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When Spheres Collide: A Refocused Research Framework for Personal Use of Technology at Work

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Abstract:

Continued advancements in technology and more flexible work arrangements have caused employees' personal and work spheres to collide, increasing the prevalence of the personal use of technology at work. This collision of often competing priorities presents dilemmas for employees in determining how best to manage tasks throughout the day. Prior conceptualizations of "cyberloafing", "cyberslacking", "personal web use," etc. from prior research classify the behavior as unnecessarily negative and often include non-essential constraints. In this paper, we offer an updated definition and refocused research framework that uses novel insights drawn from the multitasking literature to guide researchers in addressing a central question: how can employees most effectively manage their personal use of technology at work? We address various topics and offer research questions to properly align research and practice while re-initiating further investigations into this interesting phenomenon.

Keywords: Personal Use of Technology at Work, Cyberloafing, Multitasking, Effectiveness.

1   Introduction

A chemistry professor sits alone in her lab at 4:30 p.m. on a Thursday afternoon, completing the final steps of an important experiment. Her laptop sits on a table with her personal email open as she ponders how to respond to an urgent email from her child's schoolteacher. Text message notifications accumulate on her smartphone. Meanwhile, an alarm on her work computer alerts her that the time has come to log the results of her project. Between finalizing the experiment, responding to the schoolteacher, and checking her phone notifications, the professor contemplates which tasks to prioritize, which to ignore, and how to accomplish everything in front of her as effectively as possible.

1.1   The Convergence of Personal and Work

This vignette illustrates what has become commonplace in 21st century individual technology use. As devices have grown more portable, applications more pervasive, and networks more integrated, individuals' technological personal and work spheres have become increasingly intertwined (Scheepers & Middleton, 2013). Recent technological shifts have sought to account for this convergence. For example, many popular email platforms offer the ability to view multiple accounts side-by-side, which grants employees the ability to concurrently check both their personal and work email.

The composition of an individual's information system architecture is comprised of a complex mesh of personal and work systems (Baskerville, 2011). The digital transformation of work has broken down archaic barriers, creating a new environment where individuals use technology to juxtapose their personal tasks alongside their work responsibilities. This behavior, hereinafter referred to as "personal use of technology at work" (PUTW) (Kim, 2018), is quickly becoming commonplace for many in today's working world.

While PUTW's pervasiveness offers flexibility for employees, it also poses difficult challenges. Employees must contend with an ever-increasing number of task demands from both their personal and work spheres and must determine how best to accomplish those tasks throughout the day. Since managing the balance and/or conflict between work and personal demands constitutes a source of stress and anxiety among employees (Bulger, Matthews, & Hoffman, 2007; Haar, Russo, Suñe, & Ollier-Malaterre, 2014), the demand for task management solutions and work-life balance programs is unsurprisingly high. Likewise, organizations face difficult decisions regarding how (and to what extent) they should police their employees' PUTW (Glassman, Prosch, & Shao, 2015). Simple neutralization (e.g., Cheng, Li, Zhai, & Smyth, 2014) may be an insufficient solution to a complex problem.

While technology represents a source of these problems (since it allows one to easily access tasks throughout the day), it also offers possible solutions. Task-management applications assist individuals with keeping track of tasks and due dates. Productivity-management applications help with apportioning time to different tasks while maintaining a proper degree of focus. Individuals have increasingly turned to technology for help with effectively managing their personal and work demands. Recognizing PUTW's prevalence and pervasiveness in practice, researchers should seek out insights to help employees manage the juxtaposition of personal and work tasks most effectively.

Thus, we propose a core research question (RQ) to investigate this issue:

RQ: How can employees most effectively manage their personal use of technology at work?

With this paper, we focus on motivating future research toward answering this multifaceted question, both from organizational and individual perspectives. Our intention is not merely to generate new interest, but also to refocus existing research and offer an organizing framework suited for addressing the challenges that employees face in practice.

1.2   Deficiencies in Current Research

As PUTW has become more common in practice in recent years, interest in the research community and the popular press has increased. Both the management (Allen, Cho, & Meier, 2014) and psychology (Amstad, Meier, Fasel, Elfering, & Semmer, 2011) fields have investigated the potential conflict that arises when work and non-work domains intersect. Similarly, the popular press has addressed the challenges of managing work and non-work demands (Dominus, 2016). One can find this increase in interest in the information systems (IS) field as well. In 2019, we searched the Web of Science Core Collection for

papers that have cited Lim (2002), a seminal paper on the topic, and found an increase in publications both generally and in IS journals (see Figure 1)[1].

Citations of Lim (2002) – All Fields

Citations of Lim (2002) – Information Systems
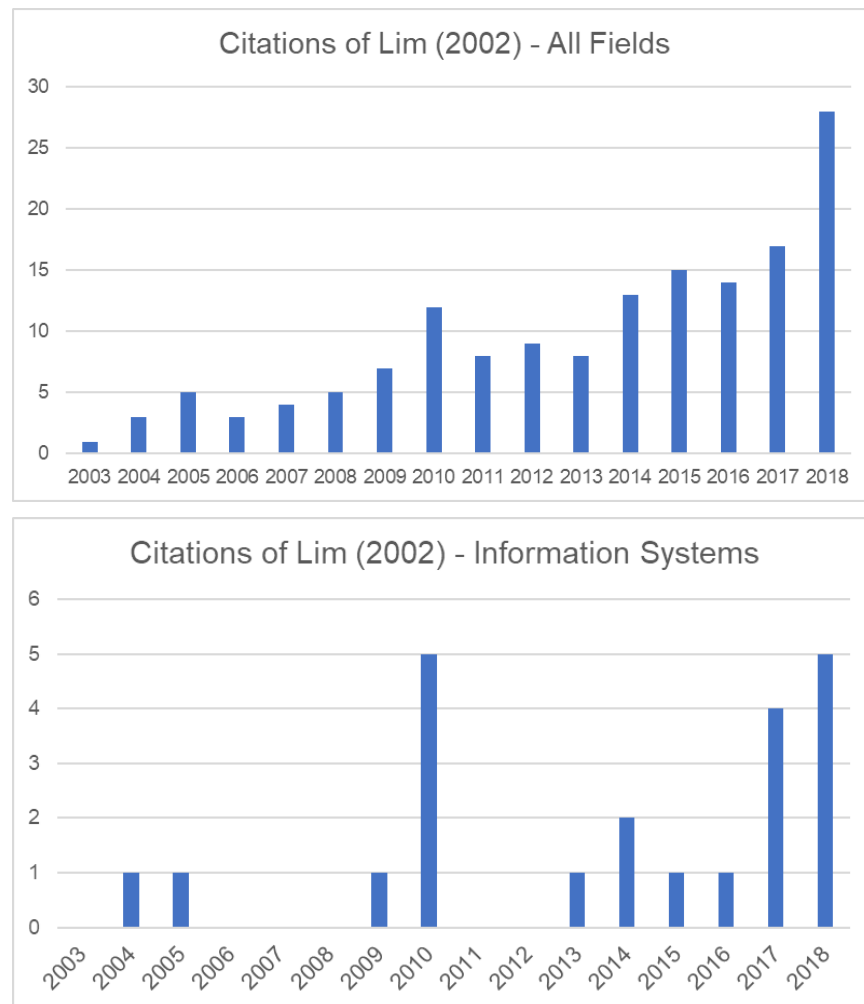
Figure 1. Web of Science Citations for Lim (2002)

Despite the increased attention to PUTW, research on the behavior has been deficient in many ways. First, many common definitions for the behavior do not adequately capture the manner in which it is currently practiced. Researchers and practitioners have commonly termed the behavior as "cyberloafing". Lim (2002) defined cyberloafing as the "voluntary act of employees using their companies' internet access during office hours to surf non-job-related web sites for personal purposes and to check (including receiving and sending) personal email." (p. 677). Today's employees can complete personal tasks at work apart from company resources (e.g., using a personal smartphone), Internet access (e.g., a music player), or work hours (e.g., employees with flexible hours). Thus, a discrepancy between the manner in which research has defined PUTW and how individuals practice it exists. We need to revise how we define the construct in order to ensure clarity and meaning in research (Suddaby, 2010).

