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### **Examining the Side Effects of Organizational Internet Monitoring on Employees**

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Response Letter

INTR-08-2019-0360

Examining the Side Effects of Organizational Internet Monitoring on Employees

We would like to thank the editor for giving us another opportunity to revise our manuscript. We also thank the reviewer 1 (R1) very much for providing excellent feedback, which has pushed us to improve our paper further. We also appreciate that the reviewer 2 suggested accepting our paper. The issues raised by R1 mainly pertain to (1) research motivation, (2) theoretical background, and (3) a problem with hypotheses development. We agree that the questions raised by R1 are very important, and we hope that the concerns of R1 have been appropriately addressed through our major revision of the paper. We also revised other sections (e.g., discussion) accordingly to make the entire paper smooth. All the revised texts are in red in the revised manuscript. The table below depicts our detailed response to explain how we have addressed the concerns of R1.

<p><b>R1-1:</b></p> <p>Thanks for considering and addressing my concerns raised before. I think the manuscript has improved a lot. However, I still have several suggestions in the hope of improving the manuscript.</p>	<p>Thank you for the excellent feedback, which has helped us a lot to improve the paper.</p>
<p><b>R1-2:</b></p> <p>First, from my point of view, prior research on examining the effects of Internet monitoring on cyberloafing and information security risks generally represents a research stream, i.e., the positive or targeted impact of Internet monitoring on organizations. On the other hand, the focal research is to investigate the side or potentially negative impacts of Internet monitoring on employees in particular. In this regard, what are the potential theoretical and practical influence of ignoring the side effect of Internet monitoring? Are there any cases, reports, or data that can highlight the negative influences of Internet</p>	<p>Thank you. We have addressed this concern by adding the following statements in the introduction (p. 3): “Neglecting the side effects (of Internet monitoring) may preclude employers and organizations from making appropriate decisions regarding whether and how to implement the Internet monitoring. This is particularly a problem given that previous studies have suggested that organizational attempts to control employees can result in side effects. For example, Lawrence and Robinson (2007) have indicated that employees may increase their deviant behaviors as resistance to organizational controls that exercise power, such as discipline or domination. Jensen and Raver (2012) have found that individuals</p>

<p>monitoring? I think answering these questions in Introduction will better motivate the research. Examples of cyberloafing and information security risks can only demonstrate the necessity of Internet monitoring.</p>	<p>may react to employers' close supervision by decreasing their organizational citizenship behavior because, under close supervision, employees' may perceive that employers do not trust them."</p>
<p><b>R1-3:</b></p> <p>Second, as for the response to Reviewer 1-4, I don't see any discussion on how this study is "the first step toward understanding the negative effect of Internet monitoring on employees' various behaviors such as in-role task performance, extra-role behaviors, turnover as well as deviant behaviors" in the revised manuscript.</p>	<p>Thank you. What we meant was that policy satisfaction (PS), intrinsic work motivation (IWM), and affective organizational commitment (AOC) are important predictors of employees' various behaviors such as in-role or extra-role job performance and deviant behaviors. Therefore, studying the impact of Internet monitoring on PS, IWM, and AOC can have implications for understanding the effect of Internet monitoring on employees' in-role and extra-role job performance and deviant behaviors.</p> <p>In the revised manuscript, the statement above is used as one reason to explain why we study PS, IWM, and AOC in this paper (see p.4).</p>
<p><b>R1-4:</b></p> <p>The authors also indicate some studies have examined the influence of Internet monitoring on anger and stress of employees (Khansa et al., 2017; Carayon, 1994; Rod and Ashill, 2013, Stanton and Julian, 2002). What are the differences between anger, stress, policy satisfaction, intrinsic motivation, and affective commitment?</p>	<p>Thank you. We explain this question in p.3 of the revised manuscript. Specifically, "anger" is an affective response of employees to Internet monitoring, and "stress" is employees' perceptions of the Internet monitoring itself. Although studying anger and stress is useful for understanding employees' adverse reactions to Internet monitoring, it is not known from previous studies whether the affective response (e.g., anger, which can be transient) can transform into some attitudinal perceptions (which can be persistent), and whether employees' negative perceptions of Internet monitoring itself (e.g., stress) can be transformed into their negative perceptions to their work and organizations in general.</p>

	Policy satisfaction is an attitudinal perception, and intrinsic work motivation and affective commitment are employees' perceptions of their work and organizations. By focusing on these three constructs, our study can deepen our understanding of the side effects of Internet monitoring.
<b>R1-5:</b>  Third, as for the response to Reviewer 1-7 and the hypothesis development (H2 in particular), it seems that policy dissatisfaction is the original cause of reactance which further results in reducing intrinsic work motivation and affective organizational commitment. However, all three proposed hypotheses are independent in the revised manuscript. The authors need to clarify the theoretical foundation and strengthen hypothesis development.	Thank you. We have revised the hypotheses development section. Specifically, guided by the affective event theory, we have discussed each hypothesis from both affective and cognitive perspectives. As a result, the problem raised by the R1 (i.e., policy dissatisfaction is the original cause of the other two constructs) does not exist anymore.
<b>R1-6:</b>  Fourth, I feel psychological reactance theory, self-determination theory, and affective event theory are still scattered. Psychological reactance theory, self-determination theory, and affective event theory are only responsible to one target DV, respectively. Is there any theory or perspective that can dominate the choice of policy satisfaction, intrinsic work motivation and affective organizational commitment? Can it be psychological reactance theory or affective event theory?	Thank you. Following the suggestion of the R1, in the revised paper, we used the affective events theory (AET) to guide the choice of policy satisfaction, intrinsic work motivation, and affective organizational commitment. Specifically, by reviewing the literature of AET, we found that previous studies have suggested that employees' reactions to an organizational event can result in both attitudinal consequences and motivational consequences. The most important attitudes are satisfaction and commitment. That is why we would like to study employees' satisfaction, commitment, and motivation. Contextualizing these constructs in our study results in our choice of policy satisfaction, intrinsic work motivation, and affective organizational commitment.
<b>R1-7:</b>	Thank you. We apologize for the mistakes and errors. We have corrected the errors

