ABSTRACT

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The current study investigated whether reactions to electronic monitoring and task satisfaction are a function of the task-relatedness of monitoring practices and the presence of justification for monitoring. A sample of 176 undergraduate participants completed a computer-based task correcting electronic retail order forms. Participants were randomly assigned to one of five conditions: task-specfic monitoring with justification, task-specific monitoring without justification, off-task inclusive monitoring with justification, off-task inclusive monitoring without justification, or no monitoring. Task-specific monitoring involved electronic tracking of computer activities directly related to task performance, whereas off-task inclusive monitoring supposedly tracked nontask-related computer activities. Justification entailed providing a rationale or explanation for why monitoring was being implemented. The following dependent variables were assessed: perceived relevance of monitoring, perceived rationale for monitoring, invasion of privacy, procedural justice, and task satisfaction. Results indicated task-relatedness of monitoring and justification had an effect such that monitoring task-specific behaviors and providing a clear justification for monitoring resulted in relatively favorable attitudinal outcomes. Implications and recommendations for practice are discussed.

Electronic Monitoring Relevance and Justification: Implications for Procedural Justice and Satisfaction

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BIOGRAPHY

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Electronic Monitoring Relevance and Justification: Implications for Procedural Justice and Satisfaction

Technological advances have coincided with the increased usage of high-tech employee monitoring practices in organizations. These practices include tracking computer keystrokes, reviewing employees' electronic mail (e-mail), tracking employees' physical location throughout the workplace, videotaping work areas, and tapping telephone lines (Picard, 1994). Organizations collect information on employee work activities electronically for various purposes, including evaluation of employee performance, limiting employee access to Internet content, and providing performance feedback. In 1987, the Office of Technology Assessment (OTA) estimated that approximately six million United States (U.S.) workers were electronically monitored (U.S. Congress Office of Technology Assessment, 1987). More recently, an estimated 40 million U.S. workers are said to be electronically monitored on the job (Botan, 1996). The American Management Association found over 75% of 526 U.S. companies surveyed practiced some form of electronic monitoring of employees (American Management Association, 2005). Thus, electronic monitoring of employees represents a major source of productivity and performance data collected in employment settings across numerous industries.

Due to the rapid expansion of electronic monitoring in the workplace, a debate regarding employees' rights to personal privacy has arisen. Opponents of electronic monitoring in the workplace claim this collection of practices violates employee privacy, lowers employee job satisfaction, and induces physical and mental stress in employees (Alder & Tompkins, 1997). In this view, employers' right to monitor employees ends when

employees' personal information becomes compromised. In contrast, proponents of electronic monitoring in the workplace claim these practices can enhance the quality of work in organizations (Kidwell & Bennett, 1994) and the ability of employees to advance (Lund, 1992). In this view, electronic monitoring offers employers more complete and accurate performance information at individual and group levels, while also removing subjectivity and bias from performance appraisal processes.

Defining electronic monitoring

Electronic monitoring is the use of electronic hardware and software to collect, analyze, and report individual or group actions or performance (Alder & Ambrose, 2005b). The definition of electronic monitoring, or electronic task-specific monitoring (Stanton, 2000a), in the workplace has varied in past research as technological advances have caused monitoring practices to increase in complexity and prevalence. The OTA originally defined electronic monitoring as, "the continuous collection and analysis of management information about work performance and equipment use" (OTA, 1987, p. 1). Early research focused primarily on telephone monitoring (Chalykoff & Kochan, 1989) and video surveillance techniques, while more recent research has incorporated monitoring employees' personal computer and Internet usage (DeTienne, 1993). Current research suggests the most frequently occurring electronic monitoring techniques include the monitoring of computer files, computer output including e-mail and Internet activity, telephone calls, and video camera surveillance to directly observe employee behaviors (American Management Association, 2005; Stanton, 2000b).

Several important differences exist between electronic monitoring techniques and more traditional forms of supervision (e.g., physical observation). Electronic monitoring allows the continuous collection of employee information in the absence of supervisors or coworkers. Electronic monitoring can provide abundant amounts of data related to many multiple work dimensions, such as attendance, work speed, productivity, and efficiency (Alder & Ambrose, 2005b). Organizations utilizing electronic monitoring procedures must also decide the extent to which performance information will be provided to employees (Alder & Ambrose, 2005b). Of interest in the current study is the notion that the continuous collection of information in the workplace may or may not be directly related to work performance in the eyes of employees.

Electronic monitoring has historically been applied to a range of jobs, including those held by word processor users, airline reservation agents, telephone operators, data entry personnel, telemarketing agents, insurance claims clerks, as well as some stockbrokers and computer programmers (George, 1996). Employers use data obtained through electronic monitoring for numerous purposes. Westin (1992) notes electronic monitoring may be used for initial training and retraining of employees for the purpose of offering instructional feedback to employees. Electronic monitoring may also be used to determine compensation based on performance in "piecework" systems (Westin, 1992). In addition, electronic monitoring can be used to provide employees with promotion or selective-assignment opportunities (Westin, 1992). Westin (1992) also notes electronic monitoring may be used for disciplinary or termination actions in the event performance standards are not satisfied.

The purpose of the current study is to examine the impact of characteristics of monitoring practices on perceptions of relevance, fairness, and reactions to a simulated work task. Figure 1 illustrates the hypothesized relationships between monitoring characteristics, monitoring cognitions, and task satisfaction to be examined in the current study. As described next, this framework is based on previous theoretical and empirical research in the electronic monitoring literature (e.g., Alge, 2001; Hovorka-Mead et al., 2002; Stanton, 2000a; Stanton & Weiss, 2003). It represents a synthesis of a review of the electronic monitoring literature, and was used to guide the current study. Although a test of the entire model is beyond the scope of the present study, this research begins to shed light on several questions that have thus far received little or no research attention. The following sections outline the research hypotheses to be tested, and the rationale underlying each.

Job relevance of monitoring

The specific characteristics of electronic monitoring techniques can differ substantially across or within organizations. Such characteristics may include monitoring controllability (Stanton & Barnes-Farrell, 1996), frequency (Niehoff & Moorman, 1993), pervasiveness (Lund, 1992), source (Stanton, 2000), target task (Stanton, 2000), and target task aspect (Stanton & Julian, 2002). The controllability of electronic monitoring refers to the degree to which employees can control the timing of monitoring (Stanton & Barnes-Farrell, 1996). Monitoring frequency refers to how often monitoring occurs per unit of time (Niehoff & Moorman, 1993). Monitoring pervasiveness is defined as whether electronic monitoring is continuous or intermittent (Aiello & Kolb, 1995). Monitoring source refers to the agent that performs the monitoring (e.g., supervisor) (Stanton, 2000a). The target task of

monitoring is defined as the task or tasks that are monitored (Stanton, 2000a). Finally, the target task aspect of monitoring refers to the specific aspect of the task (e.g., quality or quantity) being monitored (Stanton & Julian, 2002).

One characteristic of electronic monitoring that has received little empirical and theoretical attention is the impact of the perceived job relevance of the work activities being monitored. The importance of relevance as a determinant of employee reactions to monitoring will likely become increasingly salient, as monitoring practices carried out in organizations have begun to focus on behaviors that are not directly tied to job performance (Stanton & Weiss, 2003). For instance, Alder and Tompkins (1997) report organizations have broadened the use of electronic monitoring to include surveillance of employee dressing rooms, limitations imposed on the number of bathroom breaks, as well as recording private telephone calls. In the realm of performance management, electronic surveillance has grown in the areas of employee e-mail and web browsing activities (Stanton & Weiss, 2003). Employees may view such activities (i.e., e-mailing, web browsing, instant messaging, etc.) as not directly related to job performance. That is, employees may consider the monitoring of personal e-mail and web browsing to have low job relevance. Based on previous research findings (Stanton & Weiss, 2003), employee reactions to monitoring likely vary due to perceived job relevance of the tasks being monitored.