Second, researchers have often investigated PUTW independent from the work context in which individuals enact it. Many researchers have examined this form of use as if it occurs in a vacuum (e.g., Askew et al., 2014). The motivation for enacting PUTW is examined separately from the work tasks that it follows (or replaces). At its core, PUTW involves the juxtaposition of multiple activities with personal tasks initiated between (or in lieu of) work tasks. Researchers could draw further insights if they expanded the phenomenon to include the work context in which individuals enact personal behaviors. While much work

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[1] Note: for IS journals, we used the following category in Web of Science: "computer science information systems".

has been done to illuminate why individuals engage in PUTW generally (i.e. attitudes toward the behavior) (Anandarajan & Simmers, 2005; Liberman, Seidman, McKenna, & Buffardi, 2011), we must also understand the behavior more specifically (i.e., individual instantiations of the behavior). We do not mean to suggest that that prior research was errant but rather to note the opportunity exists to expand on that prior research and form a more complete understanding of the behavior.

Finally, much prior research has often conceptualized PUTW as negative and viewed it purely from a perspective that considers the damaging effects it can have on organizations. As such, research has often portrayed PUTW as a behavior that organizations should eliminate or reduce through policy actions and normative shaming (Cheng et al., 2014; Siponen & Vance, 2010), which contradicts recent findings that suggest PUTW has positive outcomes in some situations (Hunter, Clark, & Carlson, 2019). A more complete understanding of PUTW recognizes that the behavior is not inherently beneficial or detrimental but can be either depending on how employees enact it (Jiang, 2016). Additionally, it presumes that the central dependent variable for all research on the behavior must be organizational performance, whereas individuals often pursue multiple goals. In the introductory vignette, the chemistry professor is concerned not only with her experiment's performance (an organizational goal) but also her child's education and her social relationships (personal goals). While there is ample value in examining the impact that PUTW has on organizational goals, we argue that such a myopic perspective ignores other important outcomes of interest to individuals.

1.3   Objectives of this Paper

These deficiencies offer exciting opportunities to clarify and promote research that addresses our core research question. To that end, this paper has two primary objectives. First, we present a new, updated definition for the underresearched construct, personal use of technology at work. We define more accurate boundary conditions in order to more accurately characterize the behavior according to the manner in which employees enact it in practice. Second, we present a new research framework for investigating PUTW through a multitasking lens. This novel approach should offer unique, fruitful avenues for investigating PUTW with an eye toward generating interesting research questions for further inquiry. We believe this topic could interest both IS researchers and other researchers interested in multitasking behaviors. This research framework aims to promote the development of a deeper understanding as to how employees can most effectively manage their interconnected personal and work technology ecosystems.

In order to organize this research framework, we provide a foundational definition of PUTW, which includes the boundary conditions that establish which behaviors one should and should not consider.

2   Definition and Boundary Conditions

We define personal use of technology at work as the interjectory use of technology for any non-work-related purpose while at work. This definition builds on Kim's (2018) definition while clarifying some key elements. We take a broad perspective on the nature of the behavior. Any action, however brief—including actions such as the recognition of a personal notification on a smartphone or the composition of a personal email using a work computer—that uses technology to interject a personal (non-work-related) task while at work should be included in the frame of the construct.

Importantly, clarifying the behavior that this PUTW definition encapsulates involves establishing a firm set of boundary conditions. Without well-developed boundary conditions, our updated definition simply adds "noise" to the nomological network that surrounds PUTW. Building on the definition we present above, we offer several boundary conditions that clarify the behavior and differentiates PUTW from other related construct definitions. The boundary conditions address both aspects of the behavior: its content and the manner in which people do it.

1) The action must be voluntary as tasks mandated by an employer presume a work purpose.
2) The action must be personal, which means that one does it to achieve a non-work (hedonic or utilitarian) goal, no matter how vital.
3) One must perform the task using technology. Whether employees or their organization own the device that employees use is irrelevant since they can perform personal tasks on both their own and their organization's devices.

4) The behavior must be interjected among work tasks (though not necessarily at the same time, but intermixed with work activities). The presence of work is central to the behavior, since, without it, one has nothing to manage. Further, our framework does not address situations in which employees complete only personal tasks without ever doing any work—such activity represents a human resource issue.

5) Employees must perform the action while at work. Given the changing nature of work (i.e., many people today do not work from 9:00 a.m. to 5:00 p.m. in a set office location), we recognize the difficulty in identifying what is meant by being "at work." For our definition, we focus on personal tasks that employees perform while working rather than work tasks that they perform while off of work. This component could take on many forms, but one should not consider personal tasks that employees perform completely detached from a work context (at any time or location) as PUTW. For example, listening to music from a smartphone while driving home from work does not constitute PUTW, but listening to the same music from the same device while working in the middle of the night does. Thus, while PUTW can occur at any location or time, it requires a work context.

These boundary conditions and the revised definition eliminate unnecessary flaws in previous descriptions of the behavior. Such flaws include 1.) the need for a specific location where one performs work, 2.) the use of outdated terms such as "computing", 3.) the necessity of organization-owned devices, 4.) the reference to time elements (e.g., "working hours" (Kim, 2018)), and 5.) the incorporation of the multitasking nature of PUTW. These boundary conditions should allow researchers to investigate the behavior in a manner more closely aligned with how individuals practice it.

Our definition builds on but is distinguished from numerous other definitions and terminology in the literature. Over the past 15 years, researchers have described the behavior in many different ways. While it appears that they have most prevalently used the term cyberloafing to refer to the construct (Lim, 2002), many other terms that refer to the same construct or to more narrow ones exist in the literature. As such, terms such as cyberslacking, personal Web use, problematic Internet use, and non-work-related computing (Caplan, 2006; Lee, Lim, & Wong, 2005; Mahatanankoon, Anandarajan, & Igbaria, 2004; Ugrin, Pearson, & Odom, 2008; Weatherbee, 2010) have all entered the lexicon to address some or all aspects of the behavior.

As a result, the research stream features fragmentation and confusion. Indeed, in discussing ICT misuse, Weatherbee (2010) notes that the "current state of the field consists of a multiplicity of similar, overlapping, or in some cases, identical constructs, and behavioral taxa" (p. 38). Thus, Weatherbee (2010) and other scholars such as Jiang (2016) call for scholars to clarify the construct and to more comprehensively define it to ensure greater construct validity. The volatile nature of technological innovation demands a general definition that scholars can adapt to the constant change associated with technology use. Jiang addresses the need for a more comprehensive definition that "should also address employees' usage of *private*, as opposed to organizational, devices for non-work-related purposes at work" (emphasis in original) (2016, p. 24).

Many existing terms and definitions suffer from outdated perspectives on technology and personal computing devices and fail to fully grasp the changing nature of work. In Table 1, we evaluate the shortcomings of current definitions enumerated by Jiang (2016). For example, Ugrin et al. (2008) define cyberslacking in a way that centers on work hours as the only time period in which work and personal life can conflate. Building off Lim's (2002) cyberloafing construct, Mahatanankoon et al.'s (2004) Personal Web Use construct focuses on Internet-based activities and the use of organizational devices to conduct such activities. Additionally, several researchers have used definitions that view the behavior overtly negatively. For example, Shepherd and Klein's (2012) Internet abuse and Zoghbi Manrique de Lara's (2006) workplace Internet deviance focus only on behaviors that individuals conduct during traditional work time. As such, they artificially limit the scope of activities open to investigation. Our definition is unhindered by these limitations.

Employees no longer need to use organization-owned technology hardware or software resources to effectively complete their work tasks. While the Internet remains a vital and ever-present element in employees' technology use, the rise of mobile data networks, offline games, and apps has untethered employees from firms' Internet access and control. Employees can easily download and watch movies and other broadcast content "offline" on their smartphones or tablets. The prior definitions of the phenomenon do not, and often could not, account for how technology and computing devices consistently evolve.

