticism are likely to send emails and exchange instant messages with friends and family during work hours because they cannot focus on their work tasks. They may engage in nonwork IT use with the intention to alleviate stress associated with their work tasks. Prior studies have also found that neuroticism is positively associated with cyberslacking (Andreassen et al., 2014; Jia et al., 2013). Thus, we hypothesize:

**H9:** *Neuroticism positively influences cyberslacking in the workplace.*

## Personal Inhibitors

**Openness** is the propensity to try new and different things. Individuals who have high levels of openness are creative, flexible, intellectual, imaginative, and broad-minded (McCrae, 1996). They enjoy intellectual stimulation, exhibit a more favorable attitude toward learning (Barrick & Mount, 1991), and are passionate about developing creative ways of thinking and doing tasks. According to our literature review, employees who score high on openness are less likely to engage in cyberslacking (Jia et al., 2013). Although the finding is somewhat counterintuitive, we speculate that while openness increases both work and nonwork exploration, it has more of an impact on work-related exploration than non-work-related exploration. For instance, interacting with friends and family may not easily generate new and good ideas, as individuals with strong ties tend to be more similar in various ways (Granovetter, 1973). Employees may even think that interacting with friends and family during work hours will affect their learning experience and work-related goals. Prior studies have also found that openness is negatively related to spending time with family (Wrzus et al., 2016) and socializing (Wilt & Revelle, 2019). Thus, we hypothesize:

**H10:** *Openness negatively influences cyberslacking in the workplace.*

**Agreeableness** is the tendency to be kind, trusting and trustworthy, and warm (Judge & Ilies, 2002). Individuals who score high on agreeableness tend to respect others' points of view and are less likely to behave aggressively in the workplace (McCrae & Costa Jr, 1991). They also tend to focus on the positive aspects of a collaborative experience (Venkatesh & Windeler, 2012). Agreeable people are generally well-liked and

tend to follow the rules. Individuals who score low on agreeableness are more likely to engage in counterproductive work behaviors (Wilt & Revelle, 2019). We anticipate that employees who score high on agreeableness are less likely to engage in cyberslacking activities because they aim to meet job expectations to maintain positive relationships with supervisors and other colleagues in the organization (Judge et al., 2002). Prior studies have also found that agreeableness is negatively associated with cyberslacking (Jia et al., 2013; O'Neill, et al., 2014a). Thus, we hypothesize:

**H11:** Agreeableness negatively influences cyberslacking in the workplace.

**Conscientiousness** refers to one's tendency to be orderly, responsible, and dependable. Individuals who score high on conscientiousness are self-disciplined and persevering (Devaraj et al., 2008; O'Neill et al., 2014b). Conscientious individuals are less likely to engage in criminal (Wiebe, 2004), antisocial (Shiner et al., 2002), or deviant workplace behaviors (Salgado, 2002). Further, they have high levels of commitment to their organizations and are more likely to follow the rules and standards of their workplace (Tepper et al., 2001). Individuals who score high on conscientiousness are likely to spend more time working (Barnett, 2006; Wrzus et al., 2016). We thus expect that highly conscientious employees are less likely to engage in cyberslacking because they are attentive to social contracts such as work arrangements (Barrick et al., 2001). Prior studies have also found that conscientiousness is negatively associated with cyberslacking (Jia et al., 2013; O'Neill et al., 2014a). Thus, we hypothesize:

**H12:** *Conscientiousness negatively influences cyberslacking in the workplace.*

# Method

## Participants

We collected data from one business unit of a U.S.-based Fortune-100 organization. Data were collected via online surveys at three points in time. In Wave 1, we measured hypothesized cyberslacking determinants and demographic control variables (age, gender, and education). In Wave 2, six months later, we measured self-reported cyberslacking behavior. Six months after that, in Wave 3, we measured supervisor-rated job performance. In Wave 1, 719 employees who used IT to accomplish their work tasks on a daily basis were invited to respond to the online survey; 560 employees responded, for a response rate of 78%. In Wave 2, the 560 respondents from Wave 1 were invited to respond; 444 employees responded, for a response rate of 79%. In Wave 3, supervisors provided ratings for 395 of the 444 employee respondents from Wave 2, for a response rate of 89%. In our final sample for data analysis, for which we received responses from all three waves ($n$ = 395), 64% of participants were men, the average age was 35.8 (*SD* 13.2), and over half had completed some college education.

## Data Collection Procedure

The same procedure was followed for all three waves of data collection. Each survey wave was introduced to potential respondents in advance via an email announcement from the head of the business unit being sampled. The email explained that they were encouraged to fill out the survey during work hours as part of their job duties and that results would be received and analyzed by an independent third party and be kept confidential and anonymous. To further enhance the response rate, the same unit head sent two follow-up email reminders each week for the next two weeks preceding data collection. In Waves 1 and 2, employees were informed that: (1) supervisor-rated job performance data would be collected in Wave 3, (2) as employees, they would not have access to supervisor performance ratings, and (3) supervisors would not have access to their Wave 1 and 2 responses. In Wave 3, supervisors were informed that their subordinates would not have access to their performance ratings.

Once the email containing the link to the online survey was sent, respondents had three days to participate. The web-based surveys requested voluntary consent to participate and identified the researchers who would be receiving and summarizing the results. The surveys did not allow participants to skip questions and they were instructed to close the browser if they did not wish to continue. Unique links were used in emails sent to participants, and the surveys they completed allowed us to track participants over time. All responses were anonymized by removing identifying information and kept confidential. Data files were securely stored by the authors and the participating organization did not have access to any non-aggregated data identifying employees or supervisors.

Our response rates of 78% (Wave 1), 79% (Wave 2), and 89% (Wave 3) compare favorably with response rates of around 50% that are typical for online employee surveys (e.g., Kulas et al., 2017; Saunders, 2012), somewhat mitigating concerns about nonresponse or self-selection bias. These response rates may have been enhanced by the email messages from the unit head informing respondents that it was legitimate and encouraged to complete the

surveys during work hours as part of their job duties. High response rates do not necessarily eliminate nonresponse bias (Wagner, 2012), which can be exacerbated by the skewness of underlying data (Kulas et al., 2017). However, the absence of skewness in our data reduces concerns about serious nonresponse bias. Further, we compared the Wave 1 responses of Wave 2 respondents vs. nonrespondents, and compared the Wave 1 and Wave 2 responses of Wave 3 respondents vs. nonrespondents, and found no significant differences in the distributions of demographic or research variables. The high response rates, absence of skewness, and lack of differences in prior wave data between respondents and nonrespondents all suggest the presence of little or no nonresponse bias in our dataset.

### Measures

One key aspect of this research design is the two distinct sources used in the data collection: (1) individual-level self-reported data from employees and (2) job performance data provided by the employees' supervisors. We used previously validated measures wherever possible (see Appendix C). For the situational enablers—technology re-adaptability and the limited work use of IT—we used newly developed scales (discussed later). The scales for prescriptive norms and descriptive norms were adapted from Cialdini et al. (1990). For situational inhibitors, the scales for distributive justice, procedural justice, and interactional justice were adapted from Lim (2002). Perceived IT control policy was adapted from Hollinger and Clark (1983). For personal enablers and inhibitors, the scale for attitude toward cyberslacking was adapted from Venkatesh et al. (2003), and the scale for cyberslacking self-efficacy was adapted from Compeau and Higgins (1995). We used five separate 4-item scales from Donnellan et al. (2006) to measure the five personality variables, and used a newly developed scale for cyberslacking (discussed later). We measured supervisor-rated job performance using reflective indicators—the four items were an evaluation provided by the employees' supervisors—and used a scale that is frequently used in organizational behavior research and IS research (Sykes, 2015; Sykes & Venkatesh, 2017; Sykes et al., 2014; Welbourne et al., 1998; Zhang, 2017; Zhang & Venkatesh, 2017). We included age, gender, and job meaninglessness as control variables. We conceptualized and operationalized our structural model with first-order constructs. Prior studies have confirmed that a simple formulation of constructs and the concomitant model can yield comparable empirical results to more complex models that use multidimensional constructs (e.g., Polites et al., 2012; Thatcher et al., 2018). We conducted a post hoc analysis to demonstrate that the simpler form of the first-order construct model had as much explanatory power as the model with more sophisticated measures (see Appendix D).

We developed the scales for technology re-adaptability, limited work use of IT, and cyberslacking following the procedures suggested by DeVellis (2003). We conducted a pilot study using a sample of 112 MBA and undergraduate business students to refine the items for these new scales and assess their validity and reliability. Based on the results of the pilot study, a few further items were eliminated due to poor loadings and scale differences, giving us a final tally of five items each for cyberslacking, re-adaptability, and the limited work use of IT. Further, all the MBA student respondents in the pilot study were asked to assess the clarity, form, and presentation of the items. The participants did not report any major problems but, based on the feedback received, we made minor changes (e.g., font size) to the presentation of the items.

## Results

### Preliminary Analysis

The four groups of antecedents measured at Wave 1 were used to predict cyberslacking measured at Wave 2, and cyberslacking at Wave 2 was used to predict job performance at Wave 3. This design followed procedures formulated to assess and infer causation with panel data (Cohen et al., 2004; Finkel, 1995; Markus, 1979) and is consistent with prior studies employing similar designs (Hammer et al., 2005; Kraut et al., 1998). Before testing the hypotheses, we tested basic assumptions (e.g., outliers, multicollinearity) regarding the structure of data; no apparent problems were found. Self-reported data can be subject to common method bias. We used the marker variable technique (see Lindell & Whitney, 2001) to check for this potential threat. The adjusted correlations showed no substantial changes. In addition, we collected data from multiple sources at multiple points in time (i.e., data were collected for the independent variables at a different time than the dependent variables) (see Brown & Venkatesh, 2005). This alleviated concerns regarding common method bias to some extent. Descriptive statistics, Cronbach's alpha (CA) reliabilities, and correlations are shown in Table 2. The CAs are greater than 0.70 for all the scales, suggesting acceptable reliability (Nunnally, 1978). Factor analysis with direct oblimin rotation supported the convergent and discriminant validity of the scales, with loadings greater than 0.70 and cross-loadings lower than 0.35. Thus, the evidence suggests that the scales are reliable and valid.

**Table 2. Descriptive Statistics and Correlations (n=395)**

| | | Mean | *SD* | CA | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | Gender (1: men) | NA | NA | NA | ____ | | | | | | | | | | | | | | | | | | | |
| **2** | Age | 35.8 | 13.2 | NA | .06 | ____ | | | | | | | | | | | | | | | | | | |
| **3** | Job meaningless-ness | 3.71 | 1.30 | .79 | -.17** | -.13* | ____ | | | | | | | | | | | | | | | | | |
| **4** | Distributive justice | 3.80 | 1.81 | .76 | -.14* | .12* | -.19** | ____ | | | | | | | | | | | | | | | | |
| **5** | Procedural justice | 4.14 | 1.77 | .79 | -.19** | .10 | -.14* | .24*** | ____ | | | | | | | | | | | | | | | |
| **6** | Interactional justice | 4.10 | 1.70 | .81 | -.21*** | .17** | -.17** | .21*** | .29*** | ____ | | | | | | | | | | | | | | |
| **7** | Technology re-adaptability | 4.17 | 1.55 | .75 | .21*** | -.15* | .06 | .14* | .13* | .17** | ___ | | | | | | | | | | | | | |
| **8** | Limited work use of IT | 4.40 | 1.60 | .78 | .17** | -.19** | .08 | .08 | .09 | .04 | .19** | ____ | | | | | | | | | | | | |
| **9** | Descriptive norm | 3.90 | 1.87 | .74 | -.15* | .21*** | .14* | .03 | .17** | .09 | .04 | .07 | ____ | | | | | | | | | | | |
| **10** | Prescriptive norm | 3.70 | 1.99 | .72 | -.19** | .20** | .17** | .04 | .18** | .13* | .09 | .11* | .40*** | ____ | | | | | | | | | | |
| **11** | Perceived IT control policy | 4.13 | 1.66 | .79 | .15* | .06 | .05 | .12* | .08 | .14* | .13* | .12* | .04 | .10 | ____ | | | | | | | | | |
| **12** | Attitude toward cyberslacking | 5.04 | 1.41 | .75 | .17** | -.24*** | .07 | .06 | .13* | .19** | .10 | .17** | .14* | .17** | .10 | ____ | | | | | | | | |
| **13** | Cyberslacking self-efficacy | 4.08 | 1.97 | .82 | .24*** | -.18** | .09 | .09 | .13* | .14* | .19** | .24*** | .14* | .18** | .13* | .14* | ____ | | | | | | | |
| **14** | Extraversion | 3.75 | 1.67 | .74 | -.17** | -.10 | .13* | .06 | .02 | .04 | .14* | .20** | -.22*** | -.10 | -.13* | .17** | -.15* | ____ | | | | | | |
| **15** | Neuroticism | 2.89 | .87 | .79 | .08 | .06 | .14* | .19** | -.17** | -.14* | .06 | .10 | .13* | .17** | .17** | .17** | .15* | -.13* | ____ | | | | | |
| **16** | Openness | 3.15 | 1.39 | .73 | .19** | -.13* | .04 | .10 | .14* | -.15* | .19** | .14* | .20** | .22*** | .15* | .06 | .19* | .13 | -.15* | ____ | | | | |
| **17** | Agreeableness | 3.44 | 1.75 | .81 | -.30*** | .14* | .05 | .14* | .17** | .19** | .20** | .17** | .09 | .04 | -.08 | -.13* | -.15* | .06 | -.16** | .14* | ____ | | | |
| **18** | Conscientious-ness | 4.07 | 1.35 | .86 | .06 | .19** | .14* | .19** | .20** | .22** | .27*** | .24*** | .20** | .14* | .19** | .24*** | -.16* | .10 | -.19** | .15* | .11* | ____ | | |
| **19** | Cyberslacking | 3.94 | 1.99 | .70 | .30*** | -.31*** | .29*** | -.19** | -.40*** | -.31*** | .24*** | .20** | .29*** | .22*** | -.20** | .17** | .21*** | .29*** | .36*** | -.17** | -.14* | -.28*** | ____ | |
| **20** | Job performance | 4.65 | 1.76 | .75 | .24*** | .23*** | -.17** | -.20** | -.21*** | -.17** | .19** | .19** | .21** | .18** | -.16** | .11* | -.12* | .21*** | .26*** | -.12* | -.08 | -.20** | -.48*** | __ |