Coovert, Thompson, and Craiger (2005) distinguish between monitoring practices aimed at tasks directly relevant to job performance (i.e., performance monitoring) and practices aimed at general employee behavior in the workplace (i.e., behavior monitoring). Coovert et al.'s (2005) descriptive model of electronic monitoring is presented in Table 1.

Performance monitoring (hereafter referred to as task-specific monitoring) involves collecting quantitative and qualitative data related to job-task performance, such as logging computer keystrokes, average number of claims per hour, and observing customer service to ensure the quality of information relayed (Coovert et al., 2005). Task-specific monitoring practices allow employers to automatically collect information pertaining to employee productivity, in many cases without direct supervisor observation. Behavior monitoring "refers to a broader practice that captures…nontask behaviors" (Coovert et al., 2005, p. 308). While task behaviors relate directly to job performance, nontask behaviors include non job-related behaviors conducted inside or outside of the workplace. According to Coovert et al. (2005), behavior monitoring (hereafter referred to as off-task inclusive monitoring) may include eavesdropping or surveillance. Eavesdropping allows employers to gain access to employees' verbal communications through monitoring employee videoconferences, telephone calls, voicemail, and e-mail. Surveillance includes monitoring the Internet activity of employees, as well as offline behaviors in the workplace (e.g., tracking employees' physical location in the work place through the use of active badges) (Coovert et al., 2005). Potential differences in reactions to computerized task-specific monitoring and computerized off-task inclusive monitoring constitute a major focus of the current study.

A majority of the research on electronic monitoring has treated task-specific monitoring and off-task inclusive monitoring as a single entity, but important conceptual differences exist between these two types of employee monitoring. Research has failed to address the different effects of task-specific monitoring and off-task inclusive monitoring on individuals. There are reasons to believe that task-specific monitoring and off-task inclusive

monitoring do not evoke the same responses in individuals. One reason is that task-specific monitoring focuses on behaviors more closely tied (e.g., relevant) to task performance compared to off-task inclusive monitoring. Employees may view electronic monitoring of behaviors more relevant to task performance as more fair. The literature would benefit from a more precise examination of the specific differences in individual reactions to task-specific monitoring and off-task inclusive monitoring. The present study addressed this gap in the literature.

Effects of monitoring type on perceived relevance

Employees likely perceive task-specific monitoring techniques as more job relevant in comparison to off-task inclusive monitoring. Relevance refers to "whether collected information is necessary and appropriate for making decisions affecting employees" (Alge, 2001, p. 799). Alge (2001) conducted a laboratory study in which the task relevance of electronic monitoring was manipulated by the type of information participants were told would determine their overall performance. In the high relevance condition, participants were informed that their performance evaluation would consist of only task-specific data (i.e., task-specific monitoring) (Alge, 2001). In the mixed relevance condition, participants were informed that their performance evaluation would include both task-specific data and data collected during break periods (i.e., task-specific and off-task monitoring) (Alge, 2001). Alge (2001) found perceived relevance of monitoring was significantly greater in the task-specific monitoring condition compared to the mixed condition combining task-specific and off-task monitoring. One limitation of Alge's (2001) study is that participants were only informed of the monitoring procedures *after* they had completed the task. This is

problematic from an external validity standpoint. That is, current research suggests the majority of employees subject to electronic monitoring in organizations receive advanced notification informing them of the monitoring (American Management Association, 2005). The current study sought to replicate Alge's (2001) findings, while using a more complex task and informing participants of electronic monitoring procedures prior to beginning the task. This study also clearly separates task-specific from off-task monitoring rather than comparing task-specific monitoring to a mixed monitoring implementation as described above. Monitoring type is predicted to influence perceived relevance as follows:

> *Hypothesis 1*: For all monitored participants, monitoring type (task-specific monitoring versus off-task inclusive monitoring) will affect perceived relevance of monitoring, such that task-specific monitoring will be perceived as more relevant compared to off-task inclusive monitoring.

Organizational justice and electronic monitoring

In Hypothesis 1, monitoring type is predicted to influence perceived relevance of monitoring. An organizational representative may ask, "Why should my organization be concerned with perceived relevance of monitoring?" One answer is perceived relevance of electronic monitoring can have implications for an important work attitude—procedural justice.

Folger and Greenberg (1985) define procedural justice as "the perceived fairness of the procedures used in making decisions" in organizations (p. 143). Justice perceptions can center on a variety of procedures, including those used to determine selection, compensation, and performance evaluation outcomes. A key component of procedural justice is fairness.

Judgments of fairness have been theorized to consist of six dimensions (Leventhal, 1980). According to Leventhal (1980), organizational procedures are fair if they (1) are consistent, (2) lack self-interest, (3) are based on accurate information, (4) are correctable, (5) take into account the interests of all legitimate parties, and (6) adhere to moral and ethical standards. Thus, employee monitoring practices adhering to these six determinants should be viewed as more fair compared to other practices.

Not all organizational monitoring procedures are characterized by the six dimensions of fairness. For instance, employees may feel some forms of monitoring do not take their interests into account or fail to adhere to moral standards of privacy. Characteristics of the monitoring system, such as the aspect of the task (e.g., quality or quantity) being monitored (Stanton, 2000a), the consistency of monitoring across individuals (Stanton, 2000b), the degree to which employees can control the onset of monitoring (Stanton & Barnes-Farrell, 1996), and the frequency of monitoring (Niehoff & Moorman, 1993) likely account for variation in fairness judgments across organizational contexts. In addition, perceived relevance of monitoring may play an important role. The present study focuses on the relevance of electronically monitored behaviors as a potential contextual predictor of procedural justice perceptions.

The literature supports the notion that procedural justice perceptions are affected by the job relevance of tasks monitored. According to Kidwell and Bennett (1994), "an important factor in achieving fairness is the employees' belief that the [electronic monitoring] system does not collect private information that is unrelated to job performance" (p. 213). This statement assumes individuals have certain privacy expectations, including the

expectation that only job-relevant information will be monitored. Empirical evidence appears to support this assumption (Stanton & Weiss, 2003; Tolchinsky et al., 1981). Organizational decisions based on job-irrelevant information are seen as more invasive compared to decisions based on job-relevant data (Tolchinsky et al., 1981). Alge (2001) found both perceived relevance of monitoring and an experimental manipulation of monitoring relevance were significantly correlated with procedural justice. Stanton (2000b) sampled employees from eight different organizational contexts and examined the extent to which procedural justice perceptions were related to knowledge of work performance provided by the tasks monitored electronically by the organization. Monitoring data that provide high knowledge of work performance can be considered high in relevance. Stanton (2000b) found a strong relationship between procedural justice and knowledge of work performance provided by electronic monitoring.

In sum, workers' perceptions of the relevance of electronic monitoring are important to consider because they can have implications for procedural justice. Hypothesis 2 is a replication of previous findings suggesting a strong linkage between perceived relevance and procedural justice (Alge, 2001).

> *Hypothesis 2*: For all monitored participants, perceived relevance of electronic monitoring will predict procedural justice perceptions, such that greater relevance will be associated with greater procedural justice perceptions.