Table 1. Prior Definitions and Weaknesses (Adapted from Jiang, 2016)

Term	Definition	Weaknesses
Cyberloafing	Any voluntary act of employees using their companies' Internet access during office hours to surf non-job-related websites for personal purposes and to check personal email (Lim, 2002).	• Implies shucking of work responsibilities • Assumes use of company hardware to access the Internet • Limits activities to Web surfing and email • Clear negative perspective
Cyberslacking	Using the Internet and mobile technology during work hours for personal purposes (Ugrin et al., 2008).	• Clear negative perspective • Focus on work hours as only context for overlap of work and personal time
Non-work-related computing	An employee's usage of organizational IS resources for personal purposes during working hours or after (Lee et al., 2005).	• Focus on firm resource usage only
Personal Web use	Voluntary online Web behaviors during working time using any of the organization's resources for activities outside current customary job/work requirements (Mahatanankoon et al., 2004).	• Focus on Internet usage only • Focus on usage of organizational resources
Internet abuse	Conducting non-work-related activities or public communications on company time (Shepherd & Klein, 2012).	• Focus on behavior conducted during traditional work hours • Clear negative perspective
Workplace Internet deviance	Employees surfing the Internet when they should be working (Zoghbi Manrique de Lara, 2006).	• Clear negative perspective • Assumption of clear work time responsibilities • Focus on only Internet usage

Additionally, the nature of work itself has undergone fundamental changes since Lim (2002) defined cyberloafing. Both the popular press (Dominus, 2016) and scholars (Bulger et al., 2007; Eby, Maher, & Butts, 2010; Greenhaus & Powell, 2006; Judge, Ilies, & Scott, 2006) have addressed the increasingly blurred boundaries between work life and home life and how these changing dynamics have affected employees and their organizations. In addition to the blurring of the boundaries between work and family, employees now often must pay attention to work demands 24/7 no matter the impact on their family and personal life (Miller, 2015). The locations of "work" are changing as well. From the prevalence of telecommuting and telework (Kane, 2014) to the rise of the freelance economy that has created workspaces out of coffee shops and other non-traditional work settings, employees have reduced their "face time" at the office while continuing to complete their work tasks. In the extreme, some employees in this new economy have created lives as "digital nomads" (Mohn, 2017) who combine work and tourism as a means of self-discovery and development.

With this study, we advance the way in which we conceptualize how technology and non-work-related tasks interact in a work environment. We highlight how the concept (and our latest definition) differs from related concepts. While the interface of work and non-work contains various constructs and behaviors (Geurts & Demerouti, 2003), we examine the critical related constructs (as we outline above). In Table 2 below, we identify the similarities and differences between PUTW and the related constructs.

The norms surrounding work tasks, multitasking, and job responsibilities have all evolved in a more complex, interconnected work environment. In many industries and particularly in the ever-expanding knowledge economy-focused professions, multitasking has become a necessity (Salvucci, 2005) with the increase in individual workloads and ever-shortening deadlines. Observers in the popular press have characterized the multitasking phenomenon that has arisen since the turn of the 21st century as "the age of interruption" (Friedman, 2006). While information technology often facilitates more efficient multitasking efforts (Gonzales & Mark, 2004), multitasking behaviors have become ubiquitous, and many jobs often require them.

Table 2. Similarities and Differences Among PUTW and Related Constructs

PUTW: the interjectory use of technology for any non-work-related purpose while at work		
Construct	**Similarities**	**Differences**
Cyberloafing	• Voluntary acts • Personal tasks	• Internet access only • Website-focused behaviors • Only company devices • Negative connotation • Behavior during work hours
Cyberslacking	• Personal tasks • Voluntary act • Mobile technology use	• Internet access only • Negative connotation
Non-work-related computing	• Personal tasks • Voluntary behavior	• Using organizational resources • Behavior during work hours
Personal Web use	• Voluntary behavior	• Only online behavior • Only Internet access • Behavior during work hours
Internet abuse	• Non-work-related activities	• Only Internet access • Abusive nature (actions assumed to exceed a pre-determined acceptable level) • Behavior during work hours
Workplace Internet deviance	• Personal tasks	• Only Internet access • Only when company expects work behavior • Clear negative connotation

With the changing nature of work, technology, and employee behavior, we see a cluttered paradigm that lacks a contemporary definition. The definition we offer should provide clarity to the construct while removing many unnecessary hindrances (e.g., devices, times, etc.) that do not accurately reflect the behavior as individuals often practice it. To further clarify our definition, we return to our example of the multitasking professor that we outline in Section 1. Using our definition for PUTW, the use of her personal smartphone to check text messages would be considered PUTW. While the behavior may not be detrimental to the outcome of her experiment, the use of technology to interject a personal task makes it PUTW. If she was to use the same smartphone to allocate her research hours among her various projects on a university timesheet app, this would not be considered PUTW, as the activity is work-related.

This updated definition should offer researchers greater clarity when investigating PUTW in the future. In Section 3, we motivate future research using multitasking as an organizing lens.

3   Research Framework

In order to facilitate future PUTW research toward our core research question, we offer a research framework grounded in multitasking theory. While some prior research on PUTW has focused on deterrence in order to prevent employees from using technology for personal means at work, we focus on a broader objective—effectiveness—and ask how individuals can most effectively use technology to complete personal and work tasks throughout the day. A deterrence focus lends itself to an adoption lens since the focus lies in preventing employees from adopting any kind of PUTW (e.g., see Ugrin & Pearson, 2013). We take a more nuanced approach that recognizes that PUTW can result in positive or negative outcomes depending on how individuals enact it and the context in which they perform it. As such, a multitasking lens is most appropriate as multitasking research investigates the motivations for, behaviors that relate to, and results from performing multiple tasks.

This research framework does not completely review the multitasking literature since not all the literature pertains to our investigation into our core research question. Some of the multitasking literature is focused on endeavors irrelevant to this research framework, such as understanding how the human brain operates from a biological perspective. For example, De Baene, Kühn, and Brass (2012) used fMRI to identify the areas in the brain that activate in task-switching scenarios. Such research can be tangentially helpful but is less relevant for this research framework. Thus, we take insights from the literature most relevant to addressing our core research question.

We present three research themes. Each theme highlights a core aspect of the behavior. First, we discuss research on PUTW's antecedents and emphasize a more granular perspective of individual motivations. Second, we discuss research on the behavior's various outcomes (both personal and professional). Third, we discuss organizational strategies that best facilitate the behavior in practice. These three themes share a common objective: understanding how employees can most effectively manage their PUTW. For each theme, we review relevant multitasking research and outline specific research questions that can further our understanding of PUTW.

3.1   Research Theme: Task Selection

A multitasking lens for researching PUTW allows us to investigate the behavior's antecedents from a unique perspective, one that deviates from much of prior research on predicting PUTW. The existing literature on PUTW's antecedents has primarily focused on the factors that influence an individual's attitude toward PUTW (e.g., Andreassen, Torsheim, & Pallesen, 2014; Liberman et al., 2011) or the factors that lead individuals to enact the behavior generally (typically measured in aggregate) (e.g., Anandarajan, Simmers, & D'Ovidio, 2011; Wagner, Barnes, Lim, & Ferris, 2012). For example, Wagner et al. (2012) examined whether a reduction in sleep influenced time spent cyberloafing. They generalized cyberloafing as a dependent variable and concluded that reduced sleep increases an individual's propensity to use technology for personal tasks while at work.

Contrary to the current general focus of antecedent research, a multitasking lens encourages the investigation of a more specific focus to the antecedents of PUTW. In this way, we can examine why individuals not only engage in PUTW but also select certain personal tasks above others (either work or personal) Additionally, we can examine the manner in which they enact those tasks. Gaining this type of insight can improve researchers' understanding regarding how PUTW functions in practice. For example, email applications offer the ability to filter messages according to both the sender and the message's content. Enhanced applications could provide employees only the personal messages they want to receive at work at the time they want to receive them. However, this is only possible with a better understanding of not only why individuals engage in PUTW but also the circumstances that encourage the behavior. Thus, in the broader framework for investigating PUTW, we propose the following research question:

> **RQ1.1**:   What factors influence an individual's decision to select a specific personal task while at work?

One should recognize that PUTW's antecedents encompass both rational and automatic processes. For example, an employee might decide to read their personal email while at work due to the email's importance (rational) or due to an involuntarily reaction to the excitement of a new message (automatic). In both cases, we would classify the antecedents (importance and excitement) as task factors that influence PUTW, though they influence task selection in different ways.

Multitasking research can inform future insights regarding PUTW task selection. Research in task switching has long examined the mechanisms and influences that cause an individual to "switch" from one task to another. Building on this and other foundations, we offer several avenues where IS researchers can examine PUTW task selection.

3.1.1   Task Factors

One ripe research area on PUTW task selection involves understanding the characteristics of both personal and work tasks that influence an individual's decision to select a personal task while at work. Prior research has illuminated various "push" and "pull" factors that influence general task selection. In this section, we examine some such factors and offer research questions that may allow researchers to better understand PUTW.

Pull factors refer to a personal task's characteristics that influence an individual to select that task while at work. Since personal tasks can differ, individuals may be more likely to select some more than others. Task importance constitutes one pull factor that might influence personal task selection at work. Researchers have found that individuals can self-monitor and stop a current task to switch to a more critical task (Salvucci, Taatgen, & Borst, 2009); however, such findings raise questions about what makes a task more "critical". Further, researchers have found that task importance may influence affective quality. For example, Reeck and Egner (2015) found that individuals give affective tasks, as compared to cognitive tasks, "privileged access to attention". It stands to reason that an individual might read an email

that announced lottery results (high excitement potential) before an email that outlined a meeting agenda. Future researchers should examine personal tasks' affective nature and how it may influence an individual's desire to engage in PUTW. For instance, researchers should examine whether a notification's affective quality influences the likelihood that an employee will select that personal task while at work.