**Note:** *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. CA: Cronbach's alpha; NA: not applicable

### Model Testing

We performed regression analyses to test the research model. Table 3 presents these results. We estimated two models for each dependent variable. We first estimated the model with control variables (Models 1 and 3) followed by a model with the hypothesized predictors (Models 2 and 4). Model 1 explained 8% of the variance in job performance. Other than gender, all the control variables had significant effects on job performance. Model 2 showed that the variance explained by adding cyberslacking was 21%. Cyberslacking had a significant negative effect on job performance, thus supporting H1. Model 3 explained 16% of the variance in cyberslacking. All the control variables had significant effects on cyberslacking. Model 4 included the effects of situational enablers, situational inhibitors, personal enablers, and personal inhibitors, and explained 40% of the variance in cyberslacking. Both IT-specific variables had significant effects on cyberslacking, supporting H2a regarding technology re-adaptability ($\beta = 0.12$, $p < 0.05$) and H2b regarding limited work use of IT ($\beta = 0.12$, $p < 0.05$). The other two situational enablers (prescriptive norms and descriptive norms) had significant positive effects on cyberslacking, supporting H3a and H3b. Except distributive justice, all the situational inhibitors (i.e., procedural justice, interactional justice, and perceived IT control policy) had significant negative effects on cyberslacking, thus supporting H4b, H4c, and H5. Among the personal enablers, only extraversion and neuroticism had significant effects on cyberslacking, thus supporting H8 and H9. Among the personal inhibitors (i.e., openness, agreeableness, and conscientiousness), only conscientiousness had a significant negative effect on cyberslacking, thus supporting H12.

With regard to mediation, we note that we do not explicitly hypothesize partial or full mediation—and given the number of antecedents, without specific hypotheses, mediation tests would yield purely data-driven results. We thus do not report these detailed results but note that in our testing, we found that all significant predictors of cyberslacking were mediated either partially or fully in influencing job performance, with an interesting pattern of effects pertaining to neuroticism. The total effect of neuroticism on job performance (not shown in Table 3) when cyberslacking was included was 0.07, which was a direct effect of 0.15 and an indirect effect via cyberslacking of -0.08 (0.21 x -0.37); the bootstrapping confidence interval of the total effect did not include 0, thus suggesting a small overall positive effect of neuroticism on job performance. Similarly interesting is the total effect of IT control policy on job performance (not shown in Table 3) of -0.05, comprising a direct effect of -0.12 and an indirect effect via cyberslacking of 0.07 (-0.17 x -0.37), thus suggesting a small overall negative effect of IT control policy on job performance, which was also confirmed by the absence of 0 in the bootstrapped confidence interval.

### Post Hoc Analysis

#### Assessment of Relative Importance among Predictors

An interesting aspect that goes beyond the mediation and the total effects noted is the relative importance of various predictors that we examined using partial and semipartial correlations (Cohen et al., 2004) to assess the relative importance of the antecedents of cyberslacking (see Table 4). A partial correlation measures the correlation between two continuous variables while controlling for the effect of one or more other continuous variables. A semipartial correlation (also called part correlation) measures the relationship between a dependent variable (or criterion) with an adjusted independent variable (or predictor) while controlling for the effects of other predictors. Thus, partial and semipartial correlations can show the unique contribution of an independent variable. Among variables from all four quadrants, neuroticism (personal enabler) had the largest impact on cyberslacking (with partial and semipartial correlation between neuroticism and cyberslacking as 0.16 and 0.10, respectively, while controlling for the effects of other independent variables), followed by conscientiousness (personal inhibitor) (with partial and semipartial correlation between conscientiousness and cyberslacking of -0.15 and -0.12, respectively, while controlling for the effects of other independent variables), and procedural justice (situational inhibitor) (with partial and semipartial correlation between procedural justice and cyberslacking of -0.15 and -0.12, respectively, while controlling for the effects of other independent variables).

## Discussion

This work provides a systematic understanding of the antecedents of cyberslacking. Based on a literature-based approach, we identify antecedents from four dominant perspectives and organize them based on their underlying nature and motivation-control orientation. We also integrate two new IT-specific variables identified via focus groups. Importantly, our results show that cyberslacking and its antecedents are linked to the important outcome of employee job performance. We tested our model using a three-wave field study of 395 employees in one organization.

**Table 3. Results of Model Testing**

| | Job performance | | Cyberslacking | |
|---|---|---|---|---|
| | **Model 1** | **Model 2** | **Model 3** | **Model 4** |
| **$R^2$** | .08 | .21 | .16 | .40 |
| **$\triangle R^2$** | | .13*** | | .24*** |
| **Gender (1: men)** | .10 | .07 | .18** | .10 |
| **Age** | .17** | .05 | -.20** | -.11* |
| **Job meaninglessness** | -.14* | -.09 | .17** | .14* |
| **Distributive justice** | | | | -.10 |
| **Procedural justice** | | | | -.19** |
| **Interactional justice** | | | | -.17** |
| **Technology re-adaptability** | | | | .12* |
| **Limited work use of IT** | | | | .12* |
| **Prescriptive norms** | | | | .19** |
| **Descriptive norms** | | | | .14* |
| **Perceived IT control policy** | | | | -.17** |
| **Attitude toward cyberslacking** | | | | .10 |
| **Cyberslacking self-efficacy** | | | | .10 |
| **Extraversion** | | | | .15* |
| **Neuroticism** | | | | .21*** |
| **Openness** | | | | -.09 |
| **Agreeableness** | | | | -.06 |
| **Conscientiousness** | | | | -.21*** |
| **Cyberslacking** | | -.37** | | |

**Note:** *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

**Table 4. Partial and Semipartial Correlations**

| | Job performance | | Job performance | | Cyberslacking | | Cyberslacking | |
|---|---|---|---|---|---|---|---|---|
| | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
| | **Partial** | **Semipartial** | **Partial** | **Semipartial** | **Partial** | **Semipartial** | **Partial** | **Semipartial** |
| **Gender (1: men)** | .14 | .12 | .09 | .07 | .16 | .15 | .07 | .04 |
| **Age** | .19 | .16 | .08 | .06 | -.14 | -.12 | -.07 | -.05 |
| **Job meaninglessness** | -.13 | -.10 | -.11 | -.08 | .11 | .09 | .08 | .07 |
| **Distributive justice** | | | | | | | -.08 | -.04 |
| **Procedural justice** | | | | | | | -.15 | -.12 |
| **Interactional justice** | | | | | | | -.12 | -.09 |
| **Technology re-adaptability** | | | | | | | .06 | .04 |
| **Limited work use of IT** | | | | | | | .07 | .04 |
| **Prescriptive norms** | | | | | | | .14 | .10 |
| **Descriptive norms** | | | | | | | .10 | .06 |
| **Perceived IT control policy** | | | | | | | -.13 | -.10 |
| **Attitude toward cyberslacking** | | | | | | | .06 | .03 |
| **Cyberslacking self-efficacy** | | | | | | | .04 | .03 |
| **Extraversion** | | | | | | | .10 | .09 |
| **Neuroticism** | | | | | | | .16 | .10 |
| **Openness** | | | | | | | -.04 | -.02 |
| **Agreeableness** | | | | | | | -.05 | -.03 |
| **Conscientiousness** | | | | | | | -.15 | -.12 |
| **Cyberslacking** | | | .41 | .39 | | | | |

## Summary of Results

The overall model explains 40% of the variance in cyberslacking and 21% of the variance in job performance. Our results show that cyberslacking has a negative effect on job performance. In general, our findings reveal that the antecedents specified in our new 2×2 conceptual typology (i.e., situational enablers, situational inhibitors, personal enablers, and personal inhibitors) have significant effects on cyberslacking. A key goal of our research was to identify new IT-specific determinants of cyberslacking. We were successful in this regard, finding that two IT-specific factors, i.e., technology re-adaptability and the limited work use of IT, have significant effects on cyberslacking. The other two situational enablers, prescriptive norms and descriptive norms, are also significantly linked to cyberslacking. Except for distributive justice, all situational inhibitors were shown to have significant effects on cyberslacking. One possible explanation for the nonsignificant relationship between distributive justice and cyberslacking is that we only focused on the online social communication type of cyberslacking (e.g., sending emails to and messaging with friends and family at work). Distributive justice may be associated with some other forms cyberslacking (e.g., playing online games, online shopping, and browsing online news) that could be more serious in nature (Venkatraman et al., 2018). These findings create a number of opportunities for future research. Among personal enablers, only two personality factors, extraversion and neuroticism, were found to be significant. Among personal inhibitors, only conscientiousness was significant.

Further, the partial and semipartial correlations show that although IT-specific factors, including technology re-adaptability and the limited work use of IT, are significant, they do not appear to have the largest impact on cyberslacking. Our results show that neuroticism has the largest impact on cyberslacking, when controlling for the effect of others. Our findings show that individuals who score high on neuroticism are likely to engage in cyberslacking in the workplace. Slaughter and Kausel (2009) also argued that autonomy influences how employees who score high on neuroticism behave. That is, when employees who score high on neuroticism have a lot of discretion over how they spend their time at work, they are more apt to shirk their duties. Thus, future studies could situate personality traits firmly in the center of the investigation and show how employee personality affects cyberslacking behaviors.

## Theoretical Contributions

This paper contributes to the IS literature by addressing the gaps we identified in the cyberslacking literature. First, this work contributes to the literature by identifying and organizing antecedents of cyberslacking. Using a literature-based approach, we synthesize four theoretical perspectives (i.e., organizational justice, control and deterrence mechanisms, planned behavior, and personality) into a unified model and provide a cohesive explanation of cyberslacking. This is in line with calls from IS scholars for unified models to progress toward a synthesis of diverse theories and models (e.g., Venkatesh et al., 2003; Venkatesh et al., 2016).

This work also makes novel contributions to the cyberslacking literature through knowledge recombination (see Uzzi et al., 2013). Guided by the underlying nature and motivation-control orientations, we organized the antecedents of cyberslacking from four theoretical perspectives into a 2×2 conceptual typology (see Figure 1). In other words, we combined factors from different theoretical perspectives and examined their relative impacts on cyberslacking using a new classification scheme (i.e., situational enablers, situational inhibitors, personal enablers, and personal inhibitors). In general, we found that the four groups of antecedents have significant effects on cyberslacking. However, some antecedents were no longer significant when they were tested in a unified model of cyberslacking that synthesized diverse theories and models. Situational enablers and inhibitors have theoretical underpinnings in planned behavior theories and control and deterrence mechanisms; in general, situational factors (except for distributive justice) remained significant in our unified model. In contrast, personal enablers and inhibitors have theoretical underpinnings in planned behavior theories and personality. Although planned behavior theories are the most widely used theoretical perspective in cyberslacking research, the antecedents from the planned behavior perspective, *attitude toward cyberslacking* and *cyberslacking self-efficacy*, were *not* significant in our unified model. Our findings show that personality traits, such as extraversion, neuroticism, and conscientiousness have significant effects on cyberslacking. Future work could build on our classification framework to examine additional, related antecedents and their impacts on cyberslacking.