Fifth, several mistakes and errors appear in the revised manuscript. For example, “intrinsic work motivation can be affected external incentives such as rewards and punishments or controls”.	and double-checked our writing to make sure that there are no typos. We have used the premium version of “Grammarly”, which is a paid online application for proofreading, to help us avoid spelling and grammatical issues.
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# Examining the Side Effects of Organizational Internet Monitoring on Employees

## Abstract

**Purpose** – Internet monitoring in organizations can be used to monitor risks associated with Internet usage and information systems in organizations, such as employees’ cyberloafing behavior and information security incidents. Extant research has mainly discussed the effect of Internet monitoring in achieving the targeted goals (e.g., mitigating cyberloafing behavior and information security incidents), but little attention has been paid to the possible side effects of Internet monitoring. Drawing on affective events theory, we attempt to reveal that Internet monitoring may cause side effects on employees’ Internet usage policy satisfaction, intrinsic work motivation, and affective organizational commitment.

**Design/methodology/approach** – The authors conducted a field experiment in a software development company. Seventy employees participated in the study. Mann–Whitney U test was employed to analyze the data.

**Findings** – The results suggest that Internet monitoring decreased employees’ satisfaction with the Internet usage policy, intrinsic work motivation, as well as affective organizational commitment.

**Originality/value** – This study contributes to the literature by examining the side effects of Internet monitoring on employees. It also has implications for organizations to make appropriate decisions regarding whether to implement Internet monitoring.

**Keywords:** Internet monitoring, Policy satisfaction, Intrinsic work motivation, Affective organizational commitment, Field experiment

**Paper type** Research paper

## 1 Introduction

Organizations are increasingly reliant on the Internet in their daily operations and management. The Internet can help organizations improve their services by responding rapidly to customers' needs (Mohammad *et al.*, 2019), and can also help employees obtain information conveniently and improve communication and collaboration (Koay, 2018). At the same time, inappropriate usage of the Internet can also raise various potential risks to organizations. For example, it is increasingly common for employees to engage in cyberloafing, which refers to employees' non-work-related Internet usage during working time. Examples of cyberloafing include surfing news websites, visiting social networking sites, online shopping, gaming, chatting, and so on (Lieberman *et al.*, 2011; Lim, 2002; Jiang and Tsohou, 2014; Zoghbi Manrique de Lara *et al.*, 2006). Cyberloafing can be a salient threat to employee job performance because the time spent on cyberloafing can account for 10% to 30% of employee work time (Agarwal, 2019; Askew *et al.*, 2019). Another potential risk raised by the extensive usage of the Internet at work is associated with the information security of organizations. Inappropriate Internet usage, such as downloading pirated software applications or watching adult-oriented videos, may result in information security risks or legal disputes to organizations (Cheng *et al.*, 2014).

Given the potential concerns and risks related to the Internet usage, organizations often adopt various policies to regulate employees' Internet usage (e.g., Bock *et al.*, 2010; Wong *et al.*, 2005). Internet monitoring is one such policy that has been widely discussed in prior literature and adopted in organizations (Khansa *et al.*, 2017; Khansa *et al.*, 2018). It was reported that 63% of employers monitor employees' Internet connections in the US (Posey *et al.*, 2011). Previous studies have examined the targeted effects of Internet monitoring (i.e., the effects of Internet monitoring on cyberloafing or information security risks). The results suggested that Internet monitoring was useful to reduce employees' cyberloafing behavior (e.g., Glassman *et al.*, 2015) and to increase employees' compliance with information systems security policies (e.g., D'Arcy *et al.*, 2009).

Despite their merits, these studies have only examined the targeted effects of Internet monitoring; the potential side effects of Internet monitoring on employees' perceptions or behaviors other than cyberloafing and information security policy compliance have been



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2  
3 rarely studied (Jiang, 2016). Neglecting the side effects may preclude employers and  
4 organizations from making appropriate decisions regarding whether and how to implement  
5 Internet monitoring. This is particularly a problem given that previous studies have  
6 suggested that organizational attempts to control employees can result in side effects. For  
7 example, Lawrence and Robinson (2007) have indicated that employees may increase their  
8 deviant behaviors as resistance to organizational controls that exercise power, such as  
9 discipline or domination. Jensen and Raver (2012) have found that individuals may react  
10 to employers' close supervision by decreasing their organizational citizenship behavior  
11 because, under close supervision, employees may perceive that employers do not trust  
12 them.  
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22 In the context of our study, Internet monitoring is a form of organizational control that  
23 aims to regulate employees' Internet usage. Previous studies have suggested that Internet  
24 monitoring can engender employees' negative affection, such as increased anger (Khansa  
25 *et al.*, 2018). However, these studies only investigated employees' affective reactions to  
26 Internet monitoring itself. On the one hand, affective reactions (e.g., anger) can be transient  
27 (Ashton-James and Ashkanasy, 2005; Beal *et al.*, 2006), and previous studies have not  
28 studied employees' attitudinal reactions to Internet monitoring which can be persistent. On  
29 the other hand, given the pivotal role that the Internet plays in employees' daily work,  
30 Internet monitoring may not only influence employees' perceptions of the Internet usage  
31 policy itself, but also influence employees' overall perceptions of their work and  
32 organizations. However, the potential side effects of Internet monitoring on employees'  
33 perceptions of their work and organizations have not been studied by previous studies.  
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43 Therefore, the objective of our study is to examine the potential side effects of Internet  
44 monitoring on employees' attitudinal reactions to Internet usage policy, as well as the  
45 potential side effects of Internet monitoring on employees' perceptions of their work and  
46 organizations. Specifically, guided by affective events theory (AET, Weiss and  
47 Cropanzano, 1996), we will investigate the impact of Internet monitoring on employees'  
48 (Internet usage) policy satisfaction, work motivation, and organizational commitment. The  
49 reasons why we choose these three research constructs are twofold. First, previous studies  
50 on AET have suggested that the occurrence of an organizational event (e.g., a new  
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organizational policy implementation) can lead to both attitudinal and motivational consequences of employees (Carlson *et al.*, 2011; Chong *et al.*, forthcoming). The most important attitudes are employees' satisfaction and commitment (Judge *et al.*, 2012). Following previous studies, our study aims to investigate both the attitudinal and motivational side effects of Internet monitoring by focusing on policy satisfaction, work motivation, and organizational commitment. Second, employees' satisfaction, work motivation, and organizational commitment are essential predictors of employees' behaviors such as job performance and turnover behavior, which are key considerations when employers would like to implement any new policies (Aurigemma and Leonard, 2015; Meyer *et al.*, 2002).