Task congruency constitutes another pull factor that might influence personal task selection at work. Baskerville (2011), among others, notes the increasing complexity of personal tasks and their congruence with common work tasks. Research in task switching has demonstrated that the greater the congruency of the requirements of two tasks, the lower the costs associated with switching between the two tasks. The more congruent the two tasks, the easier an individual will find it to switch between them. Thus, individuals may be more likely to select a congruent personal task (e.g., checking personal email after work email) rather than switch to a more incongruent work task (e.g., meeting with a colleague). Researchers could assess task congruency as part of a larger research effort examining how the ease of switching to a personal task influences employees' desire to make that switch. Are employees more likely to select a personal task if they note congruence with a completed work task? Does software that groups together similar personal and work information (e.g., email applications) encourage employees to engage in more PUTW?

As opposed to pull factors, push factors refer to the characteristics of work tasks that influence an individual's desire to select a personal task at work. As with pull factors, multitasking research can offer some insights into push factors that can guide future research. Adler and Benbunan-Fich (2013) identified six "triggers" that incite individuals to switch tasks. They divided these triggers into two categories: negative triggers and positive triggers. Negative triggers refer to triggers that encourage task switching due to negative affect toward the current task. These include frustration, exhaustion, and obstruction. Positive triggers refer to triggers that encourage individuals to switch tasks to obtain some positive benefit. These include a desire for stimulation, reorganization, or exploration. While these triggers may help one understand a desire to switch tasks, two primary questions remain. First, what work task characteristics lead to frustration, exhaustion, and so on? The technostress literature (Ayyagari, Grover, & Purvis, 2011) provides an interesting foundation for investigating how technology interacts with work tasks to produce strain. Is there, perhaps, a threshold that must be met before they seek relief via a new task? Second, if an employee experiences a negative or positive trigger, what causes them to select a personal task next? For example, if an employee ceases a work task seeking stimulation, how likely will the employee be to select a personal task? Do individuals use personal tasks as a means to resolve the positive and negative emotional consequences of their work tasks? If so, what types of personal tasks lead to such resolution? It may be that the push and pull factors work in tandem whereby push factors cause separation from a work task and pull factors influence the next task that an employee selects. Insights from multitasking research can help researchers identify the task characteristics that facilitate PUTW.

3.1.2   Interruption Factors

Another avenue for investigating task selection in a PUTW context involves examining interruption factors or the manner in which technology presents tasks to a user while at work. Research on multitasking and task switching notes that a task's characteristics influence not only its selection but also its presentation. With this research as a foundation, IS researchers can expand on initial findings and explore how the method of interruption impacts the selection of personal tasks at work.

McFarlane (2002) identified four main types of external interruptions: immediate, negotiated, mediated, and scheduled. Immediate interruptions require an instantaneous response (e.g., a computer alert that, at minimum, employees must dismiss before resuming the prior task). Negotiated interruptions give the user control over when they respond (e.g., most smartphone notifications). Mediated interruptions allow an outside agent to determine when the individual receives the interruption (e.g., a "do not disturb" feature). Finally, scheduled interruptions occur at predetermined intervals, which allows individuals to anticipate the interruption (e.g., a daily email received at a regular time).

One interesting facet of these different types of interruptions is the amount of task preparation allowed. In the categories of interruptions above, some allow the individual more time to prepare than others. Research has shown that individuals tend to perform and react better when they can prepare for an upcoming task (Kiesel et al., 2010). For example, Rogers and Monsell (1995) showed that the more time that individuals have to prepare for a task switch, the better they can perform. We might ask whether, in a PUTW context, employees will be more likely to select a personal task if they have the time to prepare. Do employees dismiss immediate personal interruptions due to a lack of preparation, or does the nature of

personal tasks eliminate the need to prepare? Does the familiar nature of personal tasks reduce the need for preparation?

Further, IS researchers could expand on prior research by examining how technology can mediate the interruptions made to employees. Knowing that individuals prefer to prepare before switching between tasks, can we develop technologies that allow individuals sufficient task preparation while minimizing work task interference? The task factors we describe in Section 3.1.1 and the interruption factors we describe in this section may well interact with each other. Knowing that employees may be more likely to select certain personal tasks than others and that they prefer to have some time to prepare, can technology properly mediate personal task interruptions to allow the tasks that employees want allowed while also providing those tasks at the proper times? Better understanding of the characteristics of tasks and interruptions may be key in answering that question.

3.1.3 Other Influences: Individual Factors

Beyond task and interruption factors, researchers can examine other influences on personal task selection at work. Myriad reasons may explain why an employee presented with the right personal task in the right manner may still choose not to select the personal task. For example, multitasking researchers have highlighted multiple characteristics that impact which individuals are more prone to task switching than others. Such characteristics include an individual's preference for juggling multiple tasks at once, dubbed "polychronicity" (König & Waller, 2010); and impulsivity, or the tendency to act on inclinations (König, Oberacher, & Kleinmann, 2010). While researchers have begun to investigate polychronicity in a PUTW context (König et al., 2010), further examination could lead to fruitful insights. One interesting question concerns polychronicity's relative influence in competition with the task and interruption factors that we discuss above. Does an employee's polychronicity establish a threshold that the employee must meet to select a personal task at work?

3.1.4 Research Methods

In order for researchers to investigate task selection in PUTW, we present various methods to employ. We see at least two primary methods that researchers can use to understand why an individual selects a personal task while at work: experimental designs and situating tasks.

Multitasking research has widely used experiments to understand why and how individuals juggle multiple tasks (for a review, see Kiesel et al., 2010). One popular technique involves presenting participants with multiple tasks to complete and then manipulating the manner in which they work. As for PUTW, researchers could present participants with a work task and an optional personal task to complete. Then, they could assess the manner in which the participants select the personal task along with the motivation for that selection.

Another method for investigating PUTW task selection involves using situating tasks in the same manner of Sun (2012). In his study (which did not concern PUTW), Sun conducted a survey that asked respondents to think about the most recent instance of a behavior and then presented them with questions about that behavior. Researchers interested in using surveys to investigate PUTW may find this method useful. One option would involve asking respondents to think about a particular instance in which they selected a personal task at work and then to answer questions about when they did so.

3.1.5 Summary

The multitasking lens on investigating PUTW provides the opportunity to take a more granular look at why and how individuals select certain tasks while at work. We have discussed and presented research questions pertaining to how the characteristics of tasks, interruptions, individuals, and organizations may influence an employee's decision to select a personal task at work. However, many more influences certainly await discovery.

3.2 Research Theme: PUTW Effects

IS researchers can also use a multitasking lens to investigate PUTW's outcomes. As we discuss in Section 2, much prior literature on the behavior has portrayed PUTW as negative primarily due to the assumption that performing any personal tasks while at work would negatively impact work performance (Lim, 2002). Some researchers have challenged this assumption to a degree in noting that the behavior has certain long-term positive effects such as work satisfaction and stress relief (e.g., Lim & Chen, 2012).

Nonetheless, prior literature primarily views PUTW as a negative phenomenon that organizations need to neutralize.

A multitasking lens on the effects of PUTW extends prior literature in two primary ways. First, it offers nuance to the established negative viewpoint. Research on task switching has highlighted the notion that some secondary tasks hinder individuals more than other tasks. Some even benefit individuals in performing the original task. As such, a multitasking lens can encourage researchers to further investigate PUTW, which may highlight the nuanced work-related effects that performing personal tasks at work can have. Second, a multitasking lens may potentially free researchers from viewing PUTW purely in light of work performance. As we note in Section 2, the nature of work has changed to the point that the separation of work and personal tasks has diminished. When looking at PUTW from the individual's perspective, work performance becomes one goal among many. Assessing PUTW's overall effects on individuals offers the opportunity to investigate their ability to successfully complete both personal and work tasks. Thus, we propose the following research question for this research theme as follows:

RQ1.2:   How does PUTW impact work and personal objectives?

In this section, we use some insights from the multitasking literature to discuss new means of investigating both the work effects and overall effects of PUTW.