Second, our work advances the cyberslacking literature by incorporating contextualization into theory development. Specifically, in previous research, there is a lack of understanding about how IT-specific factors relate to cyberslacking. To fill this gap, we identified two IT-specific variables through a qualitative study—namely, *technology re-adaptability* and the *limited work use of IT*—and empirically examined their effects on cyberslacking. By introducing IT-specific variables to cyberslacking research, our work introduces key new constructs to explain cyberslacking. For instance, the two identified IT-specific factors represent user perceptions of the characteristics of IT

in the workplace that facilitate unfaithful IT use. Although the two newly introduced IT-specific variables share some similarities with well-established concepts, such as IT adaptation behaviors (Sun, 2012), malleable IT use, and task-technology fit (Goodhue & Thompson, 1995), technology re-adaptability and the limited work use of IT are specific to nonwork purposes. For example, technology re-adaptability refers to the adaptive use of IT for nonwork activities. The conceptualization of these two IT-specific factors is consistent with Schmitz et al.'s (2016) work that extends adaptive structuration theory (Giddens, 1984) to the individual level to investigate individual user adaptation of malleable IT. Therefore, by incorporating specific variables that are tied more closely to the context of IT and non-work-related IT use (i.e., cyberslacking), we are able to make a more contextualized theoretical contribution, as well as a concomitant practical contribution (see Hong et al., 2014; Johns, 2006).

Third, our work enriches the IT use literature by focusing on negative IT use. It also responds to calls for a reconceptualization of the system use construct (Burton-Jones & Grange, 2013; Orlikowski & Barley, 2001; Venkatesh et al., 2007) and more scholarly attention to the dark side of IT use in organizations (e.g., Willison & Warkentin, 2013). IT use constructs such as cyberslacking should be considered a facet of system use in future research. Thus, our investigation of cyberslacking is an important complement to the existing IS use literature and one that should be examined in models in conjunction with positive outcomes.

Finally, we collected data from multiple sources. The four sets of antecedents of cyberslacking and beliefs about cyberslacking were collected from employees, whereas job performance was obtained from the employees' supervisors. Further, we collected these data at different points in time. This research design thus provides greater scientific rigor compared to single-source and/or cross-sectional studies, which are typical in much prior work on this topic.

### *Limitations and Future Research*

This work has some limitations. First, we collected data from one business unit in one geographical location of one organization. This homogeneity may have affected the generalizability of our conclusions. However, the sample consisted of 11 different job categories; thus, heterogeneity in the tasks involved alleviates concerns about generalizability to some extent. Second, we used a survey to collect data, meaning that common method bias may have affected the results. Nonetheless, a more significant role for time in understanding cyberslacking and its intra-individual evolution over time is important (see Venkatesh et al., 2006; Venkatesh et al., 2021). Since we collected data from more than one source, this somewhat alleviates concerns related to common method bias. Third, as not all participants completed the survey at every point of data collection, attrition from Wave 1 to Wave 2 and from Wave 2 to Wave 3 may have affected the sample's representativeness and hence the results. However, we did not find any significant demographic differences between the study sample and the attrition sample. Fourth, since this work deals with negative workplace behaviors, participants may not have answered questions truthfully due to social desirability concerns. Scholars have suggested that a longitudinal analysis of such behavior and web-based surveys can limit the adverse impact of social desirability (Bennett & Robinson, 2003; Cheyne & Ritter, 2001), which was the case in our study.

This work provides a foundation for future research. First, we developed our research model using a literature-based approach and a qualitative inquiry. Our model, which only included a parsimonious set of antecedents that have been frequently investigated in prior cyberslacking studies, explained 40% of the variance in cyberslacking. Future research could focus on other variables, such as network connectivity, societal culture, corporate culture, personal innovativeness with IT, knowledge, skill, cyberslacking experience, emotion, and habit, to extend our work. Specifically, researchers could expand the 2×2 conceptual typology of cyberslacking antecedents to include other theoretical perspectives. Future research could also continue to examine cross-perspective dynamics and identify the interplay of antecedents from different theoretical perspectives.

Second, our results provide support for the importance of control beliefs in the IS literature. Control beliefs have long been recognized as a core factor enabling and impeding IS use (Robert & Sykes, 2017). As noted earlier, there are two types of control beliefs: internal and external (Ajzen, 2002; Venkatesh, 2000). Internal control beliefs concern the innate ability to perform a behavior (cyberslacking self-efficacy in our study), whereas external control beliefs concern the resources and opportunities needed to perform a behavior (in our study, the situational variables, i.e., the facilitating conditions, subjective norms, and perceived IT control policy). Indeed, organizations adopt various organizational actions or controls, such as education and training programs, security awareness programs, computer use policies, monitoring systems, and sanctions, to mitigate the negative consequences of cyberslacking. While we focused only on IT control policy, future studies could compare the effectiveness of different control mechanisms for mitigating the negative consequences of cyberslacking.

Third, Blanchard and Henle (2008) suggest that employees engage in various forms of cyberslacking, from online shopping to trading stocks during office hours, and proposed two forms of cyberslacking: minor cyberslacking (e.g., checking and sending non-work-related emails) and serious cyberslacking (e.g., surfing pornographic websites). In this work, we consider only one type of cyberslacking—a minor form of cyberslacking (i.e., using IT for social interaction with friends and family at work). Future work could examine how the four groups of cyberslacking antecedents influence various forms of cyberslacking. Further, outcomes other than performance, such as social and psychological outcomes, including job stress and job satisfaction (Sykes, 2015; Sykes, 2020) could also be considered in future research. Research in psychology and psychiatry suggests that individuals have become increasingly addicted to computers, the internet, games, and online gambling, and suffer from loneliness and depression. Thus, the impact of cyberslacking on work-life balance and subjective well-being would also be a worthy topic of examination in future research (Venkatesh et al., 2019).

Finally, future research could examine whether there are positive outcomes of cyberslacking that may outweigh negative job performance. Often, it is important for individuals to take a break from work by engaging in nonwork activities such as playing computer games. Such breaks can have a positive effect on job performance, particularly for jobs that involve constant pressure and stress (Anandarajan & Simmers, 2004) and, in turn, reduce job stress (Sykes, 2015; Sykes, 2020). It is possible that cyberslacking offers such a break and may thus have positive consequences that are not captured by our model. Such positive consequences might also manifest in other outcomes such as job satisfaction.

## Practical Implications

This research also has important implications for practitioners. Although organizations are becoming increasingly reliant on internet-based technologies for their daily operations, this work confirms that nonwork IT use in the workplace can have significant negative effects on employee job performance. Thus, it is imperative that managers pay close attention to prevention and control mechanisms in order to keep cyberslacking in check. By uncovering the relative impacts of the four groups of factors, we offer managers insights into how to curb cyberslacking in the workplace.

Our findings show that all situational factors (except distributive justice) have significant effects on cyberslacking. Thus, managers should pay attention to employees' work environment and conditions because they can lead to cyberslacking. First, organizations could improve employees' perceptions of fairness through establishing fair procedures, providing detailed and timely explanations of procedures, and training supervisors to implement fair practices in their interactions with subordinates. Second, some training (or retraining) on the use of communication tools could be offered to employees so that they fully understand what constitutes the proper use of IT at work. Third, managers could pay closer attention to cyberslacking prevention and control mechanisms. Our findings confirm that perceived IT control policy has a significant negative effect on cyberslacking. Thus, managers might consider imposing formal control policies with periodic monitoring so that employees are aware of the risk of engaging in cyberslacking. We also found that both prescriptive and descriptive norms have significant effects on cyberslacking. Employees' norms of appropriate behavior come from their referent groups, primarily co-workers and supervisors. Apart from imposing organizational actions, organizations should work closely with managers and supervisors to develop social norms about the appropriate use of IT in the workplace. Finally, given the importance of personality in enabling/inhibiting cyberslacking, managers might consider screening candidates for Big Five personality variables—paying close attention to candidates with high levels of extraversion and neuroticism, as they may be more likely to engage in nonwork IT use.

## Conclusion

By synthesizing prior cyberslacking studies, we identified and organized antecedents from diverse research streams and tested their relative impacts on cyberslacking. We also integrated two new IT-specific variables to present a contextualized explanation of cyberslacking. By relating various predictors to job performance through cyberslacking, we present a rich understanding of the phenomenon. Thus, we not only contribute to the literature on cyberslacking but also offer practical implications for organizational interventions to mitigate cyberslacking.

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## References


Addas, S., & Pinsonneault, A. (2015). The many faces of information technology interruptions: A taxonomy and preliminary investigation of their performance effects. *Information Systems Journal*, *25*(3), 231-273. https://doi.org/10.1111/isj.12064

Aghaz, A., & Sheikh, A. (2016). Cyberloafing and job burnout: An investigation in the knowledge-intensive sector. *Computers in Human Behavior*, *62*(September), 51-60. https://doi.org/10.1016/j.chb.2016.03.069

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179-211. https://doi.org/10.1016/0749-5978(91)90020-T

Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior1. *Journal of Applied Social Psychology*, *32*(4), 665-683. https://doi.org/10.1111/j.1559-1816.2002.tb00236.x

Akbulut, Y., Dönmez, O., & Dursun, Ö. Ö. (2017). Cyberloafing and social desirability bias among students and employees. *Computers in Human Behavior*, *72*, 87-95. https://doi.org/10.1016/j.chb.2017.02.043

Alharthi, S., Levy, Y., Wang, L., & Hur, I. (2021). Employees' mobile cyberslacking and their commitment to the organization. *Journal of Computer Information Systems*, *61*(2), 141-153. https://doi.org/10.1080/08874417.2019.1571455

Ambrose, M., & Schminke, M. (2009). The role of overall justice judgments in oganizational justice research: A test of mediation. *Journal of Applied Psychology*, *94*(2), 491-500. https://doi.org/10.1037/a0013203

Anandarajan, M., & Simmers, C. A. (2004). Constructive and dysfunctional personal web usage in the workplace: Mapping employee attitudes. In M. Anandarajan & C. A. Simmers (Eds.), *Personal web usage in the workplace: A guide to effective human resources management* (pp. 61-79). Information Sciences Publishing.

Andreassen, C. S., Torsheim, T., & Pallesen, S. (2014). Predictors of use of social network sites at work - a specific type of cyberloafing. *Journal of Computer-Mediated Communication*, *19*(4), 906-921. https://doi.org/10.1111/jcc4.12085

Arciniega, L. M., Stanley, L. J., Puga-Méndez, D., Obregón-Schael, D., & Politi-Salame, I. (2019). The relationship between individual work values and unethical decision-making and behavior at work. *Journal of Business Ethics*, *158*(4), 1133-1148. https://doi.org/10.1007/s10551-017-3764-3

Askew, K., Buckner, J. E., Taing, M. U., Ilie, A., Bauer, J. A., & Coovert, M. D. (2014). Explaining cyberloafing: The role of the theory of planned behavior. *Computers in Human Behavior*, *36*, 510-519. https://doi.org/10.1016/j.chb.2014.04.006

Askew, K. L., Ilie, A., Bauer, J. A., Simonet, D. V., Buckner, J. E., & Robertson, T. A. (2019). Disentangling how coworkers and supervisors influence employee cyberloafing: What normative information are employees attending to? *Journal of Leadership & Organizational Studies*, *26*(4), 526-544. https://doi.org/10.1177/1548051818813091

Bala, H., & Venkatesh, V. (2007). Assimilation of interorganizational business process standards. *Information Systems Research*, *18*(3), 340-362. https://doi.org/10.1287/isre.1070.0134

Bala, H., & Venkatesh, V. (2016). Adaptation to information technology: A holistic nomological network from implementation to job outcomes. *Management Science*, *62*(1), 156-179. https://doi.org/10.1287/mnsc.2014.2111

Barnett, L. A. (2006). Accounting for leisure preferences from within: The relative contributions of gender, race or ethnicity, personality, affective style, and motivational orientation. *Journal of Leisure Research*, *38*, 445-474.

Barrick, M. R., & Mount, M. K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, *44*(1), 1-26. https://doi.org/10.1111/j.1744-6570.1991.tb00688.x

Barrick, M. R., Mount, M. K., & Judge, T. A. (2001). Personality and performance at the beginning of the new millennium: What do we know and where do we go next? *International Journal of Selection and Assessment*, *9*, 9-30. https://doi.org/10.1111/1468-2389.00160

Beaudry, A., & Pinsonneault, A. (2005). Understanding user responses to information technology: A coping model of user adaptation. *MIS Quarterly*, *29*(3), 493-524. https://doi.org/10.2307/25148693

Bennett, R. J., & Robinson, S. L. (2000). Development of a measure of workplace deviance. *The Journal of Applied Psychology*, *85*(3), 349-360. https://doi.org/10.1037/0021-9010.85.3.349

Bennett, R. J., & Robinson, S. L. (2003). The past, present, and future of workplace deviance research. In J. Greenburg (Ed.), *Organizational behavior: The state of the science* (2nd ed., pp. 247-282). Lawrence Erlbaum.

Betts, T. K., Setterstrom, A. J., Pearson, J. M., & Totty, S. (2014). Explaining cyberloafing through a theoretical integration of theory of interpersonal behavior and theory of organizational justice. *Journal of Organizational and End User Computing*, *26*(4), 23-42. https://doi.org/10.4018/978-1-5225-3153-1.ch008

Blanchard, A. L., & Henle, C. A. (2008). Correlates of different forms of cyberloafing: The role of norms and external locus of control. *Computers in Human Behavior*, *24*(3), 1067-1084. https://doi.org/10.1016/j.chb.2007.03.008

Blau, G., Yang, Y., & Ward-Cook, K. (2006). Testing a measure of cyberloafing. *Journal of Allied Health*, *35*(1), 9-17.