By studying the impact of Internet monitoring on employees' policy satisfaction, work motivation, and organizational commitment, our paper can advance researchers' understanding of the side effects of Internet monitoring, and help organizations make appropriate decisions regarding whether to implement Internet monitoring. The rest of the paper is organized as follows. In the next section, we review previous studies on Internet monitoring; we also review the affective events theory, which is the theoretical foundation to guide our research. We then propose our research hypotheses. This is followed by the research methodology and results. We conclude the paper by discussing the implications and limitations of our study as well as future research directions.

## 2 Literature Review

Generally speaking, organizations implement Internet monitoring to regulate employees' inappropriate or non-acceptable Internet usage such as cyberloafing behavior and to increase employees' compliance with information systems (IS) security policies. There is much research about the reasons why employees engage in cyberloafing (Hussain *et al.*, 2017; Koay *et al.*, 2017; Koay, 2018; Moody and Siponen, 2013), or about the reasons why employees do not comply with information security policies (Johnston *et al.*, 2015; Moody *et al.*, 2018; Siponen and Vance, 2010). However, there are relatively fewer studies on organizational policies (such as Internet monitoring) related to inappropriate Internet usage in organizations. In this section, we first review previous studies on Internet monitoring in

prior literature and point out the research gaps; we then discuss the theoretical foundation which guides our study to address the research gaps.

**2.1 Previous Studies on Internet Monitoring**

In the existing literature, Internet monitoring has been discussed primarily in two research areas: employees’ cyberloafing behavior and employees’ IS security policy compliance. In cyberloafing literature, previous studies have generally found that Internet monitoring can reduce employees’ cyberloafing. For example, based on self-reported survey data of 116 employees, Henle *et al.* (2009) found that employees’ cyberloafing behavioral frequency was negatively related to the periodic monitoring included in the organizational Internet use policy. Similarly, based on a survey of 87 participants, Ugrin and Pearson (2008) found that employees’ awareness of monitoring system enforcement significantly deterred their intentions to engage in cyberloafing. According to Ugrin and Pearson (2008), the explanation is that Internet monitoring may increase employees’ perception of sanctions, which negatively affects employees’ cyberloafing intentions. Based on a similar rationale, Glassman *et al.* (2015) also found that the functions of Internet monitoring systems can reduce employees’ cyberloafing behavior.

Furthermore, Ugrin and Pearson (2013) found that monitoring was effective in reducing “serious” cyberloafing activities, such as viewing pornography and shopping online. However, monitoring was not effective in reducing “minor” cyberloafing activities, such as personal e-mailing or social networking. According to Ugrin and Pearson (2013), this is because employees may perceive some “minor” cyberloafing activities as both work-related and non-work-related. Strictly prohibiting these “minor” cyberloafing activities may not be in line with employees’ personal ethical values, resulting in lower compliance with the Internet monitoring policy (Ugrin and Pearson, 2013).

In addition to cyberloafing, Internet monitoring has also been discussed in the literature of IS security policy compliance. For example, D’Arcy *et al.* (2009) found that Internet monitoring can increase employees’ Internet usage policy compliance because implementing Internet monitoring represents that organizations devote more resources to address IS security risks. Employees may interpret the increased resources as the increased

sanctions should they violate employers' expectations. Similarly, Vance *et al.* (2013; 2015) found that computer monitoring can increase employees' accountability for security actions, and thus to increase their compliance with information security policy. Similarly, D'Arcy and Lowry (2019) also found that computer monitoring is positively associated with employees' daily attitude towards information security policy compliance, which, in turn, enhances policy compliance.

As a summary, previous studies suggest that Internet monitoring can decrease employees' cyberloafing behavior and can increase employees' compliance with IS security policies. Despite the important implications, however, previous studies only investigated the targeted effects of Internet monitoring (i.e., the impacts of Internet monitoring on cyberloafing or employees' IS security compliance behaviors). The potential side effects of Internet monitoring on employees' perceptions and behaviors other than the targeted effects have been rarely investigated by previous studies. The very few studies that examined the side effects of Internet monitoring (e.g., Alder *et al.*, 2006; Alder *et al.*, 2008) only studied how Internet monitoring affects employees' anger or trust (in organizations). Other potential side effects of Internet monitoring on employees have not been investigated. Next, we review the theoretical background that we use for studying and explaining the potential side effects of Internet monitoring.