Why might procedural justice suffer when employees view monitoring as non-task related? One likely explanation is that employees consider electronic monitoring of non job-related activities an invasion of privacy. Empirical research has demonstrated a moderate to

strong negative relationship between privacy invasion and procedural justice (Eddy et al., 1999; Raciot & Williams, 1993). Theory suggests privacy invasion and procedural justice are separate constructs, with privacy invasion representing an antecedent of justice perceptions (Gilliland, 1993; Leventhal, 1980). According to Leventhal (1980), organizational practices will be deemed fair if they abide by the ethicality rule, in that procedures are consistent with the moral and ethical values of individuals. Organizational practices that invade privacy may be deemed unfair based on one's moral and ethical values (Leventhal, 1980). Thus, perceived invasion of privacy may explain why electronic monitoring procedures aimed at non task-specific behaviors in the workplace could reduce procedural justice.

Theories of privacy are in agreement in suggesting individuals and groups tend to regulate access to themselves (Margulis, 2003). That is, individuals seek to sustain boundaries between themselves and the surrounding social environment, such that privacy of personal information can be maintained. Privacy serves several functions in workplace settings, including providing opportunities for self-evaluation, as well as contributing to self-identity and a sense of autonomy (Margulis, 2003). Alge (2001) theorizes privacy (i.e., control over personal information) is an important source of personal identity (i.e., self-definitions involving unique personal qualities). According to Alge (2001), personal identity consists of two components, namely "one's private estimation of oneself and how one wishes to publicly portray oneself" (p. 798). Invasion of privacy represents a potential lack of control over how one's public persona is conveyed, which can negatively impact one's private estimation of oneself (Alge, 2001). Lack of control over one's public persona may

also negatively impact one's social identity (i.e., self-definitions involving group memberships), by affecting which groups one is valued by (Alge, 2001). Indeed, Alge's (2001) findings supported the mediating role of privacy invasion in the relationship between perceived relevance of electronic monitoring and procedural justice. Given its impact on personal and social identity, therefore, invasion of privacy is predicted to play a significant mediating role in the effects of perceived relevance of electronic monitoring on procedural justice. Hypothesis 3 is a replication of previous research suggesting privacy invasion mediates the relationship between task relevance and procedural justice (Alge, 2001; Eddy et al., 1999).

> *Hypothesis 3*: For all monitored participants, the relationship between perceived relevance of electronic monitoring and procedural justice of monitoring will be mediated by perceived invasion of privacy of the monitoring.

To summarize, employees are expected to view off-task inclusive monitoring as less relevant than task-specific monitoring. This lack of relevance can ultimately reduce individual privacy and subsequent justice perceptions. As discussed next, employees' satisfaction may suffer in turn when constructs such as justice perceptions are compromised.

Implications for job satisfaction

According to Lind (2001), individuals commonly utilize fairness heuristics, where decisions regarding the overall fairness of organizational procedures are based on a select number of highly salient events. Due to the salience of electronic monitoring in the workplace, Alder and Ambrose (2005b) propose that monitoring practices constitute a basis for more global impressions of the fairness of organizational decisions, as well as individual

attitudes regarding their job (e.g., job satisfaction). That is, electronic monitoring of employees represents a critical contextual factor for which individuals develop fairness evaluations. Fairness evaluations of electronic monitoring may function as an indication of the broader organizational culture. Organizational practices involving unfair forms of electronic monitoring will lead employees to expect similar policies in other areas of the organization (Ambrose & Alder, 2000). In contrast, organizational practices involving fair forms of monitoring will lead employees to conclude similarly fair policies are conducted throughout the organization (Ambrose & Alder, 2000). These broader attitudes toward organizational policy and values may impact individual reactions (e.g., satisfaction) to the work itself, as one's job is typically assigned by and performed for the organization.

Research has consistently supported the predicted justice-satisfaction relationship set forth by Lind (2001), in that the perceived fairness of electronic monitoring has been shown to predict task and job satisfaction in both field and laboratory settings (Alder & Ambrose, 2005a; Chalykoff & Kochan, 1989). Research evidence suggests positive perceptions of fairness may be associated with increased productivity, which in turn may enhance satisfaction. Alder and Ambrose (2005a) found perceptions of monitoring fairness influenced participants' task performance and satisfaction. In fact, recent meta-analyses have supported the relationship between perceived procedural fairness in the workplace and job satisfaction (Cohen-Charash & Spector, 2001; Colquitt et al., 2001). Stanton (2000b) states the need for further research investigating the role of monitoring fairness as it relates to important work outcomes, including satisfaction. In organizational contexts when electronic monitoring is highly salient (e.g., work environments where a broad range of employee

activities, both task- and non task-specific, are monitored), fairness evaluations of the monitoring procedures likely influence broader work attitudes including job and task satisfaction. Hypothesis 4 is a replication of previous research suggesting procedural justice is related to satisfaction (Douthitt & Aiello, 2001; Kidwell & Bennett, 1994).

Hypothesis 4: For all monitored participants, procedural justice of monitoring will predict task satisfaction, such that greater procedural justice will be associated with greater task satisfaction.

In short, task satisfaction is expected to be influenced by perceptions of the procedural justice of electronic monitoring, which is presumably shaped by the relevance of monitoring. As discussed next, off-task inclusive monitoring should therefore stifle satisfaction because it is assumed to be seen as relatively task irrelevant.

The presence of electronic monitoring has been empirically established as a workplace stressor (Amick & Smith, 1992; George, 1996). With the increase in employee stress associated with electronic monitoring, employee satisfaction will likely suffer. Indeed, Aiello and Shao (1993) found the introduction of electronic monitoring decreased both task satisfaction and supervisor satisfaction in participants. According to Stanton's (2000) framework of employee reactions to electronic monitoring, electronic monitoring may ultimately influence employee satisfaction through the mediating role of monitoring cognitions (e.g., perceived relevance, fairness of monitoring, etc.).

Deci (1975) argues that individuals possess the need to feel a sense of competence and to be self-determining. Strict supervision, such as elaborate electronic monitoring of workplace behaviors nonessential to task performance, threatens employee autonomy and

self-responsibility (Nieoff & Moorman, 1993). Meanwhile, monitoring procedures focusing on a select number of task-specific activities (i.e., task-specific monitoring) should be deemed relatively fair. That is, monitoring task-specific activities should not pose as many privacy/autonomy threats as off-task inclusive monitoring.

Strong negative reactions to electronic monitoring in the workplace may occur when procedures are perceived to unfairly jeopardize individual autonomy. For instance, in the job design literature, threatening employee autonomy has been shown to negatively impact job satisfaction (Langfred & Moye, 2004). Monitoring that is low in perceived relevance could be viewed as a threat to autonomy. Since off-task inclusive monitoring should be perceived as less relevant than task-specifc, off-task monitoring could result in decreased task satisfaction. Thus, there are reasons to believe that task satisfaction will be influenced by the nature of the data being gathered. Hypothesis 5 appears to be one of the first studies to compare the effects of two different monitoring types on task satisfaction.

> *Hypothesis 5*: For all monitored participants, monitoring type will affect task satisfaction, and this relationship will be mediated by perceived relevance. Relative to off-task inclusive monitoring, task-specific monitoring will increase perceived relevance, which will in turn increase task satisfaction.

As indicated in Hypothesis 5, task-specific monitoring is predicted to be associated with greater task satisfaction compared to off-task inclusive monitoring, through its impact on perceived relevance. It is unclear whether implementing task-specific or off-task inclusive monitoring raises or decreases the task satisfaction employees experience relative to when they are not monitored. Past research has shown that monitoring decreases task

satisfaction (Aiello & Shao, 1993; Stanton, 2000), but it has not compared both task-specific and off-task inclusive monitoring to a non-monitored control. On the one hand, task-specific monitoring represents an objective means of performance evaluation. From the standpoint of fairness, an objective means of evaluation may be viewed positively by workers. Conversely, stress could arise from constantly having one's work activities monitored, especially if those activities are viewed as not particularly relevant (i.e., off-task activities). This increase in stress could reduce task satisfaction. In short, current theory does not provide sufficient rationale to pose a strong hypothesis predicting a significant difference in task satisfaction between non-monitored individuals and individuals subject to either task-specific or off-task inclusive monitoring. Therefore, this possibility will be explored as a research question.