Bock, G.-W., Park, S. C., & Zhang, Y. (2010). Why employees do non-work-related computing in the workplace. *The Journal of Computer Information Systems*, *50*(3), 150-163. https://doi.org/10.1080/08874417.2010.11645417

Bowden-Green, T., Hinds, J., & Joinson, A. (2020). How is extraversion related to social media use? A literature review. *Personality and Individual Differences*, *164*, 110040. https://doi.org/10.1016/j.paid.2020.110040

Brown, S. A., & Venkatesh, V. (2005). Model of adoption of technology in households: A baseline model test and extension incorporating household life cycle. *MIS Quarterly*, *29*(3), 399-426. https://doi.org/10.2307/25148690

Burton-Jones, A., & Grange, C. (2013). From use to effective use: A representation theory perspective. *Information Systems Research*, *24*(3), 632-658. https://doi.org/10.1287/isre.1120. 0444

Cenfetelli, R. T., & Schwarz, A. (2011). Identifying and testing the inhibitors of technology usage intentions. *Information Systems Research*, *22*(4), 808-823. https://doi.org/10.1287/isre.1100.0295

Cheng, B., Zhou, X., Guo, G., & Yang, K. (2020). Perceived overqualification and cyberloafing: A moderated-mediation model based on equity theory. *Journal of Business Ethics*, *164*(3), 565-577. https://doi.org/10.1007/s10551-018-4026-8

Cheung, C. M. K., & Lee, M. K. O. (2010). A theoretical model of intentional social action in online social networks. *Decision Support Systems*, *49*(1), 24-30. https://doi.org/10.1016/j.dss.2009.12.006

Cheyne, T. L., & Ritter, F. E. (2001). Targeting audiences on the internet. *Communications of the ACM*, *44*(4), 94-98. https://doi.org/10.1145/367211.367276

Chin, W. W., Gopal, A., & Salisbury, W. D. (1997). Advancing the theory of adaptive structuration: The development of a scale to measure faithfulness of appropriation. *Information Systems Research*, *8*(4), 342-367. https://doi.org/10.1287/isre.8.4.342

Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, *58*(6), 1015-1026. https://doi.org/10.1037/0022-3514.58.6.1015

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2004). *Applied multiple regression/correlation analysis for the behavioral sciences*. Lawrence Erlbaum https://doi.org/10.4324/9780203774441

Compeau, D. R., & Higgins, C. A. (1995). Computer self-efficacy: Development of a measure and initial test. *MIS Quarterly*, *19*(2), 189-211. https://doi.org/10.2307/249688

Devaraj, S., Easley, R. F., & Crant, J. M. (2008). How does personality matter? Relating the five-factor model to technology acceptance and use. *Information Systems Research*, *19*(1), 93-105. https://doi.org/10.1287/isre.1070.0153

DeVellis, R. F. (2003). *Scale development: Theory and applications* (4th ed.). SAGE.

Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *Annual Review of Psychology*, *41*(1), 417-440. https://doi.org/10.1146/annurev.ps.41.020190.002221

Donnellan, M. B., Oswald, F. L., Baird, B. M., & Lucas, R. E. (2006). The mini-IPIP scales: Tiny-yet-effective measures of the Big Five factors of personality. *Psychological Assessment*, *18*, 192-203. https://doi.org/10.1037/1040-3590.18.2.192

Finkel, S. E. (1995). *Causal analysis with panel data*. SAGE. https://doi.org/10.4135/9781412983594

Fuller, R. M., & Dennis, A. R. (2009). Does fit matter? The impact of task-technology fit and appropriation on team performance in repeated tasks. *Information Systems Research*, *20*(1), 2-17. https://doi.org/10.1287/isre.1070.0167

Garrett, R. K., & Danziger, J. N. (2008). On cyberslacking: Workplace status and personal internet use at work. *CyberPsychology & Behavior*, *11*(3), 287-292. https://doi.org/10.1089/cpb.2007.0146

Giddens, A. (1984). *The constitution of society*. Polity Press.

Glassman, J., Prosch, M., & Shao, B. B. (2015). To monitor or not to monitor: Effectiveness of a cyberloafing countermeasure. *Information & Management*, *52*(2), 170-182. https://doi.org/10.1016/j.im.2014.08.001

Gong, X., Zhang, K. Z. K., Cheung, C. M. K., Chen, C., & Lee, M. K. O. (2019). Alone or together? Exploring the role of desire for online group gaming in players' social game addiction. *Information & Management*, *56*(6), 103139. https://doi.org/10.1016/j.im.2019.01.001

Goodhue, D. L., & Thompson, R. L. (1995). Task-technology fit and individual performance. *MIS Quarterly*, *19*(2), 213-236.

Granovetter, M. S. (1973). The strength of weak ties. *The American Journal of Sociology*, *78*(6), 1360-1380.

Greenberg, J. (1987). A taxonomy of organizational justice theories. *Academy of Management Review*, *12*(1), 9-22. https://doi.org/10.2307/257990

Greengard, S. (2000). Net gains to hr technology. *Workforce*, *79*(4), 44-48.

Griffin, R. W., & Lopez, Y. P. (2005). "Bad behavior" in organizations: A review and typology for future research. *Journal of Management*, *31*(6), 988-1005. https://doi.org/10.1177/0149206305279942

Güğerçin, U. (2020). Does techno-stress justify cyberslacking? An empirical study based on the neutralisation theory. *Behaviour & Information Technology*, *39*(7), 824-836. https://doi.org/10.1080/0144929X.2019.1617350

Hammer, L. B., Neal, M. B., Newsom, J. T., Brockwood, K. J., & Colton, C. L. (2005). A longitudinal study of the effects of dual-earner couples' utilization of family-friendly workplace supports on work and family outcomes. *Journal of Applied Psychology*, *90*(4), 799-810. https://doi.org/10.1037/0021-9010.90.4.799

Henle, C. A., & Blanchard, A. L. (2008). The interaction of work stressors and organizational sanctions on cyberloafing. *Journal of Managerial Issues*, *20*(3), 383-400.

Henle, C. A., Kohut, G., & Booth, R. (2009). Designing electronic use policies to enhance employee perceptions of fairness and to reduce cyberloafing: An empirical test of justice theory. *Computers in Human Behavior*, *25*(4), 902-910. https://doi.org/10.1016/j.chb.2009.03.005

Hensel, P., & Kacprzak, A. (2020). Job overload, organizational commitment, and motivation as antecedents of cyberloafing: Evidence from employee monitoring software. *European Management Review*, *17*, 931-942. http://dx.doi.org/10.1111/emre.12407

Hensel, P. G., & Kacprzak, A. (2021). Curbing cyberloafing: Studying general and specific deterrence effects with field evidence. *European Journal of Information Systems*, *30*(2), 219-235. https://doi.org/10.1080/0960085X.2020.1756701

Hernandez-Castro, W. (2016). *An empirical assessment of employee cyberslacking in the public sector*. Nova Southeastern University.

Herschcovis, M., & Barling, J. (2010). Towards a multi-foci approach to workplace aggression: A meta-analytic review of outcomes from different perpetrators. *Journal of Organizational Behavior*, *31*(1), 24-44. https://doi.org/10.1002/job.621

Holland, P., & Bardoel, A. (2016). The impact of technology on work in the twenty-first century: Exploring the smart and dark side. *The International Journal of Human Resource Management*, *27*(21), 2579-2581. https://doi.org/10.1080/09585192.2016.1238126

Holland, P. J., Cooper, B., & Hecker, R. (2015). Electronic monitoring and surveillance in the workplace: The effects on trust in management, and the moderating role of occupational type. *Personnel Review*, *44*(1), 161-175. https://doi.org/10.1108/PR-11-2013-0211

Hollinger, R. C., & Clark, J. P. (1983). Deterrence in the workplace: Perceived certainty, perceived severity, and employee theft. *Social Forces*, *62*(2), 398-418. https://doi.org/10.2307/2578314

Hong, W., Chan, F. K., Thong, J. Y., Chasalow, L. C., & Dhillon, G. (2014). A framework and guidelines for context-specific theorizing in information systems research. *Information Systems Research*, *25*(1), 111-136. https://doi.org/10.1287/isre.2013.0501

Hu, P. J.-H., Hu, H.-F., Wei, C.-P., & Hsu, P.-F. (2016). Examining firms' green information technology practices: A hierarchical

view of key drivers and their effects. *Journal of Management Information Systems*, *33*(4), 1149-1179. https://doi.org/10.1080/07421222.2016.1267532

Hu, Y., Chen, Y., & Ye, M. (2021). Eager to belong: Social cyberloafing as a coping response to workplace ostracism. *Current Psychology*, 1-10. https://doi.org/10.1007/s12144-021-01690-y

Huma, Z.-e., Hussain, S., Thurasamy, R., & Malik, M. I. (2017). Determinants of cyberloafing: A comparative study of a public and private sector organization. *Internet Research*, *27*(1), 97-117. https://doi.org/10.1108/IntR-12-2014-0317

Jackson, T., Dawson, R., & Wilson, D. (2003). Reducing the effect of email interruptions on employees. *International Journal of Information Management*, *23*(1), 55-65. https://doi.org/10.1016/S0268-4012(02)00068-3

Jeong, Y., Jung, H., & Lee, J. (2020). Cyberslacking or smart work: Smartphone usage log-analysis focused on app-switching behavior in work and leisure conditions. *International Journal of Human-Computer Interaction*, *36*(1), 15-30. https://doi.org/10.1080/10447318.2019.1597574

Jia, H., Jia, R., & Karau, S. (2013). Cyberloafing and personality: The impact of the Big Five traits and workplace situational factors. *Journal of Leadership & Organizational Studies*, *20*(3), 358-365. https://doi.org/10.1177/1548051813488208

Johns, G. (2006). The essential impact of context on organizational behavior. *Academy of Management Review*, *31*(2), 386-408. https://doi.org/10.2307/20159208

Johns, G. (2017). Reflections on the 2016 decade award: Incorporating context in organizational research. *Academy of Management Review*, *42*(4), 577-595. https://doi.org/10.5465/amr.2017.0044

Judge, T. A., Heller, D., & Mount, M. K. (2002). Five-factor model of personality and job satisfaction: A meta-analysis. *Journal of Applied Psychology*, *87*, 530-541. https://doi.org/10.1037/0021-9010.87.3.530

Judge, T. A., & Ilies, R. (2002). Relationship of personality to performance motivation: A meta-analytic review. *Journal of Applied Psychology*, *87*(4), 797-807. https://doi.org/10.1037/0021-9010.87.4.797

Khansa, L., Kuem, J., Siponen, M., & Kim, S. S. (2017). To cyberloaf or not to cyberloaf: The impact of the announcement of formal organizational controls. *Journal of Management Information Systems*, *34*(1), 141-176. https://doi.org/10.1080/07421222.2017.1297173

Kim, K., Triana, M. a. D. C., Chung, K., & Oh, N. (2016). When do employees cyberloaf? An interactionist perspective examining personality, justice, and empowerment. *Human Resource Management Review*, *55*(6), 1041-1058. https://doi.org/10.1002/hrm.21699

Koay, K. Y. (2018). Workplace ostracism and cyberloafing: A moderated-mediation model. *Internet Research*, *28*(4), 1122-1141. https://doi.org/10.1108/IntR-07-2017-0268

Koay, K. Y., Soh, P. C.-H., & Chew, K. W. (2017). Antecedents and consequences of cyberloafing: Evidence from the Malaysian ICT industry. *First Monday*, *22*(3-6).