## 2.2 Affective Events Theory and Our Research Objective

We use affective events theory (AET, Weiss and Cropanzano, 1996) as a theoretical framework to guide our research objective. Prior literature related to AET can help us understand what kind of potential side effects Internet monitoring can produce. According to AET, events in organizations may engender employees' affective reactions, which may further produce cognitive consequences and eventually influence employees' job attitudes and behaviors (Ashton-James and Ashkanasy 2005; Hmieleski *et al.*, 2012; Weiss and Cropanzano, 1996). According to Weiss and Cropanzano (1996), an event means "change, a change in circumstances, a change in what one is currently experiencing (p. 31). In our study, implementing a new Internet usage policy such as Internet monitoring and working under constant monitoring can represent such an event, which can trigger employees' affective reactions and has an impact on employees' attitudes and behaviors.

Previous studies on AET suggest that employees’ reactions to events in organizations may result in both attitudinal and motivational consequences (Carlson *et al.*, 2011; Chong *et al.*, forthcoming). Regarding attitudinal consequences, job attitude refers to “evaluations of one’s job that express ones’ feelings toward, beliefs about, and attachment to ones’ job” (Judge *et al.*, 2012, p.344). This definition suggests that job attitude includes both affective and cognitive components (Judge *et al.*, 2012). According to previous studies, the most important job attitudes are employees’ job satisfaction and organizational commitment (Judge *et al.*, 2012). For example, AET suggests that job satisfaction is an important job attitude that can be affected by events in organizations (Carlson *et al.*, 2011; Glasø *et al.*, 2011). Therefore, to examine employees’ attitudinal reactions to Internet monitoring, we study employees’ satisfaction with organizational Internet usage policy (i.e., policy satisfaction). If employees are not satisfied with Internet monitoring, it is reasonable to believe that the potential side effects of Internet monitoring may not be transient but persistent.

Another important component of job attitude is organizational commitment (Erol-Korkmaz and Sümer, 2012). Organizational commitment refers to employees’ psychological bond with the organization (Solinger *et al.*, 2008). When employees are highly committed, they tend to identify with their organization and to be actively involved in the workplace (Allen and Meyer, 1990). There are different types of organizational commitment (Allen and Meyer, 1990). Of these, affective organizational commitment is most widely studied and is considered the most important type of organizational commitment (Judge *et al.*, 2012). Affective organizational commitment refers to the extent to which employees feel psychologically attached and included in the organization (Meyer and Allen, 1984). We focus on employees’ affective organizational commitment because prior literature in the management field suggests that affective organization commitment can be influenced by experiences or events at work and often precedes employees’ work-related behaviors (Miner *et al.*, 2005; Restubog *et al.*, 2006). As Allen and Meyer (1996) suggest, “affective commitment is expected to be correlated with those work experiences in, and characteristics of, the organization that makes the employee feel ‘psychologically comfortable’ ...” (p. 263).

Regarding the motivational consequences, work motivation is a psychological process resulting from the interaction between the individual and the environment (Latham and Pinder, 2005). Therefore, when the work environment changes because of an organizational event (such as an Internet monitoring policy), employees' work motivation can be affected. There are different types of employee work motivation, and one of which is particularly relevant to our study is employees' intrinsic work motivation. Intrinsic motivation means that employees perform work tasks because they feel enjoyable or meaningful about the work tasks. If an event in the organization makes employees feel angry or uncomfortable when performing job tasks, their intrinsic work motivation may suffer. Previous research has found that organizational events triggering one's positive affect could increase intrinsic motivation (Chong *et al.*, forthcoming), and those work events triggering negative affect could decrease intrinsic motivation (Bloom and Colbert, 2011).

Taken together the discussions above, guided by the AET, the specific research objective of this paper is to investigate the impacts of Internet monitoring on employees' policy satisfaction, intrinsic work motivation, and affective organizational commitment. These three research constructs involve both attitudinal and motivational consequences of Internet monitoring, and encompass the potential side effects of Internet monitoring at the policy level, the work/job level, and the organizational level. Next, we discuss our hypotheses.

### 3 Research Hypotheses

In this section, we develop our research hypotheses. As mentioned earlier, AET suggests that workplace events can trigger employees' affective reactions, which may further influence employees' cognitions (Ashton-James and Ashkanasy, 2005). Furthermore, attitudes and motivations consist of both affective and cognitive components (Judge *et al.*, 2012). Therefore, in the rest of this section, we discuss how Internet monitoring influences employees' policy satisfaction, intrinsic work motivation, and affective organizational commitment from both affective and cognitive perspectives, although these two

perspectives are complementary to and often hard to separate from each other (Judge *et al.*, 2012).

**3.1 The Impact of Internet Monitoring on Employees’ Policy Satisfaction**

From the affective perspective, previous studies have suggested that Internet monitoring can violate employees’ information privacy (Alder *et al.*, 2008; Firoz *et al.*, 2006; Parenti, 2001; Tabak and Smith, 2005), which may further result in employees’ anger (Yost *et al.*, 2019). According to AET, organizational events (e.g., Internet monitoring) that engender employees’ negative affective reactions such as anger can result in employees’ dissatisfaction with the events.

In addition to affective reactions, Internet monitoring may also cause employees’ negative cognitive reactions (Yost *et al.*, 2019). According to Lawrence and Robinson (2007), enactments of control may thwart employees’ basic need for autonomy. Individuals’ perceptions of constrained freedom or autonomy to choose actions can decrease their satisfaction (Wicklund, 1974). Urbaczewski and Jessup (2002) also found that individuals’ satisfaction with external monitoring was lower when it was used for control purposes. In the context of our study, Internet monitoring may be perceived by employees as a threat or constraint to their Internet use autonomy or even work autonomy, which may negatively affect employee satisfaction.