Research question 1: Do *both* task-specific and off-task inclusive monitoring decrease task satisfaction experienced by workers?

Justification for monitoring

One strategy organizations can employ to enhance employee reactions to electronic monitoring is to provide justification for monitoring practices. Justification for electronic monitoring refers to the "extent to which organizational representatives explain the purposes of monitoring techniques or policies" (Stanton, 2000, p. 91). Providing justification for data collection procedures allows the organization to, among other things, communicate the benefits of such procedures, minimize ambiguity, and alleviate employee concerns. Communicating the purpose of the data collection procedures to be implemented in the workplace may represent the primary method managers can use to bolster the antecedents of

fairness judgments (Kidwell & Bennett, 1994). Based on previous research supporting the notion that positive fairness perceptions are associated with positive reactions and behaviors (Van den Bos et al., 2005), electronic monitoring procedures deemed fair are likely to encounter less resistance and show greater effectiveness compared to unfair procedures.

The notion that providing justification for monitoring will positively influence employee reactions to monitoring is consistent with the group value model (Lind & Tyler, 1988) of procedural fairness. Lind and Tyler (1988) theorized that organizational members desire to feel as though they are important and valued contributors to the organization. In this respect, employees value the relationships they maintain with organizational representatives (i.e., supervisors). Employees tend to evaluate their status as important organizational members through managerial procedures and policies that convey how the organization views employees (Lind & Tyler, 1988). Employees will feel more or less important to their superiors and the organization depending on whether procedures communicate high or low levels of trust and individual standing in the work environment. These feelings of individual importance are likely associated with perceptions of task-relevance, procedural justice and satisfaction with the work itself.

According to the group value model, individuals attend to organizational actions and policies to gain information regarding their level of importance or status within the group. Justification for monitoring will likely communicate to the individual being monitored that he or she is important or valued. Individuals will be perceived as valued in that the organization views the individual as deserving of an explanation as to why personal performance data will be collected electronically. According to Bobocel, Agar, Meyer, and

Irving (1998), "individuals generally have strong normative expectations for explanations, and [organizational justification] might mitigate negative reactions to controversial decisions in that they [communicate] respect" (p. 135).

Thus, providing justification for monitoring practices will likely result in more positive reactions to monitoring. One such reaction is perceptions of relevance. Because justification explains the purpose of monitoring, it is likely to help employees realize the usefulness of this practice. By clarifying the rationale for monitoring, justification is expected to result in increased perceived relevance. This possibility will be tested.

Hypothesis 6: For all monitored participants, justification for monitoring will increase perceived relevance of electronic monitoring by clarifying the rationale underlying monitoring practices.

Ambrose and Alder (2000) propose employees who receive justification for electronic monitoring will perceive the monitoring system as adhering to the ethicality rule (Levanthal, 1980) of procedural justice. Employees who do not receive justification for monitoring may be more likely to question the organization's motives for tracking employees. Providing justification may enhance employees' perceptions that the organization is acting in an impartial manner (Ambrose & Alder, 2000), which would enhance positive fairness judgments of the monitoring, as well as affective reactions to the task. Through justification, organizations can improve employee reactions to monitoring by providing a clear rationale for why monitoring is relevant to job performance and identifying the benefits of such practices to the organization, as well as to the individual.

Despite the well-developed theory surrounding the topic, the role of justification of electronic monitoring in determining attitudes and reactions to monitoring practices has received little direct research attention. The empirical research that has been conducted has been generally supportive of theory, finding justification of organizational procedures relates to employee reactions to electronic data collection procedures (Bies & Shapiro, 1988; Lind & Tyler, 1988). In a qualitative study consisting of interviews with managers and employees, Stanton and Weiss (2003) investigated attitudes and concerns toward issues of personnel data, privacy, and technology in the workplace. These authors found some similarities between the two groups with respect to the need for justification for organizational practices. Both managers and employees emphasized the importance of explicit and reasoned justification of personnel data collection procedures (Stanton & Weiss, 2003). Stanton and Weiss (2003) found "employees expressed their beliefs that certain policies or procedures would be unacceptable without…justifications" (p. 300). Thus using qualitative research methods, Stanton and Weiss (2003) found agreement between individuals at different levels within organizations that explicit organizational communication justifying personnel data collection techniques is of primary importance in determining employee reactions to such techniques.

Stanton (2000b) conducted a field study in which multiple predictors of organizational justice were tested. Organizational justification for electronic monitoring practices was not found to significantly predict procedural justice perceptions, though the relationship did approach significance. Stanton's (2000b) justice measure did not specifically measure procedural justice of electronic monitoring practices, which likely

attenuated the observed justification-procedural justice relationship. Hovorka-Mead, Ross, Whipple, and Renchin (2002) conducted a controlled laboratory study examining the influence of justification of electronic monitoring on procedural justice. Hovorka-Mead et al. (2002) found both a strong justification (i.e., compelling reason) and a weak justification (i.e., less compelling reason) provided by organizations were associated with higher instances of procedural justice relative to no justification. Thus, justification for electronic monitoring is expected to positively influence procedural justice of electronic monitoring. This prediction will be tested in an effort to replicate previous research pertaining to justification and procedural justice (Hovorka-Mead et al., 2002).

Hypothesis 7: For all monitored participants, justification for monitoring will increase procedural justice of electronic monitoring by clarifying the rationale underlying monitoring practices.

In short, employees should consider monitoring that is not justified by the organization as less fair than justified monitoring. As discussed next, employees' satisfaction can also suffer when organizations fail to justify monitoring procedures.

Justification could impact job satisfaction through its role in establishing positive leader-subordinate relations. James and James (1992) present a model of job satisfaction incorporating leader-subordinate relations as an antecedent of satisfaction. In their model, James and James (1992) suggest leaders' respectful and fair treatment of subordinates is an important component of positive leader-subordinate relations. Workers likely consider justification for electronic monitoring to be respectful treatment, which could bolster leader-subordinate relations. James and James (1992) predict this increase in leader-subordinate

relations will be associated with greater satisfaction on the job. Thus, there are reasons to believe that task satisfaction will be influenced by whether or not justification is provided for the data being gathered. Hypothesis 8 is the first known study to test the effects of justification for monitoring on task satisfaction.

Hypothesis 8: For all monitored participants, justification for monitoring will affect task satisfaction through increased perceived rationale of monitoring practices.

Interactions between justification and monitoring type

While justification for electronic monitoring is predicted to enhance task satisfaction and perceptions of procedural justice, characteristics of monitoring, such as the specific aspects of behavior that are monitored, may serve as a potential moderator in the aforementioned relationships. Lind (1988) has suggested employees derive information about their status or importance through organizational policies and actions. As noted, justification for electronic monitoring should enhance positive reactions (i.e., procedural justice beliefs, task satisfaction) to said monitoring. However, individuals' perceptions of the task irrelevance of an electronic monitoring system may take precedence over any beneficial outcomes of justification. If so, justification for *off-task inclusive monitoring* would not improve perceived justice and satisfaction. Meanwhile, justification for electronic *task-specific monitoring* could still result in significant and positive change in justice and task satisfaction.