König, C. J., & Caner de la Guardia, M. E. (2014). Exploring the positive side of personal internet use at work: Does it help in managing the border between work and nonwork? *Computers in Human Behavior*, *30*, 355-360. https://doi.org/10.1016/j.chb.2013.09.021

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., & Scherlis, W. (1998). Internet paradox. A social technology that reduces social involvement and psychological well-being? *The American Psychologist*, *53*(9), 1017-1031. https://doi.org/10.1037//0003-066x.53.9.1017

Kulas, J. T., Robinson, D. H., Kellar, D. Z., & Smith, J. A. (2017). Nonresponse in organizational surveying: Attitudinal distribution form and conditional response probabilities' impact on patterns of bias. *Public Opinion Quarterly*, *81*(2), 401-421. https://doi.org/10.1093/poq/nfw054

Kuschnaroff, F. C., & Bayma, F. O. (2014). Critical analysis of cyberslacking in organizational structures. *Journal of Human Resource and Sustainability Studies*, *2*, 70-90. https://doi.org/10.4236/jhrss.2014.22007

Lau, V. C. S., Wing Tung, A., & Ho, J. M. C. (2003). A qualitative and quantitative review of antecedents of counterproductive behavior in organizations. *Journal of Business and Psychology*, *18*(1), 73-99. https://doi.org/10.1023/A:1025035004930

Liang, H., Xue, Y., & Wu, L. (2013). Ensuring employees' it compliance: Carrot or stick? *Information Systems Research*, *24*(2), 279-294. https://doi.org/10.1287/isre.1120.0427

Liberman, B., Seidman, G., McKenna, K. Y. A., & Buffardi, L. E. (2011). Employee job attitudes and organizational characteristics as predictors of cyberloafing. *Computers in Human Behavior*, *27*(6), 2192-2199. https://doi.org/10.1016/j.chb.2011.06.015

Lim, P. K., Koay, K. Y., & Chong, W. Y. (2021). The effects of abusive supervision, emotional exhaustion and organizational commitment on cyberloafing: A moderated-mediation examination. *Internet Research*, *31*(2), 497-518. https://doi.org/10.1108/INTR-03-2020-0165

Lim, V. K. G. (2002). The IT way of loafing on the job: Cyberloafing, neutralizing and organizational justice. *Journal of Organizational Behavior*, *23*(5), 675-694. https://doi.org/10.1002/job.161

Lim, V. K. G., & Teo, T. S. H. (2005). Prevalence, perceived seriousness, justification and regulation of cyberloafing in Singapore an exploratory study. *Information & Management*, *42*, 1081-1093. https://doi.org/10.1016/j.im.2004.12.002

Lim, V. G., & Chen, D. Q. (2012). Cyberloafing at the workplace: Gain or drain on work? *Behaviour & Information Technology*, *31*(4), 343-353. https://doi.org/10.1080/01449290903353054

Lindell, M. K., & Whitney, D. J. (2001). Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology*, *86*, 114-121. https://doi.org/10.1037/0021-9010.86.1.114

Marcus, B., & Schuler, H. (2004). Antecedents of counterproductive behavior at work: A general perspective. *Journal of Applied Psychology*, *89*(4), 647-660. https://doi.org/10.1037/0021-9010.89.4.647

Mark, G., Iqbal, S., Czerwinski, M., Johns, P., & Sano, A. (2016). Neurotics can't focus: An in situ study of online multitasking in the workplace. *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems*.

Markus, G. B. (1979). *Analyzing panel data*. SAGE.

Martinko, M. J., Gundlach, M. J., & Douglas, S. C. (2002). Toward an integrative theory of counterproductive workplace behavior: A causal reasoning perspective. *International Journal of Selection and Assessment*, *10*(1-2), 36-50. https://doi.org/10.1111/1468-2389.00192

Mazmanian, M., Orlikowski, W. J., & Yates, J. (2013). The autonomy paradox: The implications of mobile email devices for knowledge professionals. *Organization Science*, *24*(5), 1337-1357. https://doi.org/10.1287/orsc.1120.0806

McCrae, R. R. (1996). Social consequences of experiential openness. *Psychological Bulletin*, *120*(3), 323-337. https://doi.org/10.1037/0033-2909.120.3.323

McCrae, R. R., & Costa Jr, P. T. (1991). The neo personality inventory: Using the five-factor modei in counseling. *Journal of Counseling & Development*, *69*(4), 367-372. https://doi.org/10.1002/j.1556-6676.1991.tb01524.x

McElroy, J. C., Hendrickson, A. R., Townsend, A. M., & DeMarie, S. M. (2007). Dispositional factors in internet use: Personality versus cognitive style. *MIS Quarterly*, *31*(4), 809-820. https://doi.org/10.2307/25148821

Miles, M. B., & Huberman, A. M. (1984). *Qualitative data analysis*. SAGE.

Morgan, D. L. (1997). *Focus groups as qualitative research* (Vol. 16.). SAGE.

Ng, J. C. Y., Shao, I. Y. T., & Liu, Y. (2016). This is not what I wanted: The effect of avoidance coping strategy on non-work-related social media use at the workplace. *Employee Relations*, *38*(4), 466-486. https://doi.org/10.1108/ER-12-2015-0216

Nivedhitha, K. S., & Manzoor, A. K. S. (2020). Get employees talking through enterprise social media! Reduce cyberslacking: A moderated mediation model. *Internet Research*, *30*(4), 1167-1202. https://doi.org/10.1108/INTR-04-2019-0138

Nunnally, J. C. (1978). An overview of psychological measurement. In B. B. Wolman (Ed.), *Clinical diagnosis of mental disorders: A handbook* (pp. 97-146). Springer. https://doi.org/10.1007/978-1-4684-2490-4_4

O'Neill, T. A., Hambley, L. A., & Bercovich, A. (2014a). Prediction of cyberslacking when employees are working away from the office. *Computers in Human Behavior*, *34*, 291-298. https://doi.org/10.1016/j.chb.2014.02.015

O'Neill, T. A., Hambley, L. A., & Chatellier, G. S. (2014b). Cyberslacking, engagement, and personality in distributed work environments. *Computers in Human Behavior*, *40*, 152-160. https://doi.org/10.1016/j.chb.2014.08.005

Ones, D. S., Viswesvaran, C., & Schmidt, F. L. (1993). Comprehensive meta-analysis of integrity test validities: Findings and implications for personnel selection and theories of job performance. *Journal of Applied Psychology*, *78*(4), 679-703. https://doi.org/10.1037/0021-9010.78.4.679

Orlikowski, W. J., & Barley, S. R. (2001). Technology and institutions: What can research on information technology and research on organizations learn from each other? *MIS Quarterly*, *25*(2), 145-165. https://doi.org/10.2307/3250927

Orlikowski, W. J., Yates, J., Okamura, K., & Fujimoto, M. (1995). Shaping electronic communication: The metastructuring of technology in the context of use. *Organization Science*, *6*(4), 423-444. https://doi.org/10.1287/orsc.6.4.423

Ozler, D. E., & Polat, G. (2012). Cyberloafing phenomenon in organizations: Determinants and impacts. *International Journal of eBusiness and eGovernment Studies*, *4*(2), 1-15.

Page, D. (2015). Teachers' personal web use at work. *Behaviour & Information Technology*, *34*(5), 443-453. https://doi.org/10.1080/0144929X.2014.928744

Pee, L. G., Woon, I. M., & Kankanhalli, A. (2008). Explaining non-work-related computing in the workplace: A comparison of alternative models. *Information & Management*, *45*(2), 120-130. https://doi.org/10.1016/j.im.2008.01.004

Pindek, S., Krajcevska, A., & Spector, P. E. (2018). Cyberloafing as a coping mechanism: Dealing with workplace boredom. *Computers in Human Behavior*, *86*, 147-152. https://doi.org/10.1016/j.chb.2018.04.040

Polites, G. L., Roberts, N., & Thatcher, J. (2012). Conceptualizing models using multidimensional constructs: A review and guidelines for their use. *European Journal of Information Systems*, *21*(1), 22-48. https://doi.org/10.1057/ejis.2011.10

Polito, A. (1997). Cyberloafing can be curbed. *Workforce*, *76*(3), 18-18.

Restubog, S. L. D., Garcia, P. R. J. M., Toledano, L. S., Amarnani, R. K., Tolentino, L. R., & Tang, R. L. (2011). Yielding to (cyber)-temptation: Exploring the buffering role of self-control in the relationship between organizational justice and cyberloafing behavior in the workplace. *Journal of Research in Personality*, *45*(2), 247-251. https://doi.org/10.1016/j.jrp.2011.01.006

Robert, J. L. P., & Sykes, T. A. (2017). Extending the concept of control beliefs: Integrating the role of advice networks. *Information Systems Research*, *28*(1), 84-96. https://doi.org/10.1287/isre.2016.0666

Rotundo, M., & Sackett, P. R. (2002). The relative importance of task, citizenship, and counterproductive performance to global ratings of job performance: A policy-capturing approach. *Journal of Applied Psychology*, *87*(1), 66-80. https://doi.org/10.1037/0021-9010.87.1.66

Ryckman, R. (2004). *Theories of personality*. Thomson Wadsworth.

Sackett, P. R., & DeVore, C. J. (2001). Counterproductive behaviors at work. In N. Anderson, D. S. Ones, H. K. Sinangil, & C. Viswesvaran (Eds.), *Handbook of industrial, work, and organizational psychology* (Vol. 1, pp. 145-164). https://dx.doi.org/10.4135/9781848608320

Salgado, J. (2002). The Big Five personality dimensions and counterproductive behaviors. *International Journal of Selection and Assessment*, *10*(1-2), 117-125. https://doi.org/10.1111/1468-2389.00198

Saunders, M. N. K. (2012). Web versus mail: The influence of survey distribution mode on employees' response. *Field Methods*, *24*(1), 56-73. https://doi.org/10.1177/1525822x11419104

Schmitz, K. W., Teng, J. T. C., & Webb, K. J. (2016). Capturing the complexity of malleable IT use adaptive structuration theory for individuals. *MIS Quarterly*, *40*(3), 663-686. https://doi.org/10.25300/MISQ/2016/40.3.07

Sheikh, A., Aghaz, A., & Mohammadi, M. (2019). Cyberloafing and personality traits: An investigation among knowledge-workers across the Iranian knowledge-intensive sectors. *Behaviour & Information Technology*, *38*(12), 1213-1224. https://doi.org/10.1080/0144929X.2019.1580311

Sheikh, A., Atashgah, M. S., & Adibzadegan, M. (2015). The antecedents of cyberloafing: A case study in an Iranian copper industry. *Computers in Human Behavior*, *51*, 172-179. https://doi.org/10.1016/j.chb.2015.04.042

Sherif, K., Zmud, R. W., & Browne, G. J. (2006). Managing peer-to-peer conflicts in disruptive information technology innovations: The case of software reuse. *MIS Quarterly*, *30*(2), 339-356. https://doi.org/10.2307/25148734

Shiner, R. L., Masten, A. S., & Tellegen, A. (2002). A developmental perspective on personality in emerging adulthood: Childhood antecedents and concurrent adaptation. *Journal of Personality*

*and Social Psychology*, *83*(5), 1165-1177. https://doi.org/10.1037/0022-3514.83.5.1165

Slaughter, J. E., & Kausel, E. E. (2009). The neurotic employee: Theoretical analysis of the influence of narrow facets of neuroticism on cognitive, social, and behavioral processes relevant to job performance. In J. J. Martocchio & H. Liao (Eds.), *Research in personnel and human resources management* (Vol. 28, pp. 265-341). Emerald Group. https://doi.org/10.1108/S0742-7301(2009)0000028010

Son, J.-Y., & Park, J. (2016). Procedural justice to enhance compliance with non-work-related computing (NWRC) rules: Its determinants and interaction with privacy concerns. *International Journal of Information Management*, *36*(3), 309-321. https://doi.org/10.1016/j.ijinfomgt.2015.12.005

Soral, P., Arayankalam, J., & Pandey, J. (2020). The impact of ambivalent perception of bureaucratic structure on cyberloafing. *Australasian Journal of Information Systems*, *24*, 1-44. https://doi.org/10.3127/ajis.v24i0.2087

Sun, H. (2012). Understanding user revisions when using information system features: Adaptive system use and triggers. *MIS Quarterly*, *36*(2), 453-478. http://dx.doi.org/10.2307/41703463

Sykes, T. A. (2015). Support structures and their impacts on employee outcomes: A longitudinal field study of an enterprise system implementation. *MIS Quarterly*, *39*(2), 473-495. http://dx.doi.org/10.25300/MISQ/2015/39.2.09

Sykes, T. A. (2020). Enterprise system implementation and employee job outcomes: Understanding the role of formal and informal support structures using the job strain model. *MIS Quarterly*, *44*, 2055-2086. https://doi.org/10.25300/MISQ/2020/11672

Sykes, T. A., & Venkatesh, V. (2017). Explaining post-implementation employee system use and job performance: Impacts of the content and source of social network ties. *MIS Quarterly*, *41*(3), 917-936. https://doi.org/10.25300/MISQ/2017/41.3.11

Sykes, T. A., Venkatesh, V., & Johnson, J. L. (2014). Enterprise system implementation and employee job performance: Understanding the role of advice networks. *MIS Quarterly*, *38*(1), 51-72. http://dx.doi.org/10.25300/MISQ/2014/38.1.03

Tepper, B. J., Duffy, M. K., & Shaw, J. D. (2001). Personality moderators of the relationship between abusive supervision and subordinates' resistance. *Journal of Applied Psychology*, *86*, 974-983. https://doi.org/10.1037/0021-9010.86.5.974

Thatcher, J. B., Wright, R. T., Sun, H., Zagenczyk, T. J., & Klein, R. (2018). Mindfulness in information technology use: Definitions, distinctions, and a new measure. *MIS Quarterly*, *42*(3), 831-848. https://doi.org/10.25300/MISQ/2018/11881

Treem, J. W., & Leonardi, P. M. (2013). Social media use in organizations: Exploring the affordances of visibility, editability, persistence, and association. *Annals of the International Communication Association*, *36*(1), 143-189. https://doi.org/10.1080/23808985.2013.11679130

Triandis, H. C. (1977). *Interpersonal behavior*. Cole Pub. Co.