Taken together, we argue that Internet monitoring may result in employees’ negative reactions in both affections (e.g., anger) and cognitions (perceived lack of autonomy). According to AET, these negative reactions may ultimately result in employees’ dissatisfaction with the situation (Robinson, 1996; Wicklund, 1974). Therefore, we propose the following hypothesis:

*H1. Internet monitoring decreases employees’ satisfaction with the Internet usage policy in the workplace.*

**3.2 The Impact of Internet Monitoring on Employees’ Intrinsic Work Motivation**

The impact of Internet monitoring on employees’ intrinsic work motivation can also be discussed from both affective and cognitive perspectives. From the affective perspective,



given that Internet plays an important role in performing job tasks, even if the objective of Internet monitoring is to curb employees' inappropriate Internet usage (e.g., cyberloafing or IS security violations), employees may perceive that their work-related Internet usage is also monitored. As a result, employees may have serious information privacy concerns due to Internet monitoring and may become angry with the monitoring (Yost *et al.*, 2019). Such anger may arise even when employees use the Internet for work-related purposes. Employees' anger as a negative affection may decrease employees' perceived joyfulness when performing job tasks. As a result, employees' intrinsic work motivation, by definition, is likely to suffer because of the decreased perceived joyfulness of performing work tasks (Bloom and Colbert, 2011).

From the cognitive perspective, we propose two paths through which Internet monitoring may affect employees' intrinsic work motivation. First, Internet monitoring may decrease employees' sense of control over their work. For example, Internet monitoring can dampen employees' control over how to use the Internet during work. Internet monitoring can also violate employees' information privacy and therefore decrease employees' control over how to gather and handle their personal information related to Internet usage (Chen *et al.*, 2013). The decreased sense of control represents the reduced sense of autonomy, which is a core element of intrinsic work motivation (Ryan and Deci, 2000).

Second, previous studies found that an increase in external controls may undermine intrinsic motivation because the external controls can change individuals' perceived locus of causality for performing a specific behavior (Deci, 1972; Alder and Tompkins, 1997). Locus of causality refers to the extent to which individuals attribute activities to be internally caused or externally caused. In the context of our study, when under Internet monitoring that aims to control employees' (Internet usage) behavior at work, employees may perceive that they perform work tasks because they are monitored rather than because they like the work tasks. Such a belief may negatively affect employees' intrinsic work motivation. In line with the discussions above, we propose the following hypothesis:

*H2. Internet monitoring decreases employees' intrinsic work motivation.*



3.3 The Impact of Internet Monitoring on Employees’ Affective Organizational Commitment

Affective commitment refers to an emotional attachment to the organization (Allen and Meyer, 1996; Rhoades *et al.*, 2001), captured by feelings of belonging, pride, and loyalty. Previous studies have demonstrated that affective commitment can be influenced by employees’ work experience (Meyer *et al.*, 2002). Next, we discuss how Internet monitoring can negatively influence employees’ affective organizational commitment.

First, from the affective perspective, organizational surveillance such as Internet monitoring has been found to contribute to perceptions of stress (Carayon, 1994; Rod and Ashill, 2013; Stanton and Julian, 2002). Even if the objective of Internet monitoring is to track employees’ cyberloafing, employees may perceive all of their Internet usage behaviors are under surveillance. In this sense, Internet monitoring may put continuous stress on employees throughout the workday, which may result in emotional exhaustion to employees, and eventually decrease the affective commitment to organizations (Banks *et al.*, 2012).

Second, from the cognitive perspective, Internet monitoring may dampen the mutual trust between employees and employers. Specifically, employees may perceive that the implementation of Internet monitoring is a signal that they are not trusted by employers (Mayer *et al.* 1995; Tabak and Smith, 2005). As Rousseau *et al.* (1998) suggested, “Control comes into play only when adequate trust is not present” (p. 399). The sense of lacking trust may decrease employees’ sense of belonging to and membership with the organization, which is a core feature of affective organizational commitment. Therefore, we propose the following hypothesis:

*H3. Internet Monitoring decreases employees’ affective organizational commitment.*

4 Methodology and Results

4.1 Experiment Procedure

We conducted a field experiment to test our hypotheses. The experiment was conducted in a software development company in Portugal. There were 75 employees who participated

in our study, including programmers, sales agents, managers, system administrators, web analysts, and administrative staff. Roughly 57% of the participants are male, and more than 79% of the participants have a bachelor or higher degree. The participants' offices were located in two different buildings in the same city. The participants were divided into two groups based on which building their offices located to minimize communication between participants of the two groups. We randomly chose one group as the control group and the other as the treatment group. Before the experiment, each participant was assigned a randomly generated code by the secretary of the company to represent employee identity. The corresponding relationship between the code and the employee's identity was only known by the secretary, who was not among the experimental participants.

The field experiment was conducted in three steps. The first step (pre-test) occurred one month before the implementation of Internet monitoring, in which we surveyed all participants of both groups. Four constructs were included in the survey instrument: Internet usage policy awareness (PA), policy satisfaction (PS), intrinsic work motivation (IWM), and affective organizational commitment (AOC). In the second step, the company announced the Internet monitoring policy to the participants of the treatment group but not to the participants of the control group. The Internet monitoring policy explicitly states that *"to make sure that our employees use the Internet effectively and securely, the management team has decided to start using the monitoring and tracking functions of the proxy server in our company. Therefore, all the websites visited daily by our employees will be recorded from now on."* The Internet monitoring policy was sent by the CEO of the company via an e-mail to all participants of the treatment group. The third step (post-test) occurred two weeks<sup>1</sup> after the Internet monitoring announcement. It consisted of again surveying all participants using the same survey instrument, including the four constructs mentioned above, namely PA, PS, IWM, and AOC. The survey questionnaire used in the first and third steps also gathered participants' demographic information, although no identifying information was collected to ensure participants' anonymity.