3.2.1   Work Effects

Multitasking literature confirms the widely held belief that secondary tasks reduce individuals' task performance (Kiesel et al., 2010; Pashler, 1994). Researchers use the term "switch costs" to refer to the reductions in performance that individuals incur when switching to a secondary task (Salvucci et al., 2009). Switch costs occur due to limited resources. Individuals can direct their cognitive resources, such as vision, hearing, and motor skills, toward only one task at a time, which explains why they find it difficult (if not impossible) to listen to two speakers simultaneously. Individuals can complete two tasks concurrently only if they use different resources (e.g., listening to music while tapping your feet). When two tasks require the same resource, one task must wait until the resource becomes free. The time period that elapses while awaiting available resources represents the "cost" of having to switch between tasks.

Prior research on PUTW has relied on the general assumption that most PUTW behaviors have detrimental effects on work performance. However, in more deeply examining the multitasking literature, we found that such a conclusion lacks nuance. To fully understand how PUTW impacts work performance, we provide such nuance to inspire future research questions.

Interestingly, the multitasking literature has found that a secondary task's effect on a primary task's performance may depend on how one measures performance. Adler and Benbunan-Fich (2012) found an unsurprising linear effect on accuracy, with greater decreases in accuracy noted when individuals multitasked the most. However, they found that multitasking had a curvilinear rather than linear effect on productivity in terms of time to completion. They found the highest performance in terms of productivity with a medium amount of multitasking and decreases as the level of multitasking rose or fell. In another study, the same authors found that switching between tasks can be beneficial, especially in situations with simple rather than complex primary tasks (Adler & Benbunan-Fich, 2014). Adler and Benbunan-Fich's research indicates that, in certain conditions, a second task's introduction can have a positive effect on individuals' work performance.

Personal tasks' emotionality represents one aspect of PUTW that offers exciting research potential. We know that emotions influence task behavior (e.g., the effect of rivalry on unethical behavior (Kilduff, Galinsky, Gallo, & Reade, 2016)). We also know that emotions impact multitasking behavior by increasing switch costs. Individuals incur greater costs when switching from tasks that invoke more emotion compared to tasks that invoke less emotion (Reeck & Egner, 2015). To fully understand how personal task behaviors at work influence work performance, researchers should examine whether the emotions from personal tasks influence employee performance on work tasks conducted concurrently or separately.

In summary, while the multitasking literature shows that multitasking generally degrades how well individuals perform a primary task, the nuance that further studies have found offers interesting opportunities for PUTW research. For example, can organizations offer short instances of gaming as a means of improving employee work performance? Should employees limit emotionally charged personal task behaviors while at work and instead focus on personal tasks with less emotionality?

3.2.2   Overall Effects

By its nature, multitasking research examines the mechanisms humans use to complete multiple tasks either concurrently or sequentially (Salvucci et al., 2009). In addition to studying the effect of one task on another, we can also study how individuals can most effectively complete both tasks. In the PUTW context, the latter would offer opportunities to examine how individuals can best perform both their work and personal tasks while at work. This holistic perspective may be more in line with how some individuals view their daily tasks and could offer exciting research opportunities moving forward.

One interesting insight from multitasking literature is that the manner of multitasking may influence how well individuals perform tasks. Individuals can complete two tasks either concurrently (i.e., together) or sequentially (i.e., one after the other) (Salvucci et al., 2009). Bailey and Konstan (2006) found that sequential multitasking led to fewer errors and greater performance compared to concurrent multitasking, which interrupted the individual while performing a primary task. This finding may indicate that employees should perform their personal tasks after completing work tasks or in a break time that does not interrupt their work tasks. However, in some instances, concurrent multitasking may not influence overall performance to the same extent.

To understand the effects that concurrent multitasking has on overall performance, we look again to switch costs. The "costs" associated with switching between tasks pertain primarily to situations where multiple tasks require the same resources (e.g., motor skills) (Salvucci et al., 2009). Thus, while the concurrent completion of two tasks generally decreases performance, we would expect to observe a reduced negative effect of concurrent multitasking on performance so long as the tasks being performed use different resources. For example, listening to music while typing a document should have little effect on how well an individual completes either task as they require different resources. Furthermore, by completing both tasks concurrently, individuals increase their overall efficiency compared to completing the two tasks independently. Overall, individuals maximize their performance when all their resources operate at their highest degree of efficiency. Thus, opportunities may exist to examine how individuals can complete necessary personal tasks without causing unnecessary interference with their work tasks.

3.2.3   Research Methods

Similar to task selection, researchers can investigate PUTW's effects through experimental designs, and the multitasking literature contains many examples. Consider Adler and Benbunan-Fich (2013) who asked participants to complete Sudoku puzzles of varying difficulty and five other tasks. They assessed the extent to which task switching impacted individual performance on the Sudoku puzzles. Regarding PUTW effects, researchers could employ a similar methodology. They could use experiments to mimic a working environment and ask participants to complete both personal and work tasks. They could make manipulations to the working environment in order to more fully understand how personal-work multitasking impacts both work and overall outcomes.

3.2.4   Summary

While prior research has examined the effect that completing personal tasks has on work performance, insights from multitasking literature offer nuance which indicate that prior examinations remain incomplete. Furthermore, a multitasking lens on PUTW provides the opportunity to look beyond work performance to examine overall performance from an individual employee's perspective. Once we understand how PUTW impacts individuals, we can consider interventions that may increase performance both from solely a work perspective and from a perspective that holistically includes personal and work tasks.

3.3   Research Theme: PUTW Facilitation

Beyond an understanding of the motivations and effects of PUTW, we must also understand the facilitating conditions under which employees enact the behavior. Managers and organizations play a key role in helping employees identify, prioritize, and complete various personal and work tasks. In her study of multitasking in virtual teams, Wasson (2004, p. 56) found that "properly managed, multitasking can enhance the productivity of the individual and the organization". A multitasking framework may provide critical linkages between the needs for PUTW and the potential personal and organizational benefits. Thus, we propose the following research question for this research theme as follows:

RQ1.3:   How can managers and organizations best facilitate effective PUTW?

A multitasking frame enables us to consider how an organization could facilitate the completion of employees' myriad tasks. Given that PUTW has proliferated in the workplace, firms likely need to shift from attempting to limit or eliminate its occurrence in the workplace to embracing the benefits of increased employee productivity through PUTW (and, conversely, recognize the potential for increased stress from extensive employee multitasking) (Appelbaum, Marchionni, & Fernandez, 2008).

3.3.1   Managerial Intervention

Employees face a wide array of interruptions to their work time—from both external and internal sources (Adler & Benbunan-Fich, 2014). Some of these interruptions may be regularly scheduled, but many are unpredictable and unplanned (McFarlane, 2002). Managers may be in the best position to identify and eliminate unnecessary interruptions to ensure more productive work time for their employees. Additionally, organizations often assign employees to multiple work groups with different schedules, required work skills, and formal and informal information networks that all require attention that may divert their attention from the task(s) at hand (Pluut, Flestea, & Curseu, 2014). PUTW researchers who examine the managerial interventions into the behavior could address several research questions associated with the multitasking perspective, such as how multiple work team membership might influence employees' task orientation and/or work time allocation. Additionally, they could examine how managers can promote employee multitasking in order to better execute tasks when faced with multiple work team membership.

The initial steps managers take to onboard new team members and orient them to their new work environment represents one aspect of managing teams that could best facilitate productive PUTW. In studying multitasking during organizational meetings, Stephens and Davis (2009) highlighted the importance and influence of organizational—and team—norms regarding multitasking behavior. By contributing to the development and proliferation of organizational and team norms, managers can facilitate the acceptable behaviors and conditions under which PUTW works best for their teams and organization. Additionally, managers may be in the best position to honestly evaluate employees' "slack" time and can shape their work schedules to facilitate moments of slack for PUTW. This slack management may help reduce employees' stress derived from an inability to best organize and structure their workday.

3.3.2   Organizational Facilitation

While managers may employ interventions for specific employees, organizations can enact broad policies that ensure employees use technology at work most effectively. Organizations must recognize that their employees face a variety of tasks that originate from both personal and professional goals. These various tasks often facilitate employees creating working spheres - defined as collaborative contexts based on circumstances (Appelbaum et al., 2008; Gonzalez & Mark, 2004). Gonzalez and Mark's (2004, 2005) research indicates that people work in a variety of spheres during a typical day that feature various professional tasks. However, they also show that such spheres offer people many opportunities to achieve their personal goals amid completing tasks in various spheres. This challenge raises a variety of potentially illuminating research questions. How can firms reexamine their work environments to better facilitate smooth transitions from one task or sphere to another? Can managers and firms eliminate boundaries and organizational hurdles to enable employees to better leverage their skills and technology to complete their tasks? Firms may benefit from greater employee productivity and greater employee satisfaction. *Fortune* magazine's first survey of the 50 Best Workplaces for Flexibility (Fortune (2016) identified the professional services firm Ryan LLC as the top ranked organization for its MyRyan flexible work arrangement. In a subsequent survey, one Ryan employee explained the benefits of the policy as one that gave them:

> *The freedom that we deserve, no more working set hours. It's all about the quality of the work we put out, not the hours we put in. MyRyan gives you the freedom to work with a peace of mind and also attend to personal matters without being harassed about it.* (Fortune, 2017)

We still lack sufficient knowledge about the skills and techniques that managers and firms could employ to better help employees complete their tasks—particularly when considering employee task complexity in the concept of working spheres (Gonzales & Mark, 2004).