Ugrin, J. C., & Pearson, J. M. (2013). The effects of sanctions and stigmas on cyberloafing. *Computers in Human Behavior*, *29*(3), 812-820. https://doi.org/10.1016/j.chb.2012.11.005

Urbaczewski, A., & Jessup, L. M. (2002). Does electronic monitoring of employee internet usage work? *Communications of the ACM*, *45*(1), 80-83. https://doi.org/10.1145/502269.502303

Usman, M., Javed, U., Shoukat, A., & Bashir, N. A. (2021). Does meaningful work reduce cyberloafing? Important roles of affective commitment and leader-member exchange. *Behaviour & Information Technology*, *40*(2), 206-220. https://doi.org/10.1080/0144929X.2019.1683607

Uzzi, B., Mukherjee, S., Stringer, M., & Jones, B. (2013). Atypical combinations and scientific impact. *Science*, *342*(6157), 468-472. https://doi.org/10.1126/science.1240474

Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research*, *11*(4), 342-365. https://doi.org/10.1287/isre.11.4.342.11872

Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, *39*(2), 273-312. https://doi.org/10.1111/j.1540-5915.2008.00192.x

Venkatesh, V., Bala, H., & Sykes, T. A. (2010). Impacts of information and communication technology implementations on employees' jobs in service organizations in India: A multi-method longitudinal field study. *Production and Operations Management*, *19*(5), 591-613. https://doi.org/10.1111/j.1937-5956.2010.01148.x

Venkatesh, V., Brown, S. A., & Bala, H. (2013). Bridging the qualitative-quantitative divide: Guidelines for conducting mixed methods research in information systems. *MIS Quarterly*, *37*(1), 21-54. https://doi.org/10.25300/MISQ/2013/37.1.02

Venkatesh, V., Brown, S. A., & Sullivan, Y. W. (2016). Guidelines for conducting mixed-methods research: An extension and illustration. *Journal of the Association for Information Systems*, *17*, 435-495. https://doi.org/10.17705/1jais.00433

Venkatesh, V., Davis, F. D., & Morris, M. G. (2007). Dead or alive? The development, trajectory and future of technology adoption research. *Journal of the Association for Information Systems*, *8*(4), 267-286. https://doi.org/10.17705/1jais.00120

Venkatesh, V., Maruping, L. M., & Brown, S. A. (2006). Role of time in self-prediction of behavior. *Organizational Behavior and Human Decision Processes*, *100*, 160-176. https://doi.org/10.1016/j.obhdp.2006.02.003

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 425-478. https://psycnet.apa.org/doi/10.2307/30036540

Venkatesh, V., Sykes, T. A., Aljafari, R., & Poole, M. S. (2021). The future is now: Calling for a focus on temporal issues in information system research. *Industrial Management & Data Systems*, *121*(1), 30-47. https://doi.org/10.1108/IMDS-08-2020-0506

Venkatesh, V., Sykes, T. A., Chan, F., Thong, J., & Hu, P. (2019). Children's internet addiction, family-to-work conflict, and job outcomes: A study of parent-child dyads. *MIS Quarterly*, *43*, 903-927. https://doi.org/10.25300/MISQ/2019/12338

Venkatesh, V., Thong, J. Y., & Xu, X. (2016). Unified theory of acceptance and use of technology: A synthesis and the road ahead. *Journal of the Association for Information Systems*, *17*(5), 328-376. https://doi.org/10.17705/1jais.00428

Venkatesh, V., & Windeler, J. B. (2012). Hype or help? A longitudinal field study of virtual world use for team collaboration. *Journal of the Association for Information Systems*, *13*(10), Article 5. https://doi.org/10.17705/1jais.00312

Venkatraman, S., Cheung, C. M. K., Lee, Z. W. Y., Davis, F., & Venkatesh, V. (2018). The "darth" side of technology use: An

inductively derived typology of cyberdeviance. *Journal of Management Information Systems*, *35*(4), 1060-1091. https://doi.org/10.1080/07421222.2018.1523531

Vitak, J., Crouse, J., & LaRose, R. (2011). Personal internet use at work: Understanding cyberslacking. *Computers in Human Behavior*, *27*(5), 1751-1759. https://doi.org/10.1016/j.chb.2011.03.002

Wagner, J. (2012). A comparison of alternative indicators for the risk of nonresponse bias. *Public Opinion Quarterly*, *76*(3), 555-575. https://doi.org/10.1093/poq/nfs032

Wagner, D. T., Barnes, C. M., Lim, V. K. G., & Ferris, D. L. (2012). Lost sleep and cyberloafing: Evidence from the laboratory and a daylight saving time quasi-experiment. *Journal of Applied Psychology*, *97*(5), 1068-1076. https://doi.org/10.1037/a0027557

Wang, J., Tian, J., & Shen, Z. (2013). The effects and moderators of cyber-loafing controls: An empirical study of Chinese public servants. *Information Technology and Management*, *14*(4), 269-282. https://doi.org/10.1007/s10799-013-0164-y

Watson, D., & Clark, L. A. (1997). Extraversion and its positive emotional core. In R. Hogan, J. Johnson, & S. Briggs (Eds.), *Handbook of personality psychology* (pp. 767-793). Academic Press. https://doi.org/10.1016/B978-012134645-4/50030-5

Webster, J., & Watson, R. T. (2002). Analyzing the past to prepare for the future: Writing a literature review. *MIS Quarterly*, *26*(2), 13-23. https://doi.org/10.1080/12460125.2020.1798591

Welbourne, T. M., Johnson, D. E., & Erez, A. (1998). The role-based performance scale: Validity analysis of a theory-based measure. *Academy of Management Journal*, *41*(5), 540-555. https://doi.org/10.5465/256941

Whitty, M. T., & Carr, A. N. (2006). New rules in the workplace: Applying object-relations theory to explain problem internet and email behaviour in the workplace. *Computers in Human Behavior*, *22*(2), 235-250. https://doi.org/10.1016/j.chb.2004.06.005

Wiebe, R. P. (2004). Delinquent behavior and the five-factor model: Hiding in the adaptive landscape? *Individual Differences Research*, *2*(1), 38-62.

Willison, R., & Warkentin, M. (2013). Beyond deterrence: An expanded view of employee computer abuse. *MIS Quarterly*, *37*(1), 1-20. https://doi.org/10.25300/MISQ/2013/37.1.01

Wilt, J., & Revelle, W. (2019). The Big Five, everyday contexts and activities, and affective experience. *Personality and Individual Differences*, *136*, 140-147. https://doi.org/10.1016/j.paid.2017.12.032

Wrzus, C., Wagner, G. G., & Riediger, M. (2016). Personality-situation transactions from adolescence to old age. *Journal of Personality and Social Psychology*, *110*, 782-799. https://doi.org/10.1037/pspp0000054

Wu, J., Mei, W., Liu, L., & Ugrin, J. C. (2020). The bright and dark sides of social cyberloafing: Effects on employee mental health in china. *Journal of Business Research*, *112*, 56-64. https://doi.org/10.1016/j.jbusres.2020.02.043

Wushe, T., & Shenje, J. (2019). The relationship between social media usage in the workplace and employee productivity in the public sector: Case study of government departments in Harare. *SA Journal of Human Resource Management*, *17*, Article A1116. https://doi.org/10.4102/sajhrm.v17i0.1116

Wyatt, K., & Phillips, J. G. (2005). Internet use and misuse in the workplace. *Proceedings of the 17th Australia Conference on Computer-Human Interaction*.

Xue, Y., Liang, H., & Wu, L. (2011). Punishment, justice, and compliance in mandatory it settings. *Information Systems Research*, *22*(2), 400-414,416-417. https://doi.org/10.1287/isre.1090.0266

Yen, H. R., Hu, P. J.-H., Hsu, S. H.-Y., & Li, E. Y. (2015). A multilevel approach to examine employees' loyal use of ERP systems in organizations. *Journal of Management Information Systems*, *32*(4), 144-178. https://doi.org/10.1080/07421222.2015.1138373

Zhang, H., Luo, X. R., Liao, Q., & Peng, L. (2015). Does it team climate matter? An empirical study of the impact of co-workers and the confucian work ethic on deviance behavior. *Information & Management*, *52*(6), 658-667. https://doi.org/10.1016/j.im.2015.05.006

Zhang, J., Akhtar, M. N., Zhang, Y., & Sun, S. (2020). Are overqualified employees bad apples? A dual-pathway model of cyberloafing. *Internet Research*, *30*(1), 289-313. https://doi.org/10.1108/INTR-10-2018-0469

Zhang, X. (2017). Knowledge management system use and job performance: A multilevel contingency model. *MIS Quarterly*, *41*(3), 811-840. https://doi.org/10.25300/MISQ/2017/41.3.07

Zhang, X., & Venkatesh, V. (2017). A nomological network of knowledge management system use: Antecedents and consequences. *MIS Quarterly*, *41*(4), 1275-1306. https://doi.org/10.25300/MISQ/2017/41.4.12

Zhou, B., Li, Y., Hai, M., Wang, W., & Niu, B. (2021). Challenge-hindrance stressors and cyberloafing: A perspective of resource conservation versus resource acquisition. *Current Psychology*, https://doi.org/10.1007/s12144-021-01505-0.

Zoghbi-Manrique-de-Lara, P. (2006). Fear in organizations: Does intimidation by formal punishment mediate the relationship between interactional justice and workplace internet deviance? *Journal of Managerial Psychology*, *21*(6), 580-592. https://doi.org/10.1108/02683940610684418

Zoghbi-Manrique-de-Lara, P. (2007). Relationship between organizational justice and cyberloafing in the workplace: Has "anomia" a say in the matter? *CyberPsychology & Behavior*, *10*(3), 464-470. https://doi.org/10.1089/cpb.2006.9931

Zoghbi-Manrique-de-Lara, P. (2009). Inequity, conflict, and compliance dilemma as causes of cyberloafing. *International Journal of Conflict Management*, *20*(2), 188-201. https://doi.org/10.1108/10444460910949630

Zoghbi-Manrique-de-Lara, P., Domingo Verano, T., & Ding, J.-M. T. (2006). Do current anti-cyberloafing disciplinary practices have a replica in research findings? *Internet Research*, *16*(4), 450-467. https://doi.org/10.1108/10662240610690052

Zoghbi-Manrique-de-Lara, P., & Olivares-Mesa, A. (2010). Bringing cyber loafers back on the right track. *Industrial Management & Data Systems*, *110*(7), 1038-1053. https://doi.org/10.1108/02635571011069095

Zoghbi-Manrique-de-Lara, P., & Viera-Armas, M. (2017). Corporate culture as a mediator in the relationship between ethical leadership and personal internet use. *Journal of Leadership & Organizational Studies*, *24*(3), 357-371. https://doi.org/10.1177/1548051817696877

Zoghbi-Manrique-de-Lara, P., Viera-Armas, M., & De Blasio García, G. (2020). Does supervisors' mindfulness keep employees from engaging in cyberloafing out of compassion at work? *Personnel Review*, *49*(2), 670-687. https://doi.org/10.1108/PR-12-2017-0384

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# Appendix A

## Literature Search (Identification of Prior Cyberslacking Papers)

We conducted a literature search to identify studies on cyberslacking in the workplace following the procedures suggested by Webster and Watson (2002). First, we conducted a literature search on electronic databases, including Business Source Complete, PsycARTICLES, PsycINFO, Applied Social Sciences Index & Abstracts, Scopus, Science Direct, and JSTOR, using the following keywords: cyberslack*, cyberloaf*, non-work-related computing, and personal internet use. After identifying the initial set of articles, we conducted a backward search by reviewing the citations for the identified articles to determine additional prior articles for further consideration. Next, we conducted a forward search using Web of Science to identify articles citing the key articles identified for further consideration. We included articles in which cyberslacking was the focus of the study and excluded cyberslacking studies beyond the workplace context. Finally, we obtained 62 articles on cyberslacking in the workplace.