Conversely, justification for monitoring may be particularly necessary to avoid negative reactions to off-task inclusive monitoring, while justification may not be as necessary for task-specific monitoring. That is, the importance of task-specific monitoring

may be obvious, while the importance of off-task inclusive monitoring is not. Thus, justification for *off-task inclusive monitoring* could result in significant positive change in individual procedural justice and task satisfaction reactions, while justification for *task-specific monitoring* may result in less change in justice and task satisfaction. These possibilities will be explored yet no predictions are made since there is a lack of relevant theoretical guidance pertaining to the interaction between justification and monitoring type.

Research question 2: Does the effect of justification on procedural justice vary across task-specific and off-task inclusive monitoring types?

Research question 3: Does the effect of justification on task satisfaction vary across task-specific and off-task inclusive monitoring types?

METHODS

Participants

Participants in the current study included 176 undergraduate students at a large southeastern university. Students received partial course credit for participation. The sample included 101 men (57.4%) and 75 women (42.6%), with ages ranging from 17 to 42 (M = 19.67, SD = 3.13). Of these, 95 (53.9%) were freshmen, 53 (30.1%) were sophomores, 15 (8.5%) were juniors, 11 (6.3%) were seniors, and 2 (1.1%) were graduate students. The sample included predominantly Caucasian (76.1%), African-American (9.1%), Asian-American (6.3%), Native American (1.7%), and Hispanic (1.1%) students. Ten (5.7%) participants indicated the "other" option in reporting their ethnicity.

Design

The experimental design was a 3 (electronic monitoring type) X 2 (justification) between-subjects design. The three levels of electronic monitoring type were task-specific monitoring, off-task inclusive monitoring, and no monitoring. The two levels of justification for electronic monitoring were justification provided (henceforth referred to as the justification condition) or no justification. The design was not fully factorial because participants in the no monitoring condition were not subject to the justification for electronic monitoring manipulation. Participants were randomly assigned to one of the five conditions.

Procedure

Participants arrived and were met by the experimenter in a research lab consisting of four computer workstations. Participants were told they would be participating in a study examining individual performance using computerized data correction programs. After obtaining informed consent, the experimenter instructed participants that they would be required to complete a computerized data correction task. The data correction task required participants to review an electronic database of order forms in the Microsoft© Excel program, detect discrepancies between the electronic database forms and the original printed order forms provided by the experimenter, and correct all discrepancies in the database. Order forms used in this study were adapted using actual order forms obtained from a commercial organization's website. The data correction task was designed to present a low to moderate level of difficulty. To standardize task difficulty between conditions, all participants corrected the same set of order forms. A small pilot study was conducted to assess the

effectiveness of the experimental manipulations, modify the experimental procedure, and identify potential improvements to the experimental stimuli.

Prior to beginning the data correction task, participants completed a brief work sample practice exercise. The practice exercise allowed them to become acquainted with the electronic order form screen, as well as to practice entering and altering information in the database. The work sample practice exercise consisted of one electronic order form, in which participants were required to enter fictitious information, as well as to correct existing typographical errors. The experimenter physically observed the participants' progress through the practice exercise to answer questions pertaining to the layout of the order form or completing the task.

After completing the work sample practice exercise, participants were informed that electronic monitoring procedures would be used to monitor their progress on the data correction task. The electronic monitoring type manipulation was achieved solely by altering the description of the data tracking procedures communicated to participants. No electronic monitoring actually took place during the current study. Participants were randomly assigned to one of three monitoring type conditions (i.e., task-specific monitoring, off-task inclusive monitoring, or no monitoring [control]). The experimenter verbally described the characteristics of the monitoring system to participants. Participants in the task-specific monitoring condition were told the monitoring system would track all keystrokes, the number of corrections made per minute, average time spent per order form, and the accuracy of each correction. Participants in the off-task inclusive monitoring condition were told the monitoring system would monitor e-mail activity, instant messaging activity, number of

websites visited, addresses of websites visited, and time spent away from the order form database screen. Participants in the non-monitored condition were told verbally that no electronic monitoring would take place. The electronic monitoring type manipulation was reinforced prior to participants beginning the data correction task by the use of an on-screen electronic monitoring confirmation window that appeared to allow the experimenter to turn monitoring on or off. All monitored participants were led to believe that they were being monitored asynchronously. That is, monitored participants were led to believe their monitoring reports would be reviewed after they had left the research laboratory. Past research suggests asynchronous monitoring is a relatively common practice in organizations that employ electronic monitoring (American Management Association, 2005).

For both monitored conditions, the experimenter also presented a sample performance evaluation form, which included information consistent with the monitoring condition. For instance, participants in the task-specific monitoring condition were shown a performance evaluation form with fictitious monitoring information related to keystrokes entered, corrections per minute, average time spent per order form, and accuracy of corrections. In the off-task inclusive monitoring condition, participants were shown a performance evaluation form with monitoring information related to e-mail activity, instant messaging activity, number of websites visited, web addresses of websites visited, and time spent away from the order form database screen. For both monitored conditions, the performance evaluation form appeared to combine data collected through monitoring with other objective performance information (i.e., number of order forms correctly completed) into an overall performance rating. Participants in the control group were shown a sample performance

evaluation form with only basic objective information included in the overall performance rating (i.e., the bottom portion of the form shown to monitored participants).

Participants were told the top five performers on the data correction task would be entered into a drawing for $75. They were informed that their performance would be determined by the single overall rating at the bottom of the performance evaluation form. A monetary reward for high performance was offered to enhance interest and motivation to perform the task well. This incentive was included to address Hovorka-Mead et al.'s (2002) call for research examining individual reactions to electronic monitoring used to determine rewards (e.g., pay bonuses).

After informing participants of the monitoring that would take place during the task, the experimenter carried out the justification for monitoring manipulation as appropriate. Justification was never given to the non-monitored (i.e., control) condition. Monitored participants were randomly assigned to one of two justification conditions: justification provided, or no justification. In the justification condition, the experimenter provided a verbal explanation for why participants would be monitored electronically. This explanation, which is based on similar manipulations conducted in past research (Alge, 2001; Hovorka-Mead et al., 2002), was as follows:

> Electronic monitoring will allow us to evaluate your performance quickly and efficiently without the need for a physical observer. These electronic monitoring procedures will allow us to most completely measure and record specific aspects of performance. This way the performance ratings used to

determine the top performers will be accurate and consistent across participants.

For those assigned to the justification condition, this rationale was reinforced by adding the justification, in a bulleted format, to the instruction sheet given to participants. Participants in the no justification condition received no justification for why electronic monitoring was to take place.

With the participant looking on, the experimenter initiated the electronic order form database. At this time, an electronic monitoring confirmation window appeared. This confirmation window appeared to allow the experimenter to turn on or off electronic monitoring. For the two monitored conditions, the experimenter selected the "turn monitoring on" option. For the non-monitored condition, the experimenter selected the "turn monitoring off" option. In actuality, the experimenter's selection on the electronic monitoring confirmation page did not change any aspect of the computer's monitoring settings, as electronic monitoring took place in all five conditions.

The experimenter exited the room as participants proceeded to complete the data correction task. At predetermined times during the data correction task, participants in all conditions received an identical unsolicited on-screen text message from an unknown sender who claimed to be a participant in the same study located on another computer on the network. The experimenter initiated this message using an anonymous generic screen name. The purpose of this message was to make salient the monitoring condition, particularly within the off-task inclusive monitoring groups. The message, sent 18 minutes after the participants began the data correction task, appeared as follows: "hey, you in this study too?

we need to do anything after to get credit?" The experimenter initiated no other messages, and did not respond to any messages initiated by the participants.