As employees face more working spheres on a day-to-day basis (Gonzalez & Mark, 2004), firms may need to invest greater resources into developing personal action-management programs (Gonzalez, Galicia, & Favela, 2008). Initially developed for efficiently managing IT workers' daily tasks, personal action-management programs (Gonzalez et al., 2008) may enable more employees to better identify and

organize their activities. For example, Gonzalez et al. (2008) developed a smartphone app to assist medical school interns in managing the information flow and contact information that they need for their tasks in various spheres (e.g., medical schoolwork, patient care, attending physician interaction, etc.). The app enables users to share sphere-specific information (i.e., specific patient data, lab results, case write-ups, etc.) seamlessly while they perform tasks in various spheres concurrently. Considering our earlier example in which the professor faces myriad work and personal task challenges, a personal action-management program could assist her in coordinating her research, teaching, student mentoring, personal, and professional service spheres. By running a personal action-management app on her various devices (i.e., smartphone, tablet, and work computer), she could better coordinate paperwork, prioritize tasks, and balance deadlines to potentially achieve greater professional success in the various spheres while better leveraging her time to manage personal tasks.

With the added structure and prioritization guidance that personal action programs provide, employees could better navigate through the various working spheres that they face a daily basis. Researchers need to examine personal action-management programs' effectiveness and applicability across entire organizations rather than limiting their scope to IT workers or other hyper-specialized professions (Gonzalez et al., 2008). How can personal action-management programs enhance efficiency and facilitate more seamless transitions across working spheres?

In addition to specific technologies or organizational design elements, do firms need to design complete systems that could incorporate employees' personal goals and aid employees in achieving these goals (Zacarias, Pinto, & Tribolet, 2006)? To develop individually tailored solutions for each employee, a comprehensive systems approach could incorporate considerations for workload, stress, efficiency, and effectiveness (Wild, Johnson, & Johnson, 2004). Organizations could work with employees to identify and prioritize daily tasks, optimize technologies for ultimate efficiency, and coordinate team membership and project schedules to provide the most effective environment possible.

In discussing time-management strategies to her subordinates at Google, Dillon (2016) described the need to "make time" that protects time for specific projects and other personal activities. This dedication to preserving specific moments or portions of a day for well-defined (work or personal) tasks focuses on potentially eliminating unnecessary interruptions and enhancing productive work flow. Organizations may need to orient their employee training and performance-evaluation systems to identify and reward efforts to enact the make-time concept. Firms could leverage this approach to provide more meaningful workday balance to employees. Further, researchers who want to better understand PUTW and multitasking could consider a systems-oriented solution. What mechanisms could be used to develop a systems-oriented solution, and how could organizations develop or acquire the skills necessary to develop a skill-oriented solution?

3.3.3   Research Methods

While the multitasking literature almost exclusively focuses on the individual level, some interesting methods for investigating managerial and organizational interventions for PUTW exist as well. One interesting opportunity would involve conducting case studies whereby researchers investigate a small number of organizations that attempt unique strategies for managing PUTW. Researchers could interview employees with varying degrees of flexibility to understand how and why PUTW impacts their lives.

Additionally, researchers could employ daily diary studies to gain greater insight into employees' behaviors in response to specific organizational actions (Ohly, Sonnentag, Niessen, & Zapf, 2010). Daily diary studies could enable researchers to track the impact of various organizational interventions with real-time feedback from employees experiencing the challenges in making decisions regarding work and selecting non-work tasks. Research in industrial organizational psychology and on the work/non-work interface has extensively used daily diary studies (Butler, Grzywacz, Bass, & Linney, 2005). Daily diary studies have evolved to incorporate technology to more easily facilitate employee participation in that participants can make diary entries through smartphones or other portable devices.

3.3.4   Summary

Managers and organizations are challenged to leverage the human capital resources at their disposal to the best of their abilities in order to best contribute to organizational performance. Despite previous attempts to characterize PUTW in a negative light, we have seen that this behavior can have positive effects on performance. As a result, managers and organizations should optimize the conditions under

which PUTW can produce positive results. Our multitasking lens provides a valuable perspective from which to execute these facilitations.

4   Discussion

Figure 2 summarizes the primary tenants of the research framework. Ultimately, we provide this framework as a means to answer our core research question (i.e., "How can employees most effectively manage their personal use of technology at work?"). The model we provide here illustrates the main areas where IS researchers can seek out insights toward that aim.
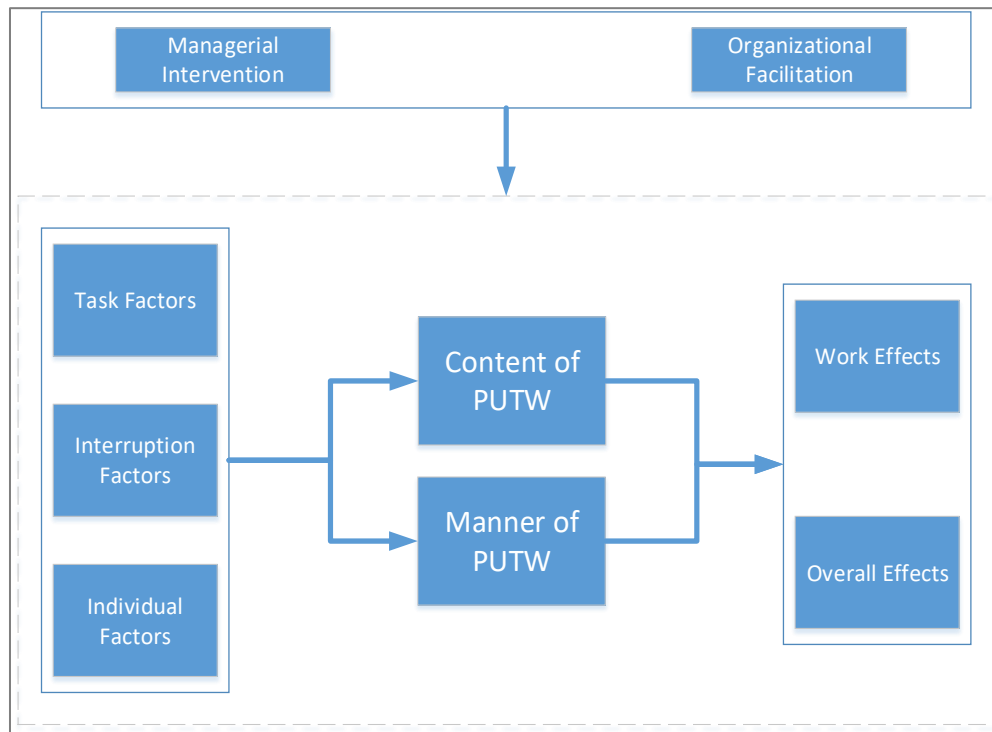
Figure 2. Organizing Framework

With effectiveness as the primary focus of the framework, we present two primary dependent variables that encompass more granular elements: work effects and overall effects. Work effects represents an entire category of work-specific outcomes, which may include work productivity, job satisfaction, efficiency, and so on. Overall effects represents individualistic outcomes across both work and personal objectives, such as work/life balance, stress, personal productivity, and so on.

Two main facets of PUTW behavior influence these two dependent variable categories: content of PUTW and manner of PUTW. Content of PUTW represents the personal tasks that employees select, whereas manner of PUTW represents the way in which employees complete personal tasks (e.g., concurrent vs. sequential multitasking, task categorization, etc.). As we describe in Section 3.2, both elements influence work and overall effects.

Since the content and manner of PUTW influence how effectively employees manage their personal use of technology at work, researchers need to study the determinants of these two elements. In Section 3.1, we discuss antecedents that we divide into three categories: task factors, interruption factors, and individual factors. Task factors represents the characteristics of work or personal tasks that motivate both the content and manner of PUTW. For example, an overly important personal task may influence both which tasks an employee completes during the day (content) and when the employee completes such tasks (manner). Interruption factors represents how technology mediates the presentation of personal tasks to employees and how such presentation affects the content and manner of PUTW. The same personal task presented differently may be chosen or not (content) or enacted differently (manner). Finally, individual factors recognizes that not all employees will respond the same to the availability of personal tasks, nor will they enact those personal tasks in the same manner.