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<sup>1</sup> Previous research has indicated that a two-week period is typically a sufficient interval by which to capture a representative snapshot of one's life (Troughakos *et al.*, 2014).

4.2 Validity and Reliability of Constructs

The four constructs included in our survey were measured by multi-item scales drawn from previously validated measures and were adapted particularly to the context of cyberloafing and Internet monitoring (see the measurement items in the Appendix). Specifically, the measurement of PA was adapted from D’Arcy *et al.* (2009); the measurement of PS was adapted from Bhattacharjee (2001); the measurement of IWM was adapted from Tremblay *et al.* (2009) and Kuvaas (2006), the measurement of AOC was adapted from Allen and Meyer (1990). All items were assessed via a 7-point Likert scale, from “strongly disagree” to “strongly agree.” The entire survey questionnaire was translated from English to Portuguese via a professional translation agent (i.e., translation) and then translated back from Portuguese to English by a bilingual individual (i.e., back translation) to ensure equivalency of meaning.

Convergent and discriminant validities of the constructs were assessed with Amos confirmatory factor analysis (CFA). We conducted CFA separately using data collected in the pre-test and data collected in the post-test. The CFA results suggested that the standardized loadings of all measurement items to the corresponding constructs are above 0.7. The values of  $\chi^2$  were 84.2 in pre-test and 108.8 in the post-test; the values of degree of freedom (df) were 74 in both pre-test and post-test. Therefore, the value of  $\chi^2/df$  was less than 2 in both pre-test and post-test. The correlations between the constructs are less than 0.576 (pre-test) and 0.517 (post-test). Model fit indices suggested the constructs fit the measurement items well, with CFI of 0.978 (pre-test) and 0.945 (post-test), TLI of 0.973 (pre-test) and 0.932 (post-test), and RMSEA of 0.045 (pre-test) and 0.049 (post-test). The CFA indices above indicated that the convergent and discriminant validities of the constructs were reasonable (Moody *et al.*, 2018).

We also assessed the constructs’ reliability using Cronbach’s  $\alpha$  as calculated by SPSS, and the results are presented in Table 1 below. Table 1 shows that the values of Cronbach’s  $\alpha$  of all constructs in both pre-test and post-test are greater than 0.7, indicating that the reliability of the constructs is reasonable (Moody *et al.*, 2018). Descriptive statistics of the four constructs involved in our study are shown in Table 2 below. The results will be further discussed in the later sections.

[Table 1 is near here.]

[Table 2 is near here.]

### 4.3 Pre-Similarity Test and Manipulation

Before testing our hypotheses, we checked the similarity between the control group and the treatment group to make sure that there was no significant pre-existing systematic difference between the two groups. Specifically, we conducted a Mann-Whitney U test to compare the difference between the two groups concerning PA, PS, IWM, and AOC. The results depicted in Tables 3 and 4 below suggested no significant difference in the pre-test (at the level of  $p=0.05$ ) regarding the key constructs that we are studying, which indicates that the dividing of the two groups was reasonable.

[Table 3 is near here.]

[Table 4 is near here.]

We also conducted a manipulation check to make sure that participants in the treatment group indeed received the Internet monitoring policy and that the participants in the control group did not. The manipulation check was conducted at both the individual and group levels. At the individual level, a manipulation check question was included for all participants at the end of the post-test survey, following the description of the Internet monitoring policy presented above—namely, “Did you receive an e-mail from the company regarding the Internet monitoring policy described above?” For participants in the treatment group, two options were provided to answer the question: “yes” or “no.” Only those who chose the “yes” option were included as valid participants in the treatment group; two participants who answered “no” were excluded.

For participants in the control group, three options were provided to answer the manipulation question: (1) Yes, I received the e-mail; (2) No, I did not receive the e-mail, and I did not hear about the policy from anybody else; and (3) No, I did not receive the e-mail, but I heard about the policy from my colleagues. Only those who chose the second

option were included as valid participants in the control group; three participants who chose option 3 were excluded. As a result, seventy participants met the criteria above in terms of the manipulation check. There were 34 participants in the control group and 36 participants in the treatment group.

At the group level, we also compared awareness of the Internet monitoring policy (i.e., PA in Tables 3 and 4) in the control group and treatment group before and after the Internet monitoring announcement. Specifically, based on the result of the Mann-Whitney U test, we found no significant difference in the pre-test between the control group and treatment group regarding employees' awareness of organizational Internet use policy ( $U = 554$ ,  $p = 0.624$ , 2-tailed), as shown in Table 4. However, in the post-test, we found that participant awareness of organizational Internet use policy was significantly higher in the treatment group than in the control group ( $U = 303$ ,  $p = 0.035$ , 2-tailed). This difference suggested that, at an aggregate level, the experimental manipulation in terms of the Internet monitoring policy was successful.

**4.4 Results of Hypothesis Testing**

As discussed above, there were no significant differences in the pre-test between the two groups regarding the constructs of interest. The manipulation was also shown as valid through the check described above. Therefore, we tested our hypotheses by comparing the differences between the two groups in the post-test, regarding the constructs of focus in this study, particularly PS, IWM, and AOC. Similar to the pre-test, we also conducted a Mann-Whitney U test in the post-test. The results are shown in Tables 5 and 6.

[Table 5 is near here.]

[Table 6 is near here.]