The experimenter returned to the research lab 40 minutes after exiting to inform the participant that time to complete the data correction task had expired. Participants then completed a set of post-treatment questionnaires designed to measure the effectiveness of the experimental manipulations, the perceived relevance of monitoring (monitored conditions only), perceived rationale for monitoring (monitored conditions only), procedural justice of monitoring (monitored conditions only), invasion of privacy of monitoring procedures (monitored conditions only), task satisfaction, and demographics. Questionnaires were administered on-line using a commercial website. To assure participants of the confidentiality of their responses, all participants moved to another computer to complete the questionnaires. Upon completion of the questionnaires, participants were debriefed and thanked for their participation.

Measured variables

Monitoring relevance. Monitoring relevance was assessed using a four-item self-report scale (see Appendix A) adapted from Alge (2001) and Schmitt, Oswald, Kim, Gillespie, and Ramsay (2004). Sample items from this scale include "All data monitored by the computer are relevant in determining my performance" and "I cannot see a clear connection between the electronic monitoring and the activities required to perform the data correction task" (reverse-scored). Responses were made using a five-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Results of a principal axis factor analysis indicated moderately high communality estimates for items 2 and 4 (.64 and .67,

respectively) and substantially lower communality estimates for items 1 and 3 (.19 and .08, respectively). Based on Hogarty et al.'s (2006) recommendation, items 2 and 4 were retained for analysis in this study, and items 1 and 3 were excluded from further analysis. The coefficient alpha reliability for the two-item scale was .82.

Perceived rationale. Six items were constructed to assess perceived rationale for electronic monitoring, with a sample item being "Clear reasons were given explaining why electronic monitoring was used" (see Appendix B). Responses were made using a five-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The coefficient alpha for this scale was .90.

Procedural justice of monitoring. Procedural justice of electronic monitoring was measured using a five-item scale (see Appendix C) adapted from Alder and Ambrose (2005a) and Hovorka-Mead et al. (2002). Sample items include "Overall, I think the computer monitoring procedures used in this experiment were fair" and "I felt good about the way the electronic monitoring was conducted." Responses were made using a five-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The coefficient alpha for this measure was .90.

Invasion of privacy. Invasion of privacy of the monitoring procedures was assessed using a five-item self-report measure (see Appendix D) adapted from scales used by Tolchinsky et al. (1981) and Alge (2001). Sample items include "It was acceptable for the computer to collect the information that it did through monitoring" and "I feel comfortable with the information about me which the computer collected through monitoring."

Responses were made using a five-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The observed alpha coefficient for this scale was .79.

Task satisfaction. Task satisfaction was assessed using a three-item self-report measure (see Appendix E) adapted from Cammann, Fichman, Jenkins, and Klesh (1983). A sample item included "All in all, I was satisfied with this task." Responses were made using a five-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The coefficient alpha for this scale was .87.

Task performance. Task performance was operationally defined as the average number of corrections made per minute. An Excel macro was used to collect the total number of complete and accurate corrections made by participants during the task. This total was divided by the total number of minutes participants worked on the task (i.e., 40) to determine the average number of corrections made per minute.

Manipulation checks. Nine items were used to evaluate the effectiveness of the manipulation of electronic monitoring type. Five measured task-specific monitoring perceptions (see Appendix F) and four measured off-task inclusive monitoring perceptions (see Appendix G), following a format used by Robie and Ryan (1999). A sample item assessing task-specific monitoring perceptions includes "In between 0 and 100 percent, what do you think the probability is that the computer was monitoring the number of corrections you made per minute while working on the data correction task?" A sample item measuring off-task inclusive monitoring perceptions is "In between 0 and 100 percent, what do you think the probability is that the computer was configured to monitor any instant messaging activity that occurred while you worked on the data correction task?"

Control variables. Prior experience with Microsoft Excel was assessed with the item, "How much experience do you have using Excel?" Experience with computers was assessed with the item, "How much experience do you have using computers?" Experience with the Internet was assessed with the item, "How much experience do you have using the Internet?" Responses options ranged from 1 (*no experience*) to 5 (*a lot of experience*).

Demographics. A demographics measure was used to assess participants' gender, class standing, ethnicity, and age (see Appendix H).

RESULTS

Means, standard deviations, coefficient alphas, and inter-correlations for all study variables are presented in Table 2. Descriptive statistics for study variables across monitoring and justification conditions are presented in Tables 3 and 4, respectively. Prior to any statistical analyses, an analysis of the distribution of study variables was conducted to detect potential outliers and to ensure assumptions of normality were not violated. Skewness and kurtosis statistics were calculated for each univariate distribution. Across all study variables, absolute values of skewness and kurtosis statistics fell below 0.75, indicating variable distributions sufficiently approximated the normal distribution for the purposes of statistical analysis. The trimmed mean (Dixon & Tukey, 1968) is a robust estimator of the location of a distribution that is relatively insensitive to outliers compared to the arithmetic mean. Trimmed means were calculated for all study variables after 25% of the most extreme (i.e., smallest and largest) values were removed. Examination of these values indicated the absolute values of the difference between trimmed and full sample means fell below 0.10 across all study variables, suggesting outliers did not substantially impact observed sample

means. Thus, sufficient evidence was found to safely proceed to hypothesis testing using all study variables.

To ensure randomization produced equivalent groups, all experimental groups were compared with regard to demographic and prior experience variables. Results indicated participants in the three monitoring conditions did not differ with respect to gender [χ^2 (2) = 1.83, p = .40], class standing [χ^2 (8) = 11.69, p = .17], ethnicity [χ^2 (10) = 10.62, p = .39], and age [F (2, 173) = 0.62, p = .54]. Participants in the two justification conditions also did not differ with respect to gender [χ^2 (1) = 3.72, p = .06], class standing [χ^2 (4) = 3.41, p = .49], ethnicity [χ^2 (5) = 1.56, p = .91), and age [t (174) = 0.26, p = .80]. Regarding participants' prior computer-related experience, participants in the three monitoring conditions did not differ with respect to Excel experience [F (2, 174) = 0.19, p = .83], general computer experience [F (2, 174) = 0.92, p = .40], and Internet experience [F (2, 174) = 1.09, p = .34]. Participants in the two justification conditions also did not differ with respect to Excel experience [t (175) = 0.97, p = .33], general computer experience [t (175) = 0.47, p = .64], and Internet experience [t (175) = 0.05, p = .96]. Thus, all experimental groups appeared equivalent with regard to demographic composition and prior computer-related experience.

Manipulation checks

Manipulation check items were examined to assess the effectiveness of the experimental manipulations. Two one-way ANOVAs were conducted to assess perceptions of task-specific and off-task inclusive monitoring. The first ANOVA included monitoring type (i.e., task-specific monitoring, off-task inclusive monitoring, and no monitoring) as the independent variable and perceptions of task-specific monitoring as the dependent variable.

Perceptions of task-specific monitoring were operationally defined as participants' mean response across the five items pertaining to task-specific monitoring (see Appendix F). Levene's test for homogeneity of variance was significant, F (2, 173) = 5.87, $p < .01$, indicating Welch's (1951) variance-weighted ANOVA should be used. Results of the Welch's variance-weighted ANOVA revealed a significant impact of the monitoring manipulation in the task-specific monitoring condition, F (2, 87.43) = 17.88, $p < .001$, η^2 = .21. Follow-up pairwise comparisons, using Tukey's HSD test with $\alpha = .05$, showed all experimental groups differed in the expected direction (see Table 5).