**Table A1. Review of Studies on Cyberslacking**

| | | Theoretical perspectives | | | | | |
|---|---|---|---|---|---|---|---|
| **Authors (Year)** | **Variables investigated** | **Organizational justice** | **Control and deterrence mechanisms** | **Planned behavior** | **Personality traits** | **Others** | **Consequences** |
| Aghaz & Sheikh (2016) | -Job burnout | _____ | _____ | _____ | _____ | Maslach's burnout model | NONE |
| Akbulut et al. (2017) | NONE | _____ | _____ | _____ | _____ | _____ | NONE |
| Alharthi et al. (2021) | -Employee commitment to the organization | _____ | _____ | _____ | _____ | Commitment theory | NONE |
| Andreassen et al. (2014) | -Extraversion<br>-Neuroticism<br>-Agreeableness<br>-Conscientiousness<br>-Imagination | _____ | _____ | _____ | Five-factor model of personality | _____ | NONE |
| Arciniega et al. (2019) | -Self-enhancement<br>-Conservation | _____ | _____ | _____ | _____ | Schwartz's theory of individual values | NONE |
| Askew et al. (2014) | -Descriptive norm<br>-Prescriptive norm<br>-Intention<br>-Cyberslacking attitude<br>-Web access self-efficacy | _____ | _____ | Theory of planned behavior | _____ | _____ | NONE |
| Askew et al. (2019) | -Descriptive norm<br>-Prescriptive norm | _____ | _____ | Theory of planned behavior | _____ | _____ | NONE |
| Betts et al. (2014) | -Affect<br>-Habit<br>-Intention<br>-Internet skill<br>-Metaphor of the ledger<br>-Organizational justice<br>-Perceived (positive) consequences<br>-Facilitating conditions<br>-Social factors | Theory of organizational justice | _____ | Theory of interpersonal behavior | _____ | _____ | NONE |
| Blanchard & Henle (2008) | NONE | _____ | _____ | _____ | _____ | _____ | NONE |
| Blau et al. (2006) | NONE | _____ | _____ | _____ | _____ | _____ | NONE |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Bock et al. (2010) | -Intention<br>-Attitude<br>-Perceived benefit<br>-Habit<br>-Subjective norm<br>-Control mechanism | _____ | _____ | Theory of reasoned action | _____ | _____ | NONE |
| Cheng et al. (2020) | -Perceived overqualification<br>-Harmonious passion<br>-Need for achievement | _____ | _____ | _____ | _____ | Equity theory | NONE |
| Garrett & Danziger (2008) | -Job autonomy | Social exchange theory | _____ | _____ | _____ | | NONE |
| Glassman et al. (2015) | -Blocking module<br>-Confirmation module<br>-Quota module | _____ | Agency theory | _____ | _____ | _____ | NONE |
| Güğerçin (2020) | -Technostress | _____ | _____ | _____ | _____ | Neutralization theory | NONE |
| Henle & Blanchard (2008) | -Organizational sanctions<br>-Role ambiguity<br>-Role conflict<br>-Role overload | _____ | The control and deterrence mechanisms | _____ | _____ | Role theory | NONE |
| Henle et al. (2009) | -Procedural justice | Theory of organizational justice | _____ | _____ | _____ | _____ | NONE |
| Hensel & Kacprzak (2020) | -Job overload<br>-Organizational commitment<br>-Employee motivation | _____ | Self-control failure model | -Theory of planned behavior<br>-The ego depletion model | _____ | _____ | NONE |
| Hensel & Kacprzak (2021) | -Reminder<br>-Punishment<br>-Punished/Unpunished<br>-Time<br>-Proximity in organizational structure | _____ | General deterrence theory | _____ | _____ | _____ | NONE |
| Hu et al. (2021) | -Workplace ostracism<br>-Workplace loneliness<br>-Conscientiousness | _____ | _____ | _____ | _____ | Affective events theory | NONE |
| Huma et al. (2017) | -Facilitating conditions<br>-Social factors<br>-Intention<br>-Attitude<br>-Habit<br>-Affect | _____ | _____ | Triandis model of choice | _____ | _____ | NONE |
| Jeong et al. (2020) | NONE | _____ | _____ | _____ | _____ | _____ | NONE |
| Jia et al. (2013) | -Extraversion<br>-Neuroticism<br>-Agreeableness<br>-Conscientiousness<br>-Openness | _____ | _____ | _____ | Five-factor model of personality | _____ | NONE |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Khansa et al. (2017) | -Announcement of formal controls<br>-Neutralization<br>-Peer cyberloafing<br>-Perceived justice<br>-Past cyberloafing behavior<br>-Intention | Theory of organizational justice | Akers' social learning theory | _____ | _____ | _____ | NONE |
| Kim et al. (2016) | -Organizational justice<br>-Conscientiousness | Theory of organizational justice | _____ | _____ | Five-factor model of personality | _____ | NONE |
| Koay (2018) | -Workplace ostracism<br>-Emotional exhaustion | _____ | _____ | _____ | _____ | Conservation of resources theory | NONE |
| Koay et al. (2017) | -Intention<br>-Habit<br>-Affect<br>-Perceived favorable consequences<br>-Facilitating conditions<br>-Social factors | _____ | General strain theory | Triandis model of choice | _____ | _____ | -Job stress<br>-Work performance |
| König & Caner de la Guardia (2014) | -Border strength<br>-Influence at the workplace<br>-Supervisory support for border-crossing<br>-Private demands<br>-Identification with the job | _____ | _____ | _____ | _____ | Work/family border theory | -Work-nonwork balance |
| Liberman et al. (2011) | -Job attitude<br>-Favorable attitudes toward cyberslacking<br>-Others' cyberslacking behavior<br>-Managerial support of internet use<br>-Non-internet loafing behavior | _____ | _____ | Theory of reasoned action | _____ | _____ | NONE |
| Lim (2002) | -Metaphor of the ledge<br>-Organizational justice | Theory of organizational justice | _____ | _____ | _____ | _____ | NONE |
| Lim & Chen (2012) | NONE | _____ | _____ | _____ | _____ | _____ | -Work conflict<br>-Work facilitation |
| Lim et al. (2021) | -Abusive supervision<br>-Emotional exhaustion<br>-Organizational commitment | Social exchange theory, | _____ | _____ | _____ | Conservation of resources theory | NONE |
| Lim & Teo (2005) | NONE | _____ | _____ | _____ | _____ | _____ | NONE |
| Ng et al. (2016) | -Avoidance coping strategy | _____ | _____ | _____ | _____ | Avoidance coping strategy | -Task performance<br>-Creative performance<br>-Guanxi performance |
| Nivedhitha & Manzoor (2020) | -Self-expression<br>-Recognition<br>-Network externality<br>-Workplace social bonding<br>-Perceived co-worker involvement | _____ | _____ | _____ | _____ | Social bonding theory | NONE |
| O'Neill et al. (2014a) | -Neuroticism<br>-Agreeableness | _____ | _____ | _____ | Trait activation theory | _____ | NONE |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | -Conscientiousness | | | | | | |
| O'Neill et al. (2014b) | -Personality traits | _____ | _____ | _____ | Trait activation theory | _____ | NONE |
| Ozler & Polat (2012) | -Intention<br>-Unfavorable job attitudes<br>-Habit<br>-Personality traits<br>-Internet addiction<br>-Job satisfaction<br>-Personality traits<br>-Personal ethical code<br>-Anticipated (negative) outcomes<br>-Job commitment<br>-Job satisfaction<br>-Managerial support<br>-Perceived co-worker cyberslacking norm<br>-Injustice<br>-Facilitating conditions<br>-Restrictions on Internet use<br>-Proximity of supervisors<br>-Organizational policies and sanctions | _____ | _____ | _____ | _____ | Review paper | -Positive consequences<br>-Negative consequences |
| Page (2015) | NONE | _____ | _____ | _____ | _____ | _____ | -Productivity |
| Pee et al. (2008) | -Intention<br>-Habit<br>-Affect<br>-Perceived (positive) consequences<br>-Facilitating conditions<br>-Social factors | _____ | _____ | Theory of planned behavior | _____ | _____ | NONE |
| Pindek et al. (2018) | NONE | _____ | _____ | _____ | _____ | _____ | NONE |
| Restubog et al. (2011) | -Organizational justice<br>-Self-control | Theory of organizational justice | General strain theory | _____ | _____ | _____ | NONE |
| Sheikh et al. (2019) | -Conscientiousness<br>-Agreeableness<br>-Neuroticism<br>-Extraversion<br>-Openness to experience | _____ | _____ | _____ | Five-factor model of personality | _____ | NONE |
| Sheikh et al. (2015) | -Intention<br>-Attitude<br>-Subjective norm | _____ | _____ | Theory of planned behavior | _____ | _____ | NONE |
| Son & Park (2016) | -Procedural justice | Theory of organizational justice | _____ | _____ | _____ | _____ | NONE |
| Soral et al. (2020) | -Enabling bureaucracy<br>-Coercive bureaucracy<br>-Organizational identification<br>-Work engagement | _____ | Containment theory | _____ | _____ | Social identity theory | NONE |
| Ugrin & Pearson (2013) | -Sanctions | _____ | General deterrence theory | _____ | _____ | _____ | NONE |
| Usman et al. (2021) | -Meaningful work<br>-Affective commitment | _____ | _____ | _____ | _____ | -Job characteristics model | NONE |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | -Leader-member exchange | | | | | -Leader-member exchange theory | |
| Vitak et al. (2011) | NONE | _____ | _____ | _____ | _____ | _____ | NONE |
| Wagner et al. (2012) | -Conscientiousness | _____ | _____ | _____ | Five-factor model of personality | _____ | NONE |
| Wang et al. (2013) | -Perceived internet use policy<br>-Perceived electronic monitoring | _____ | Self-consistency theory | _____ | _____ | _____ | NONE |
| Wu et al. (2020) | NONE | _____ | _____ | Ego-depletion theory, the effort-recovery model | _____ | _____ | -Psychological detachment<br>-Fatigue<br>-Mental health |
| Zhang et al. (2020) | -Perceived overqualification<br>-Moral disengagement<br>-Anger toward organization<br>-Moral identity | Social exchange theory | _____ | _____ | _____ | _____ | NONE |
| Zhang et al. (2015) | NONE | _____ | _____ | _____ | _____ | _____ | NONE |
| Zhou et al. (2021) | -Challenge stressors<br>-Hindrance stressors<br>-Resilience<br>-Emotional exhaustion | _____ | _____ | _____ | _____ | Conservation of resources theory | NONE |
| Zoghbi-Manrique-de-Lara (2006) | -Interactional justice | Theory of organizational justice | _____ | _____ | _____ | _____ | NONE |
| Zoghbi-Manrique-de-Lara (2007) | -Organizational justice | Theory of organizational justice | _____ | _____ | _____ | _____ | NONE |
| Zoghbi-Manrique-de-Lara (2009) | -Normative conflict<br>-Procedural justice | Social exchange theory | _____ | _____ | _____ | _____ | NONE |
| Zoghbi-Manrique-de-Lara et al. (2006) | -Perceived organizational control<br>-Fear of formal punishment | _____ | The control and deterrence mechanisms | _____ | _____ | _____ | NONE |
| Zoghbi-Manrique-de-Lara & Olivares-Mesa (2010) | -Monitoring<br>-Proximity<br>-Punishment | _____ | The control and deterrence mechanisms | _____ | _____ | _____ | NONE |
| Zoghbi-Manrique-de-Lara & Viera-Armas (2017) | NONE | _____ | _____ | _____ | _____ | _____ | NONE |
| Zoghbi-Manrique-de-Lara et al. (2020) | -Employee's mindfulness<br>-Supervisor's mindfulness<br>-Compassion at work<br>-Empathic concern | _____ | _____ | Unitarism theory | _____ | _____ | NONE |

# Appendix B

## Qualitative Inquiry (Data Analysis and Results)

We conducted six focus groups (each with 20 employees of three different Fortune-100 companies) to identify IT-specific variables. Following the steps used in Zhang and Venkatesh's (2017) study, we examined the transcripts for components representing IT-specific variables that may facilitate someone using IT for cyberslacking. The approach used here is consistent with the *development* purpose of mixed methods research (Venkatesh et al., 2013; Venkatesh et al., 2016) We identified the two most important IT-specific variables by selecting those that were most frequently cited. At least 70 participants identified each of the two IT-specific variables and one fourth of the participants cited both reasons together. Given that each of these two variables were the most frequently cited and both variables were the most frequently cited together, we believe that these two variables are the most important IT-specific variables affecting cyberslacking. The last column of Table B1 provides example comments from interviewees who identified IT-specific variables and explained why the two IT-specific variables are important for cyberslacking.