Results in Tables 5 and 6 suggest that there were significant differences between the two groups in the post-test regarding the constructs of interests. Specifically, first, the results indicated that the PS of the treatment group became significantly lower than the PS of the control group in the post-test ( $U=375.00$ ,  $p=0.005$ ), which suggests that Internet

monitoring significantly decreased employees' policy satisfaction. Therefore, the study's hypothesis 1 was supported.

Second, we found the IWM of employees in the treatment group became significantly lower than that of the control group ( $U=266.50$ ,  $p=0.036$ ), indicating that employees' intrinsic work motivation decreased after the implementation of the Internet monitoring. Therefore, hypothesis 2 was supported by the data.

Third, the results also suggested that the AOC of the treatment group was significantly lower than that of the control group, indicating that employees' affective organizational commitment decreased as a result of Internet monitoring. Therefore, hypothesis 3 was also supported by the data.

## 5 Discussion

We conducted a field experiment to investigate the side effects of Internet monitoring on employees' policy satisfaction, intrinsic work motivation, and affective organizational commitment. The findings of our study suggest that Internet monitoring can decrease employees' policy satisfaction, intrinsic work motivation, as well as affective organizational commitment. The results of our experiment may have important theoretical and practical implications.

### 5.1 Theoretical and Practical Implications

The primary theoretical contributions of our study are twofold. First, our study fills an important research gap in the literature on Internet monitoring. To the best of our knowledge, there are very few studies in prior literature to investigate the side effect of Internet monitoring. Our study reveals the negative impacts of Internet monitoring on employees' policy satisfaction, intrinsic work motivation, and affective organizational commitment, and thus makes an essential contribution to the literature about Internet monitoring.

Second, our study may also offer implications for the literature on organizational policy compliance. For example, information security policy (ISP) compliance researchers have widely discussed the factors that determine employees' compliance with a security

policy (e.g., Sommestad *et al.*, 2014; Tsohou *et al.*, 2015). However, there is relatively little research about the potential side effects of ISP on employees, beyond regulating their information security behaviors in organizations. The side effects of Internet monitoring revealed by our study suggest that it is necessary for researchers to comprehensively examine all possible outcomes of organizational IT policies, in terms of both targeted behaviors of the policy and non-targeted behaviors and perceptions of employees.

In terms of practical implications, our study suggests that employers should not only consider whether Internet monitoring is useful to reduce cyberloafing or increase employees' security policy compliance, but also consider the potential side effects of Internet monitoring. In doing so, they can better weigh the benefits and costs of Internet monitoring and make an appropriate decision. *In the cases that employers need to implement Internet monitoring in organizations, they should explain to employees why Internet monitoring is necessary and how employees' information privacy will be protected. As a result, employees may be more likely to accept the Internet monitoring policy, and the side effects of Internet monitoring can be alleviated to some extent.*

**5.2 Limitations and Future Directions**

Despite its theoretical and practical implications, our study has several limitations, which suggest that the results should be interpreted and generated with caution. First, the findings of our study were based on the data from a single software development company, using a relatively small sample size. The conclusions may be different for other organizations with different types of business or different organizational cultures. Therefore, future researchers should replicate the findings of this study in different contexts. Second, the post-test of our study was conducted two weeks after the announcement of Internet monitoring. It is not known from our study how long the impacts of Internet monitoring on employees' policy satisfaction, work motivation, and affective commitment to organizations will last. In this sense, future researchers may conduct longitudinal studies to investigate the long-term impacts of Internet monitoring on employees.

The findings of this study can open avenues for future research to explore several research questions. First, future studies can empirically investigate the theoretical



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2  
3 explanations for the side effects of Internet monitoring on employees' perceptions and  
4 behaviors. For example, we have proposed that employees' affective reaction (e.g., anger)  
5 and cognitive reaction (e.g., lack of autonomy and trust) that explain the side effects of  
6 Internet monitoring on employees' policy satisfaction, intrinsic work motivation, and  
7 affective organizational commitment. However, we did not test the mediation effects of the  
8 affective and cognitive reactions to explain the side effects of Internet monitoring.  
9  
10 Therefore, it is imperative for future studies to empirically test the underlying mechanisms  
11 that we proposed, and explore other possible underlying mechanisms through which  
12 Internet monitoring affects employee policy satisfaction, intrinsic work motivation, and  
13 affective organizational commitment.  
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22 Second, in addition to the motivational and attitudinal consequences revealed by our  
23 study, future research can further investigate whether Internet monitoring will affect  
24 employees' job performance or work productivity. Previous studies found that Internet  
25 monitoring may reduce employees' cyberloafing behavior, thereby leaving more time  
26 available for work tasks. In this sense, Internet monitoring may increase employees' work  
27 performance. However, our findings also suggested that Internet monitoring may decrease  
28 employees' intrinsic work motivation, which may decrease employees' job performance.  
29 The reason that decreased intrinsic work motivation can negatively affect job performance  
30 is twofold. First, previous studies demonstrate that autonomous motivation (e.g., intrinsic  
31 motivation) is important for job tasks that are relatively complex and involve flexibility,  
32 creativity, and heuristic problem solving (Gagne and Deci, 2005). Therefore, decreasing  
33 employee intrinsic work motivation may directly decrease the performance of such tasks.  
34 Second, previous studies also found that intrinsic motivation may moderate the relationship  
35 between extrinsic motivation and job performance such that higher intrinsic motivation  
36 may strengthen the positive relationship between extrinsic work motivation and job  
37 performance (e.g., Ke and Zhang, 2010). In other words, decreased intrinsic work  
38 motivation resulting from Internet monitoring may also have indirect, negative effects on  
39 employees' job performance. Therefore, future research should further explore whether  
40 Internet monitoring increases or decreases employee job performance or the conditions  
41 under which Internet monitoring may increase or decrease employee job performance.  
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In addition to job performance, future studies should also explore whether Internet monitoring will influence employees' other perceptions and behaviors that are related to policy satisfaction, intrinsic work motivation, and affective organizational commitment. For example, one outcome that is related to intrinsic motivation could be employee job creativity. Since previous studies (e.g., Shin and Zhou, 2003) found that intrinsic work motivation may have a positive impact on employees' creative performance, Internet monitoring that decreases employees' intrinsic work motivation may hurt employees' creativity. We encourage future studies to explore the broad impacts of Internet monitoring on employees' various perceptions and behaviors.