The second ANOVA included monitoring type (i.e., task-specific monitoring, off-task inclusive monitoring, and no monitoring) as the independent variable and perceptions of off-task inclusive monitoring as the dependent variable. Perceptions of off-task inclusive monitoring were operationally defined as participants' mean response across the four items pertaining to off-task inclusive monitoring. Levene's test for homogeneity of variance was significant, F (2, 173) = 4.32, $p = .015$, indicating Welch's variance-weighted ANOVA should be used. Results of the Welch's variance-weighted ANOVA revealed a significant impact of the monitoring manipulation in the off-task inclusive monitoring condition, F (2, 89.47) = 19.61, $p < .001$, $\eta^2 = .18$. Follow-up pairwise comparisons, using Tukey's HSD test with $\alpha = .05$, showed all experimental groups differed in the expected direction (see Table 5). Thus, responses to the manipulation check items provided general support for the efficacy of the monitoring manipulation.

The effectiveness of the justification manipulation was assessed using an independent measures t-test comparing perceived rationale across justification conditions (i.e.,

justification provided, no justification provided). Results indicated a significant difference [t (135) = 1.69, p = .04, one-tailed] between conditions, such that perceptions of justification for electronic monitoring were greater in the justification condition (M = 4.08, SD = 0.84) relative to the no justification condition (M = 3.85, SD = 0.89).

Confirmatory factor analysis

Confirmatory factor analysis (CFA) was used to examine the measurement models of study variables assessed using multiple-item scales. Several indices were used to assess model fit. Significant chi-square values provide evidence of a poor fitting model, while non-significant chi-square values indicate adequate fit. However, the chi-square statistic is increasingly sensitive with larger sample sizes and often found to be significant. Thus, several additional fit indices were examined. These indices included the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA), and the square root mean residual (SRMR). For adequate model fit, CFI and TLI values should be equal to or greater than 0.90, with values closer to 1.00 indicating better model fit (Hu and Bentler, 1999). RMSEA and SRMR indices should be equal to or below .08 to conclude a model has adequate fit (Millsap, 2002; Vandenberg & Lance, 2000).

To assess the goodness-of-fit of the latent factor measurement models, a five-factor CFA model was constructed allowing items to load on their respective latent factor, as well as allowing latent factors to correlate. A five-factor model was tested because the hypothesized model presented in Figure 1 includes five latent (i.e., unobserved) variables that were measured using multiple-item scales. For model identification purposes, latent factor variances were fixed at 1.00, allowing all unstandardized item loadings to be freely

estimated. Results of the CFA indicate adequate fit, χ^2 (179, N = 137) = 311.30, CFI = .92, TLI = .91, RMSEA = .07, SRMR = .06, for the five-factor CFA model. Item loadings are presented in Table 6. Thus, the hypothesized five-factor model provided adequate overall fit.

To assess the discriminant validity of the hypothesized constructs, the procedure detailed by Widaman (1985) for estimating and testing discriminant validity was conducted. Three additional CFA models were tested and compared to the hypothesized five-factor model. First, a one-factor model was tested, in which all latent factor intercorrelations were fixed to 1.00. Second, a two-factor model was tested, in which the intercorrelations among all latent factors specifically related to monitoring perceptions (i.e., perceived relevance, perceived rationale, invasion of privacy, procedural justice) were fixed to 1.00. In this two-factor model, the "monitoring perceptions" factor was allowed to correlate with the task satisfaction latent factor. Third, a three-factor model was tested, in which the intercorrelations between perceived relevance, invasion of privacy, and procedural justice latent factors were fixed to 1.00. In this three-factor model, the "monitoring perceptions" factor was allowed to correlate with the perceived rationale and task satisfaction latent factors. Results of the nested model comparisons are presented in Table 7. Results of chi-square difference tests indicated the hypothesized five-factor measurement model fit the observed data significantly better than any of the three alternative models (see Table 7). Thus, these findings support the discriminant validity of the hypothesized latent constructs.

Structural equation modeling

Structural equation modeling (SEM) with MPLUS 4.2 was used to test the hypothesized model shown in Figure 1. In addition to the hypothesized relationships, all

endogenous latent variables were regressed onto the control variables, participant age and gender, as well as task performance. Monitoring and justification conditions were dummy coded and entered as predictors of both perceived relevance of monitoring and perceived rationale. The resulting fit indices indicated fair overall fit, χ^2 (317, N = 137) = 516.69, CFI = .89, TLI = .87, RMSEA = .07, SRMR = .07. The results of the structural equation model are presented in Figure 2.

Hypothesis 1 stated, for all monitored participants, monitoring type (task-specific monitoring versus off-task inclusive monitoring) will affect perceived relevance of monitoring, such that task-specific monitoring will be perceived as more task relevant compared to off-task inclusive monitoring. The significant and positive path (β = .13, p = .03, one-tailed) from monitoring condition to perceived monitoring relevance provides support for Hypothesis 1.

Hypotheses 2 and 3 stated, for all monitored participants, perceived relevance of electronic monitoring will be positively associated with procedural justice perceptions and that this relationship will be mediated by invasion of privacy. To test these hypotheses, an additional structural model was tested, in which a direct path from perceived relevance to procedural justice was added. The overall fit obtained from testing the partially mediated model was χ^2 (316, N = 137) = 513.78, CFI = .89, TLI = .87, RMSEA = .07, SRMR = .07. A chi-square difference test indicated the fit of the partially mediated model was not significantly different ($\Delta\chi^2$ = 2.91, Δdf = 1, p = .09), from the more parsimonious and adequately fitting hypothesized model. Additionally, the direct path from perceived relevance to procedural justice obtained in the partially mediated model was nonsignificant

(β = .28, p = .11). The indirect effect of perceived relevance on procedural justice through invasion of privacy was examined. As suggested by others (Bollen & Stine, 1990; Lockwood & MacKinnon, 1998; Shrout & Bolger, 2002), bootstrap sampling was performed to avoid potential biases in the results due to nonnormality in the sampling distribution used to test indirect effects. For all analyses of indirect effects, standard errors and confidence intervals for the indirect effects were based on 1,000 bootstrapped samples. Results indicated a positive and significant indirect effect (β = .43, p < .01) from perceived relevance to procedural justice. Thus, Hypotheses 2 and 3 were supported.

Hypothesis 4 indicated, for all monitored participants, procedural justice of monitoring will predict task satisfaction, such that greater procedural justice will be associated with greater task satisfaction. The significant and positive path (β = .48, p < .01) from procedural justice to task satisfaction provides support for Hypothesis 4.

Hypothesis 5 stated, for all monitored participants, monitoring type affects task satisfaction and this relationship is mediated by perceived relevance. No test of an alternative model was necessary due to the nonsignificant path from perceived relevance (i.e., the mediator) to task satisfaction (β = .05, p = .40, one-tailed). Using the hypothesized model, the sum of the indirect effects of monitoring type on task satisfaction through perceived relevance was examined using bootstrapped standard errors and confidence intervals. The following two series of paths were included in the total indirect effect: a) monitoring type to perceived relevance to task satisfaction, and b) monitoring type to perceived relevance to invasion of privacy to procedural justice to task satisfaction. Results

indicated a nonsignificant total indirect effect (β = .03, p = .31, one-tailed) from monitoring type to task satisfaction through perceived relevance. Thus, Hypothesis 5 was not supported.

Hypothesis 6 suggested that for all monitored participants, justification for monitoring will positively impact perceived relevance of electronic monitoring and this relationship will be mediated by perceived justification for monitoring. Since perceived relevance was regressed onto both justification condition and perceived rationale in the initial model, Hypothesis 6 was evaluated by examining the direct and indirect effects of justification condition. The direct path from justification condition to perceived relevance was nonsignificant (β = -.01, p = .55, one-tailed). The indirect effect of justification condition on perceived relevance through perceived rationale was examined using a bootstrapped standard error and confidence interval. Results indicated a significant and positive indirect effect (β = .11, p = .04, one-tailed) from justification condition to perceived relevance through perceived rationale. Thus, Hypothesis 6 was supported.