Beyond the primary causal chain, we also recognize that outside influences can change how employees interact with personal tasks while working. Managerial intervention encompasses manager actions that might influence PUTW, while organizational facilitation encompasses company policies and procedures that similarly may influence employee PUTW. Given the breadth of these actions, we do not draw specific relationships in the diagram. Rather, we recognize that they may have both direct and moderating relationships throughout.

This research framework and the core research question that accompanies it signify a potential change in the manner in which researchers examine PUTW in the IS field. While we provide specific areas where researchers can investigate, we also recognize that researchers may need to shift their perspective to address the challenges that employees in today's world may face. To that end, we recognize two central areas in which researchers can discover new, fertile ground in investigating PUTW.

4.1   Individual-level Focus

Our definition and research framework for investigating PUTW offer a contrast to much prior literature due to a difference in the perspective by which we view the phenomenon. We observe that most prior studies have used an organizational focus and investigated the behavior with a focus on its impact on organizational outcomes. From this perspective, researchers have largely viewed PUTW as a detrimental behavior, one that detracts from organizational performance. Thus, many prior studies have understandably depicted PUTW negatively and discussed mechanisms that organizations can use to reduce the behavior as much as possible.

An individual perspective on PUTW considers individual goals, which often overlap but occasionally deviate from organizational goals. From this perspective, PUTW does not represent a deviant behavior that individuals must always eliminate. Rather, one can view it as a behavior that helps individuals to complete their personal and work tasks when both are important. Accordingly, PUTW represents a necessity due to increased pressures from multiple directions. Recognizing that PUTW can have beneficial or harmful effects, we promote research that focuses on helping people most effectively use technology to complete their personal and work tasks rather than simply eliminate PUTW altogether.

To recognize the benefits that PUTW has on individuals, we need to examine how individuals can best use technology to most efficiently accomplish their personal and work tasks. This perspective deviates from the established priority (organizational performance) and offers additional outcomes of interest, most notably overall performance. Looking again at the vignette from our introduction, we see that the chemistry professor not only cares about completing her laboratory experiment (a work task) but also responding to her child's teacher and maintaining her social relationships (personal tasks). An organizational perspective would ask how the professor could best accomplish the experiment and disregard any concern for her personal endeavors (perhaps even viewing them as "deviant") (Zoghbi Manrique de Lara, 2006). We offer an individual perspective that asks how the professor could most effectively accomplish all of her tasks without unnecessarily sacrificing work performance.

By no means do we insist that researchers move away entirely from an organizational perspective on PUTW. This research framework incorporates research that seeks to influence both individual and organizational outcomes. We invite future researchers to examine how employees can most effectively complete their personal and work tasks using technology to manage this difficult endeavor.

4.2   Technological Innovation

Prior research on PUTW has largely focused on the individuals that enact the behavior, often ignoring the technology that supports it. As we continue to understand the benefits from engaging PUTW, the question remains how we can develop technologies to support the behavior in the best way possible.

Here, multitasking research could prove tremendously beneficial. Multitasking research focuses on understanding switch costs, the detrimental effects associated with switching between tasks. Researchers could contextualize this knowledge about switch costs in PUTW research. For example, Kiesel et al. (2010) describe task preparation and note that individuals can react more quickly to tasks when they can anticipate and prepare beforehand. As such, can we develop technologies that enhance task preparation such that individuals can better recognize their pressing personal and work tasks to increase their preparation? How can we enhance notifications, which have become commonplace in mobile and desktop operating systems, to most adequately reduce switch costs by increasing individuals' ability to adequately prepare?

Researchers have paid such significant time and attention to the individuals who engage in PUTW that they may have neglected the opportunity to examine the technology that makes PUTW possible. The more we understand the motivations, strategies, and effects of PUTW, the more we can develop technologies that improve the behavior as individuals enact it in practice. In this sense, we can not only better understand PUTW but also offer interesting insights to the multitasking field by providing researchers with a context in which to examine their efficacy of their findings.

5   Conclusion

The changing and constantly evolving nature of work necessitates that we consistently reevaluate how individuals and organizations can best employ technology to meet their needs. As IS researchers, we limit our ability to offer guidance to our constituents when we typecast technological behaviors as entirely good or bad. The complexity of technology demands nuance.

In this paper, we provide a nuanced perspective on personal use of technology at work that recognizes that personal activities can lead to positive or negative outcomes depending on how they are employed. Thus, we should endeavor to identify how employees can most effectively complete personal activities while at work. The research framework we present builds on the foundation that prior research has laid on the topic while refocusing that research to better disentangle the dilemma that many employees and organizations face in today's technologically intertwined world. Furthermore, the framework broadens our perspective on the behavior by moving from a pure deterrence perspective to one that seeks effectiveness in its implementation.

Technology has freed employees from the confines of time and location and, thus, allows them to complete tasks with greater flexibility than ever before. We must recognize the challenges presented by that flexibility while also seeking to understand the benefits it provides. This research framework on the personal use of technology at work should move our field forward on both fronts.

References

Adler, R. F., & Benbunan-Fich, R. (2012). Juggling on a high wire: Multitasking effects on performance. *International Journal of Human-Computer Studies*, *70*(2), 156-168.

Adler, R. F., & Benbunan-Fich, R. (2013). Self-interruptions in discretionary multitasking. *Computers in Human Behavior*, *29*(4), 1441-1449.

Adler, R. F., & Benbunan-Fich, R. (2014). The effects of task difficulty and multitasking on performance. *Interacting with Computers*, *27*(4), 430-439.

Allen, T. D., Cho, E., & Meier, L. L. (2014). Work-family boundary dynamics. *Annual Review of Organizational Psychology and Organizational Behavior*, *1*(1), 99-121.

Amstad, F. T., Meier, L. L., Fasel, U., Elfering, A., & Semmer, N. K. (2011). A meta-analysis of work-family conflict and various outcomes with a special emphasis on cross-domain versus matching-domain relations. *Journal of Occupational Health Psychology*, *16*(2), 151-169.

Anandarajan, M., & Simmers, C. A. (2005). Developing human capital through personal Web use in the workplace: Mapping employee perceptions. *Communications of the Association for Information Systems*, *15*, 776-791.

Anandarajan, M., Simmers, C. A., & D'Ovidio, R. (2011). Exploring the underlying structure of personal web usage in the workplace. *Cyberpsychology, Behavior, and Social Networking*, *14*(10), 577-583.

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.

Appelbaum, S. H., Marchionni, A., & Fernandez, A. (2008). The multi-tasking paradox: Perceptions, problems and strategies. *Management Decision*, *46*(9), 1313-1325.

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.

Ayyagari, R., Grover, V., & Purvis, R. (2011). Technostress: Technological antecedents and implications. *MIS Quarterly*, *35*(4), 831-858.

Bailey, B. P., & Konstan, J. A. (2006). On the need for attention-aware systems: Measuring effects of interruption on task performance, error rate, and affective state. *Computers in Human Behavior*, *22*(4), 685-708.

Baskerville, R. (2011). Individual information systems as a research arena. *European Journal of Information Systems*, *20*(3), 251-254.

Bulger, C. A., Matthews, R. A., & Hoffman, M. E. (2007). Work and personal life boundary management: boundary strength, work/personal life balance, and the segmentation-integration continuum. *Journal of Occupational Health Psychology*, *12*(4), 365-375.

Butler, A. B., Grzywacz, J. G., Bass, B. L., & Linney, K. D. (2005). Extending the demands-control model: A daily diary study of job characteristics, work-family conflict and work-family facilitation. *Journal of Occupational and Organizational Psychology*, *78*(2), 155-169.

Caplan, S. E. (2006). Relations among loneliness, social anxiety, and problematic Internet use. *Cyberpsychology & Behavior*, *10*(2), 234-242.

Cheng, L., Li, W., Zhai, Q., & Smyth, R. (2014). Understanding personal use of the Internet at work: An integrated model of neutralization techniques and general deterrence theory. *Computers in Human Behavior*, *38*, 220-228.

De Baene, W., Kühn, S., & Brass, M. (2012). Challenging a decade of brain research on task switching: Brain activation in the task-switching paradigm reflects adaptation rather than reconfiguration of task sets. *Human Brain Mapping*, *33*(3), 639-651.