**6 Conclusion**

Internet monitoring can be used in organizations to address risks related to employees' usage of the Internet and information systems. In this study, we conducted a field experiment to examine the potential side effects of Internet monitoring. We found that Internet monitoring decreased employees' policy satisfaction, intrinsic work motivation, and affective organizational commitment. To the best of our knowledge, this is the first study that examines the impact of Internet monitoring in the workplace on employees' policy satisfaction, intrinsic work motivation, and affective organizational commitment. Our empirical research suggested that organizations should consider both the positive and negative impacts of Internet monitoring on employees and organizations before implementing Internet monitoring. Future studies should seek to replicate our findings in different organizations as well as explore the effect of Internet monitoring on other aspects of employee perceptions and behaviors beyond what we have discussed in this study.

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**Appendix: Measurement Items**

***Employees’ Awareness of Cyberloafing Policy (PA): Adapted from D’Arcy et al. (2009)***

PA1. My company has policies to describe whether I could visit non-work-related websites (e.g., Facebook, Twitter, www.sol.pt, www.iol.pt, Amazon, etc.).

PA2. My company has guidelines to describe whether I am allowed to visit non-work-related websites.

PA3. My company has established rules to govern my non-work-related websites surfing.

***Policy Satisfaction (PS): Adapted from Bhattacharjee (2001)***

PS1. I am satisfied with the Internet use policy of my company.

PS2. I am pleased with the Internet use policy of my company.

PS3. I am content with the Internet use policy of my company.

PS4. I am delighted with the Internet use policy of my company.

***Intrinsic Work Motivation (IWM): Adapted from Tremblay et al. (2009) and Kuvaas (2006)***

I am presently involved in my work because of the following reasons:

IWM1. because the tasks that I do at work are enjoyable.

IWM2. because my job is so interesting that it is a motivation in itself.

IWM3. for the satisfaction I experience from taking on interesting challenges.

IWM4. because I derive much pleasure from learning new things.

***Affective Organizational Commitment (AOC): Adapted from Allen and Meyer (1990)***

AOC1. I do not feel a strong sense of belonging to my organization. (Reverse)

AOC2. I do not feel “emotionally attached” to this organization. (Reverse)

AOC3. This organization has a great deal of personal meaning for me.

AOC4. I do not feel like “part of the family” at this organization. (Reverse)

AOC5. I would be very happy to spend the rest of my career with this organization.

AOC6. I enjoy discussing my organization with people outside it.

AOC7. I really feel as if this organization’s problems are my own.

AOC8. I think I could easily become as attached to another organization as I am to this one. (Reverse)

Table 1. Construct Reliability

Constructs	Cronbach's $\alpha$	
	Pre-test	Post-test
PA	0.879	0.918
PS	0.913	0.917
IWM	0.839	0.747
AOC	0.852	0.813



Table 2. Descriptive Statistics of the Constructs

	All Participants		Control Group		Treatment Group	
	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>
PA-pre	3.33	1.29	3.42	1.38	3.24	1.21
PA-post	3.31	1.32	3.04	1.36	3.67	1.19
PS-pre	4.83	1.12	4.95	1.05	4.73	1.17
PS-post	4.79	1.14	5.19	.96	4.40	1.18
IWM-pre	5.86	0.93	5.66	1.02	6.07	0.80
IWM-post	5.74	0.96	5.96	0.65	5.37	1.06
AOC-pre	5.27	0.99	5.32	1.09	5.24	0.93
AOC-post	4.98	1.06	5.24	1.07	4.78	1.02

Table 3. Ranks of Mann-Whitney U Test of Similarity Check

	Group	Mean Rank	Sum of Ranks
PA-pre	0	36.21	1195.00
	1	33.89	1220.00
PS-pre	0	36.80	1214.50
	1	33.35	1200.50
IWM-pre	0	25.45	738.00
	1	32.68	915.00
AOC-pre	0	36.74	1139.00
	1	34.51	1346.00

**Notes:** Group 0 refers to the control group; group 1 refers to the treatment group.

Table 4. Mann-Whitney U Test Result of Similarity Check

	PA-pre	PS-pre	IWM-pre	AOC-pre
Mann-Whitney U	554.00	534.50	303.00	566.00
Wilcoxon W	1220.00	1200.50	738.00	1346.00
Z	-0.491	-0.733	-1.691	-0.457
Asymp. Sig. (2-tailed)	0.624	0.464	0.091	0.648

Table 5. Ranks of Mann-Whitney U Test of Post-Test

	Group	Mean Rank	Sum of Ranks
PS-post	0	42.47	1444.00
	1	28.92	1041.00
IWM-post	0	32.68	915.00
	1	26.36	738.00
AOC-post	0	31.18	1276.50
	1	31.05	1211.00
<b>Notes:</b> Group 0 refers to the control group; group 1 refers to the treatment group.			

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Table 6. Mann-Whitney U test Result of Post-Test

	PS-post	IWM-post	AOC-post
Mann-Whitney U	375.00	266.50	431.00
Wilcoxon W	1041.00	701.50	1211.00
Z	-2.829	-2.102	-2.057
Asymp. Sig. (2-tailed)	.005	0.036	0.040