**Table B1. Summary of IT-Specific Variables**

| IT-specific variables | Example comments from interviewees |
|---|---|
| Technology re-adaptability | "[Collaboration tool] can easily be used for personal conferencing and other social purposes both at work and with my friends outside work."<br><br>"So many conferencing tools that we have integrate nicely with my [tablet] that I can use them to talk to my friends and people at work would never know. It's already a tool used at work."<br><br>"I use [tool] a lot for the various fantasy leagues. So many stat packages [e.g., …] I use for analysis of my teams. It helps me organize my teams better than what's available on standard fantasy sites where I play."<br><br>"I used to use … for my personal financial management. Now, my brokerage site offers all the functionality. But, I expect this will always be the case. Things [software/apps] are available at my company first and I can use it until I can get it elsewhere."<br><br>"Any time I use a tool [at work], I think about if it can add value to my personal life." |
| Limited work use of IT | "The old calendaring tool has no use at work after we started using… so I found that I can get the license for free and use it for my personal activities."<br><br>"So many of the drawing tools that come with … are never used at work. We only use the basic reader and writer. But these other tools are super cool for my use and even my kids can use it. I can help them using … collaborative functions with their school assignments, at times, in the early evening, especially if I am stuck for some late meeting at work."<br><br>"When I have spare time, I poke around and see what tools we have on our VM. Most of these licenses can be downloaded to my machine and are they are quite useful for me personally even though they aren't used at work."<br><br>"Numerous useless work software are precious for my personal life."<br><br>"Free unused software at work. I use them during the day because I can't access them off-site." |

# Appendix C

## Constructs and Measures

**Table C1. Constructs and Measures**

| Construct | Code | Item | Note |
|---|---|---|---|
| | | | |
| Distributive justice | | How fairly has the organization been rewarding you… | Lim (2002) 7-point Likert Scale from strongly disagree to strongly agree |
| | DJ1 | For the amount of effort you have put in? | |
| | DJ2 | For the responsibilities you have? | |
| | DJ3 | For the work that you have done well? | |
| | DJ4 | For the stresses and strains of your job? | |
| | DJ5 | For the amount of education and training you received? | |
| Procedural justice | | How fairly has the organization's procedures designed to… | Lim (2002) 7-point Likert Scale from strongly disagree to strongly agree |
| | PJ1 | Provide useful feedback regarding a company's decision and its implementation? | |
| | PJ2 | Hear the concerns of everyone affected by a company's decision? | |
| | PJ3 | Allow for requests for clarifications or additional information about a company's decision? | |
| | PJ4 | Have all parties affected by a decision included in the decision-making process? | |
| | PJ5 | Help you to collect accurate information for decision-making? | |
| | PJ6 | Generate standards so that decisions can be made with consistency? | |
| | PJ7 | Provide opportunities to appeal against or challenge a company's decision? | |
| Interactional justice | IJ1 | My supervisor shows concern for my rights as an employee. | Lim (2002) 7-point Likert Scale from strongly disagree to strongly agree |
| | IJ2 | My supervisor treats me with kindness and consideration. | |
| | IJ3 | My supervisor takes steps to deal with me in a truthful manner. | |
| | IJ4 | My supervisor is able to suppress personal bias. | |
| | IJ5 | My supervisor generally considers my viewpoint. | |
| | IJ6 | My supervisor provides me with timely feedback about decisions and their implications. | |
| Technology re-adaptability | RAD1 | Changing the features of the email/instant messaging application is not straightforward.* | Self-developed 7-point Likert Scale from strongly disagree to strongly agree |
| | RAD2 | I think the features of email/instant messaging application can be adapted to use it for communicating with friends/family members. | |
| | RAD3 | I think the email/instant messaging application's features can easily be altered to use it for communicating with friends/family members. | |
| | RAD4 | I think the email/instant messaging application's features can easily be changed to use it for communicating with friends/family members. | |
| | RAD5 | In general, it is difficult to change the features of the email/instant messaging application.* | |
| Limited work use of IT | LWU1 | At work, I don't use email/instant messaging a whole lot for work-related purposes. | Self-developed 7-point Likert Scale from strongly disagree to strongly agree |
| | LWU2 | In general, I don't send a whole lot of emails/instant messages to my co-workers about work-related things. | |
| | LWU3 | In general, I don't receive a whole lot of emails/instant messages from my co-workers about work-related things. | |
| | LWU4 | I sparingly use email/instant messaging for work-related things at work. | |
| | LWU5 | At work, I almost never use email/instant messaging for work-related purposes. | |
| Prescriptive norm | PN1 | My co-workers would approve of me using the email/instant messaging system at the workplace for nonwork activities. | Adapted from Cialdini et al. (1990) |
| | PN2 | My supervisors would approve of me using the email/instant messaging system at the workplace for nonwork activities. | |

| | | | |
|---|---|---|---|
| | PN3 | My colleagues would approve of me using the email/instant messaging system at the workplace for nonwork activities. | 7-point Likert Scale from strongly disagree to strongly agree |
| Descriptive norm | DN1 | My co-workers have used the email/instant messaging system at the workplace for nonwork activities. | Adapted from Cialdini et al. (1990) 7-point Likert Scale from strongly disagree to strongly agree |
| | DN2 | My supervisors have used the email/instant messaging system at the workplace for nonwork activities. | |
| | DN3 | My colleagues have used the email/instant messaging system at the workplace for nonwork activities. | |
| | | | |
| Perceived IT control policy | PIT1 | My organization will know if I am using the email/instant messaging system at the workplace for nonwork purposes. | Adapted from Hollinger and Clark (1983) 7-point Likert Scale from strongly disagree to strongly agree |
| | PIT2 | It is risky to use the email/instant messaging system at the workplace for nonwork purposes. | |
| | PIT3 | My organization will be able to monitor all the email/instant messaging system use, if they want to. | |
| | PIT4 | It is tough for the organization to monitor the email/instant messaging system use at the workplace.* | |
| | PIT5 | My organization monitors all uses of the email/instant messaging system at the workplace. | |
| | | | |
| Attitude toward cyberslacking | ATT1 | Using the email/instant messaging system at the workplace for nonwork activities is a bad/good idea. | Adapted from Venkatesh et al. (2003) Bi-polar Scale |
| | ATT2 | Using the email/instant messaging system at the workplace for nonwork activities is a foolish/wise idea. | |
| | ATT3 | I dislike/like the idea of using the email/instant messaging system at the workplace for nonwork activities. | |
| | ATT4 | Using the email/instant messaging system at the workplace for nonwork activities is unpleasant/pleasant. | |
| Cyberslacking self-efficacy | CSE1 | I could perform a nonwork activity using the email/instant messaging system if there was no one around to tell me what to do as I go. | Adapted from Compeau and Higgins (1995) 7-point Likert Scale from strongly disagree to strongly agree |
| | CSE2 | I could perform a nonwork activity using the email/instant messaging system if I could call someone for help if I got stuck. | |
| | CSE3 | I could perform a nonwork activity using the email/instant messaging system if I had just the built-in help facility for assistance. | |
| | CSE4 | I could perform a nonwork activity using the email/instant messaging system if I had seen someone using it before trying it myself. | |
| Extraversion | EXT1 | I am the life of the party. | Donnellan et al. (2006) 7-point Likert Scale from strongly disagree to strongly agree |
| | EXT2 | I don't talk a lot.* | |
| | EXT3 | I talk to a lot of different people at parties. | |
| | EXT4 | I keep in the background.* | |
| Neuroticism | NEU1 | I have frequent mood swings. | |
| | NEU2 | I am relaxed most of the time.* | |
| | NEU3 | I get upset easily. | |
| | NEU4 | I seldom feel blue.* | |
| | | | |
| Openness | OPN1 | I have a vivid imagination. | Donnellan et al. (2006) 7-point Likert Scale from strongly disagree to strongly agree |
| | OPN2 | I am not interested in abstract ideas.* | |
| | OPN3 | I have difficulty understanding abstract ideas.* | |
| | OPN4 | I do not have a good imagination.* | |
| Agreeableness | AGR1 | I sympathize with others' feelings. | |
| | AGR2 | I am not interested in other people's problem.* | |
| | AGR3 | I feel others' emotion. | |
| | AGR4 | I am not really interested in others.* | |

| | | | |
|---|---|---|---|
| Conscientious-ness | CON1 | I get chores done right away. | |
| | CON2 | I often forget to put things back in their proper place.* | |
| | CON3 | I like order. | |
| | CON4 | I make a mess of things.* | |
| Cyberslacking | CS1 | I frequently email my friends/family from work. | Self-developed 7-point Likert Scale from strongly disagree to strongly agree |
| | CS2 | I consider myself to be a heavy user of email at work to communicate with friends and family. | |
| | CS3 | I spend more time on email from/to friends/family than work-related email on any given day at work. | |
| | CS4 | I consider myself to be a heavy user of instant messaging at work to communicate with friends and family. | |
| | CS5 | I spend more time on instant messaging from/to friends/family than work-related instant messaging on any given day at work. | |
| Job performance | | Please rate your subordinates along the following dimensions: | Zhang and Venkatesh (2017) 7-point Likert Scale from strongly disagree to strongly agree |
| | JP1 | Quality of work | |
| | JP2 | Quantity of work | |
| | JP3 | Technical competence | |
| | JP4 | Working as part of a team or work group | |
| | JP5 | Help others when it is not part of his/her job | |

**Note:** * Reverse-coded items.

# Appendix D.

## Post Hoc Analysis (a second-order construct model)

**Table D1. Descriptive Statistics and Correlations (n=395)**

| | | Mean | *SD* | ICR | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **Gender (1: Men)** | NA | NA | NA | NA | | | | | | | | | | | | | | | |
| 2 | **Age** | 35.8 | 13.2 | NA | .06 | NA | | | | | | | | | | | | | | |
| 3 | **Job meaninglessness** | 3.72 | 1.30 | .77 | -.08 | -.14* | .73 | | | | | | | | | | | | | |
| 4 | **Organizational justice** | 4.01 | 1.75 | NA | -.17** | .13* | -.17** | NA | | | | | | | | | | | | |
| 5 | **Facilitating conditions** | 4.31 | 1.57 | NA | .16** | -.17** | .06 | .13* | NA | | | | | | | | | | | |
| 6 | **Subjective norms** | 3.88 | 1.92 | NA | -.19** | .19** | .13* | .05 | .07 | NA | | | | | | | | | | |
| 7 | **Perceived IT control policy** | 4.13 | 1.66 | .79 | .15* | .07 | .05 | .13* | .06 | .09 | .70 | | | | | | | | | |
| 8 | **Attitude toward cyberslacking** | 5.01 | 1.39 | .75 | .17** | -.24*** | .07 | .06 | .14* | .13* | .10 | .80 | | | | | | | | |
| 9 | **Cyberslacking self-efficacy** | 4.08 | 1.97 | .82 | .24*** | -.18** | .09 | .11 | .17** | .16* | .13* | .14* | .73 | | | | | | | |
| 10 | **Extraversion** | 3.75 | 1.64 | .75 | -.17** | -.10 | .13* | .06 | .17** | -.09 | -.13* | .17** | -.15* | .74 | | | | | | |
| 11 | **Neuroticism** | 2.87 | 0.87 | .79 | .06 | .06 | .14* | .17** | .10 | .15* | .10 | .17** | .15* | -.13* | .73 | | | | | |
| 12 | **Openness** | 3.15 | 1.39 | .73 | .19** | -.13* | .04 | .13* | .17** | .19** | .15* | .07 | .19* | .13* | -.15* | .69 | | | | |
| 13 | **Agreeableness** | 3.43 | 1.75 | .81 | -.30*** | .14* | .04 | .15* | .19** | .08 | -.08 | -.13* | -.15* | .09 | -.16** | .14* | .71 | | | |
| 14 | **Conscientiousness** | 4.04 | 1.37 | .85 | .06 | .17** | .14* | .17** | .24*** | .16** | .19** | .24*** | -.16* | .09 | -.19** | .15* | .09 | .74 | | |
| 15 | **Cyberslacking** | 3.99 | 2.01 | NA | .30*** | -.31*** | .29*** | -.36*** | .21*** | .26*** | -.19** | .17** | .21*** | .28*** | .35*** | -.17** | -.13* | -.28*** | NA | |
| 16 | **Job performance** | 4.67 | 1.73 | .75 | .24*** | .24*** | -.18** | -.18** | .17** | .19** | -.15* | .11* | .15* | .21*** | .27*** | -.11* | -.08 | -.21*** | 49*** | .79 |

**Note:**
1. Diagonal elements are average variances extracted for the respective constructs from their indicators. Off-diagonal elements are correlations.
2. Organizational justice, facilitating conditions, and subjective norms were modeled as second-order factors with formative first-order factors. Weights on organizational justice were: distributive justice (0.30), procedural justice (0.28), and interactional justice (0.22); all three constructs were modeled using reflective indicators and all loadings were significant and ranged from 0.71 to 0.77. Weights on subjective norms were: prescriptive norms (0.43) and descriptive norms (0.46); both prescriptive and descriptive norms were modeled using formative indicators and all weights were significant and ranged from 0.73 to 0.81. Weights on facilitating conditions were technology re-adaptability (0.30) and the limited work use of IT (0.28); both constructs that were modeled using formative indicators and all weights were significant and ranged from 0.68 to 0.78.
3. Cyberslacking was modeled using formative measures and all weights were significant and ranged from 0.20 to 0.30.
4. ICR: Internal consistent reliability; NA: Not applicable
5. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

**Table D2. Structural Model Results**

| | Job performance | | Cyberslacking | |
|---|---|---|---|---|
| | **Model 1** | **Model 2** | **Model 3** | **Model 4** |
| $R^2$ | .07 | .20 | .14 | .34 |
| $\Delta R^2$ | | .13*** | | .20*** |
| Gender (1: Men) | .10 | .08 | .16** | .11* |
| Age | .16** | .10 | -.19** | -.13* |
| Job meaninglessness | .15* | .11* | .18** | .12* |
| Organizational justice | | | | -.19** |
| Facilitating conditions | | | | .17** |

| | | | | |
|---|---|---|---|---|
| Subjective norms | | | | .15* |
| Perceived IT control policy | | | | -.17** |
| Attitude toward cyberslacking | | | | .05 |
| Cyberslacking self-efficacy | | | | .14* |
| Extraversion | | | | .18** |
| Neuroticism | | | | .18** |
| Openness | | | | -.08 |
| Agreeableness | | | | -.04 |
| Conscientiousness | | | | -.19** |
| Cyberslacking | | -.34*** | | |

**Note:** *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.