Dillon, J. (2016). Read this Google email about time management strategy. *Fast Company*. Retrieved from https://www.fastcompany.com/3054571/the-better-time-management-strategy-this-googler-taught-his-coworkers

Dominus, S. (2016). Rethinking the work-life equation. *The New York Times Magazine*. Retrieved from https://www.nytimes.com/2016/02/28/magazine/rethinking-the-work-life-equation.html

Eby, L. T., Maher, C. P., & Butts, M. M. (2010). The intersection of work and family life: The role of affect. *Annual Review of Psychology*, *61*, 599-622.

Friedman, T. (2006). The age of interruption. *The New York Times*. Retrieved from https://www.nytimes.com/2006/07/05/opinion/05friedman.html

Fortune. (2016). *The 50 best workplaces for flexibility*. Retrieved from http://fortune.com/best-workplaces-flexibility/

Fortune. (2017). *Fortune's 50 best workplaces for flexibility*. Retrieved from http://fortune.com/best-workplaces-flexibility/ryan-1/

Geurts, S. A. E., & Demerouti, E. (2003). Work/non-work interface: A review of theories and findings. In M. J. Schabracq, J. A. M. Winnubst, & C. L. Cooper (Eds.), *Handbook of work and health psychology* (pp. 279-312). Chichester, England: Wiley.

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.

González, V. M., & Mark, G. (2004). Constant, constant, multi-tasking craziness: Managing multiple working spheres. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 113-120).

González, V. M., & Mark, G. (2005). Managing currents of work: Multi-tasking among multiple collaborations. In *Proceedings of the 9th European Conference on Computer-Supported Cooperative Work* (pp. 143-162).

Gonzalez, V. M., Galicia, L., & Favela, J. (2008). Understanding and supporting personal activity management by IT service workers. In *Proceedings of the 2nd ACM Symposium on Computer Human Interaction for Management of Information Technology* (pp. 2-11).

Greenhaus, J. H., & Powell, G. N. (2006). When work and family are allies: A theory of work-family enrichment. *Academy of Management Review*, *31*(1), 72-92.

Haar, J. M., Russo, M., Suñe, A., & Ollier-Malaterre, A. (2014). Outcomes of work–life balance on job satisfaction, life satisfaction and mental health: A study across seven cultures. *Journal of Vocational Behavior*, *85*(3), 361-373.

Hunter, E. M., Clark, M. A., & Carlson, D. S. (2019). Violating work-family boundaries: Reactions to interruptions at work and home. *Journal of Management*, *45*(3), 1284-1308.

Jiang, H. (2016). *Employee personal Internet usage in the workplace* (unpublished dissertation). University of Jyvaskyla, Jyvaskyla, Finland.

Judge, T. A., Ilies, R., & Scott, B. A. (2006). Work-family conflict and emotions: Effects at work and at home. *Personnel Psychology*, *59*(4), 779-814.

Kane, L. M. (2014). Telework and organizational citizenship behaviors: The underexplored roles of social identity and professional isolation (doctoral dissertation). *CUNY Academic Works.* Retrieved from https://academicworks.cuny.edu/gc_etds/357

Kiesel, A., Steinhauser, M., Wendt, M., Falkenstein, M., Jost, K., Philipp, A. M., & Koch, I. (2010). Control and interference in task switching—a review. *Psychological Bulletin*, *136*(5), 849-874.

Kilduff, G. J., Galinsky, A. D., Gallo, E., & Reade, J. J. (2016). Whatever it takes to win: Rivalry increases unethical behavior. *Academy of Management Journal*, *59*(5), 1508-1534.

Kim, S. (2018). Managing millennials' personal use of technology at work. *Business Horizons*, *61*(2), 261-270.

König, C. J., Oberacher, L., & Kleinmann, M. (2010). Personal and situational determinants of multitasking at work. *Journal of Personnel Psychology*, *9*(2), 99-103.

König, C. J., & Waller, M. J. (2010). Time for reflection: A critical examination of polychronicity. *Human Performance*, *23*(2), 173-190.

Lee, O. K., Lim, K. H., & Wong, W. M. (2005). Why employees do non-work-related computing: An exploratory investigation through multiple theoretical perspectives. In *Proceedings of the 38th Annual Hawaii International Conference*.

Liberman, B., Seidman, G., Mckenna, K. Y., & Buffardi, L. E. (2011). Employee job attitudes and organizational characteristics as predictors of cyberloafing. *Computers in Human Behavior*, *27*(6), 2192-2199.

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

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

McFarlane, D. (2002). Comparison of four primary methods for coordinating the interruption of people in human-computer interaction. *Human-Computer Interaction*, *17*(1), 63-139.

Mahatanankoon, P., Anandarajan, M., & Igbaria, M. (2004). Development of a measure of personal Web usage in the workplace. *CyberPsychology & Behavior*, *7*(1), 93-104.

Miller, C. C. (2015). The 24/7 work culture's toll on families and gender equality. *The New York Times.* Retrieved from https://www.nytimes.com/2015/05/31/upshot/the-24-7-work-cultures-toll-on-families-and-gender-equality.html

Mohn, T. (2017). The digital nomad life: Combining work and travel. *The New York Times.* Retrieved from https://www.nytimes.com/2017/04/03/business/digital-nomads-work-tourism.html

Ohly, S., Sonnentag, S., Niessen, C., & Zapf, D. (2010). Diary studies in organizational research: An introduction and some practical recommendations. *Journal of Personnel Psychology, 9*(2), 79-93.

Pashler, H. (1994). Dual-task interference in simple tasks: Data and theory. *Psychological Bulletin*, *116*(2), 220-244.

Pluut, H., Flestea, A. M., & Curşeu, P. L. (2014). Multiple team membership: A demand or resource for employees? *Group Dynamics: Theory, Research, and Practice*, *18*(4), 333-348.

Reeck, C., & Egner, T. (2015). Emotional task management: neural correlates of switching between affective and non-affective task-sets. *Social Cognitive and Affective Neuroscience*, *10*(8), 1045-1053.

Rogers, R. D., & Monsell, S. (1995). Costs of a predictable switch between simple cognitive tasks. *Journal of Experimental Psychology: General, 124*(2), 207-231.

Salvucci, D. D. (2005). A multitasking general executive for compound continuous tasks. *Cognitive Science*, *29*(3), 457-492.

Salvucci, D. D., Taatgen, N. A., & Borst, J. P. (2009). Toward a unified theory of the multitasking continuum: From concurrent performance to task switching, interruption, and resumption. In *Proceedings of The SIGCHI Conference on Human Factors in Computing Systems* (pp. 1819-1828).

Scheepers, R., & Middleton, C. A. (2013). Personal ICT ensembles and ubiquitous information systems environments: Key issues and research implications. *Communications of the Association for Information Systems*, *33*, 381-392.

Shepherd, M. M., & Klein, G. (2012). Using deterrence to mitigate employee Internet abuse. In *Proceedings of the 45th Hawaii International Conference on System Science* (pp. 5261-5266).

Siponen, M., & Vance, A. (2010). Neutralization: New insights into the problem of employee information systems security policy violations. *MIS Quarterly*, *34*(3), 487-502.

Stephens, K. K., & Davis, J. (2009). The social influences on electronic multitasking in organizational meetings. *Management Communication Quarterly*, *23*(1), 63-83.

Suddaby, R. (2010). Editor's comments: Construct clarity in theories of management and organization. *The Academy of Management Review*, *35*(3), 346-357.

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

Ugrin, J. C., Pearson, J. M., & Odom, M. D. (2008). Profiling cyber-slackers in the workplace: Demographic, cultural, and workplace factors. *Journal of Internet Commerce*, *6*(3), 75-89.

Ugrin, J. C., & Pearson, J. M. (2013). The effects of sanctions and stigmas on cyberloafing. *Computers in Human Behavior*, *29*(3), 812-820.

Wagner, D. T., Barnes, C. M., Lim, V. K., & 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), 1068-1077.

Wasson, C. (2004). Multitasking during virtual meetings. *Human Resource Planning*, *27*(4), 47-60.

Weatherbee, T. G. (2010). Counterproductive use of technology at work: Information & communications technologies and cyberdeviancy. *Human Resource Management Review*, *20*(1), 35-44.

Wild, P. J., Johnson, P., & Johnson, H. (2004). Towards a composite modelling approach for multitasking. In *Proceedings of the 3rd Annual Conference on Task Models and Diagrams* (pp. 17-24).

Zacarias, M., Pinto, H., & Tribolet, J. (2006). A context-based approach to discover multitasking behavior at work. In *Proceedings of the 5th International Workshop on Task Models and Diagrams for User Interface Design*.

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.

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