Hypothesis 7 suggested that for all monitored participants, justification for monitoring will positively impact procedural justice of electronic monitoring and this relationship will be mediated by perceived justification for monitoring. To test this hypothesis, an additional structural model was tested, in which a direct path from justification condition to procedural justice was added. The overall fit obtained from testing the partially mediated model was χ^2 (316, N = 137) = 514.18, CFI = .89, TLI = .87, RMSEA = .07, SRMR = .07. A chi-square difference test indicated the fit of the partially mediated model was not significantly different ($\Delta\chi^2$ = 2.51, Δdf = 1, p = .11), from the fully mediated hypothesized model. Using the hypothesized model, the sum of the indirect effects of

justification condition on procedural justice through perceived rationale was examined using bootstrapped standard errors and confidence intervals. The following two series of paths were included in the total indirect effect: a) justification condition to perceived rationale to procedural justice, and b) justification condition to perceived rationale to perceived relevance to invasion of privacy to procedural justice. Results indicated a significant total indirect effect (β = .11, p = .04, one-tailed) from justification condition to procedural justice through perceived rationale. Thus, Hypothesis 7 was supported.

Hypothesis 8 suggested that for all monitored participants, justification for monitoring will positively impact task satisfaction and this relationship will be mediated by perceived rationale for monitoring. No test of an alternative model was necessary due to the nonsignificant path from perceived rationale (i.e., the mediator) to task satisfaction (β = -.16, p = .82, one-tailed). Using the hypothesized model, the sum of the indirect effects of justification condition on task satisfaction through perceived rationale was examined using bootstrapped standard errors and confidence intervals. The following four series of paths were included in the total indirect effect: a) justification condition to perceived rationale to task satisfaction, b) justification condition to perceived rationale to procedural justice to task satisfaction, c) justification condition to perceived rationale to perceived relevance to invasion of privacy to procedural justice to task satisfaction, and d) justification condition to perceived rationale to perceived relevance to task satisfaction. Results indicated a nonsignificant total indirect effect (β = .03, p = .12, one-tailed) from justification condition to task satisfaction through perceived rationale. Thus, Hypothesis 8 was not supported.

Research question 1 asked whether or not both task-specific and off-task inclusive monitoring decrease task satisfaction experienced by workers. Research question 1 was evaluated using a one-way ANOVA, with task satisfaction as the dependent variable. The between-subjects factor was monitoring condition, which included the task-specific monitoring, off-task inclusive monitoring, and no monitoring groups. Results of the ANOVA were nonsignificant (F [2, 173] = 2.24, p =.11), indicating no significant differences in task satisfaction as a function of monitoring condition.

Research question 2 asked whether or not the effect of justification on procedural justice varied across task-specfic and off-task inclusive monitoring conditions. A 2 x 2 between-subjects ANOVA was conducted with procedural justice as the dependent variable. The two between-subjects factors were monitoring condition (2 levels: task-specific monitoring, off-task inclusive monitoring) and justification for monitoring (2 levels: justification, no justification). Results of the factorial ANOVA revealed the interaction term was not significant (F [1, 133] = 0.17, p = .68), indicating monitoring condition did not moderate the impact of justification on procedural justice.

Research question 3 asked whether or not the effect of justification on task satisfaction varied across task-specfic and off-task inclusive monitoring conditions. A 2 x 2 between-subjects ANOVA was conducted with task satisfaction as the dependent variable. The two between-subjects factors were monitoring condition (2 levels: task-specific monitoring, off-task inclusive monitoring) and justification for monitoring (2 levels: justification, no justification). Results of the factorial ANOVA revealed the interaction term

was not significant (F [1, 133] = 1.23, p = .27), indicating monitoring condition did not moderate the impact of justification on task satisfaction.

DISCUSSION

The purpose of the current study was to empirically examine the role of specific electronic monitoring practices in determining individuals' reactions to monitoring as well as their task satisfaction. The primary focus of this study was to assess the impact of task-relatedness of the behaviors targeted by electronic monitoring on individual reactions, as well as the impact of the presence (or absence) of justification for monitoring procedures. In general, overall support was found for the hypothesized model shown in Figure 1. Detailed examinations of each experimental hypothesis indicated that both task-relatedness and justification impacted various reactions to monitoring, but did not influence task satisfaction.

Theoretical and practical implications

Electronic monitoring aimed at task-specific behaviors (e.g., average number of corrections made per minute, accuracy of each correction, etc.) resulted in greater levels of perceived relevance (Hypothesis 1) compared to monitoring of off-task inclusive behaviors (e.g., e-mail, web browsing, etc.). This finding indicates individuals attend to the specific details of the monitoring practices and make judgments of monitoring relevance based on the behaviors targeted by the monitoring procedures. This finding is consistent with Alge (2001), in which task-specific behavior monitoring was perceived to be a more relevant source of information to determine performance relative to monitoring of a mixture of task-specific and off-task behaviors. The current study extends Alge's (2001) findings in that participants were informed of the specifics of the monitoring procedures prior to the task in

the current study, which is consistent with common practice in organizations (American Management Association, 2005).

Perceived relevance of monitoring was found to be positively related to procedural justice of monitoring (Hypothesis 2), with this relationship being fully mediated by perceived invasion of privacy (Hypothesis 3). The finding of a positive overall relationship between perceived relevance and procedural justice is consistent with previous research (Alge, 2001), which strengthens the conclusion that these constructs are associated. The current study also replicated previous findings (Alge, 2001) supporting the mediating role of invasion of privacy in the relationship between perceived relevance and procedural justice. These findings support the notion that monitoring off-task behaviors, and subsequently using that information in the determination of individual performance ratings, may decrease individuals' sense of control over personal information and produce perceptions of invasion of privacy. As invasion of privacy likely runs contrary to many individuals' moral and ethical values (Leventhal, 1980), greater privacy invasion can lead to decreased perceptions of procedural fairness (i.e., justice) attributed to electronic monitoring procedures. To reduce perceptions of invasion of privacy, organizations should strive to implement data collection procedures that target behaviors directly related to task performance rather than off-task inclusive behaviors.

Procedural justice was found to be positively associated with task satisfaction (Hypothesis 4). This finding is consistent with previous research examining the linkage between justice perceptions related to monitoring and task satisfaction in simulated work settings (Alder & Ambrose, 2005a), as well as job satisfaction in field settings (Chalykoff &

Kochan, 1989). While a causal relationship cannot be concluded based on the current study, previous theory suggests procedural justice perceptions are an antecedent of job satisfaction (Ambrose & Alder, 2000; Lind, 2001). This finding suggests organizations should place importance on procedural justice attitudes of employees, in that failure to do so may result in discontent and voluntary turnover.

Contrary to Hypothesis 5, the effect of monitoring condition on task satisfaction was not mediated by perceived relevance. In fact, task satisfaction did not vary as a function of monitoring condition (Research Question 1). Previous research has found electronic monitoring to be a workplace stressor (Amick & Smith, 1992; George, 1996), and has linked monitoring to decreases in job satisfaction and supervisor satisfaction (Aiello & Shao, 1993). The lack of a significant impact of monitoring condition on task satisfaction through perceived relevance may be due to the relatively short duration of the simulated work task. Also, the low to moderate difficulty level of the simulated work task, and the resulting low required mental workload involved with the task, may have mitigated the negative impact of monitoring on task reactions. Future research should examine the role of task duration and difficulty in predicting the degree to which introducing electronic monitoring will have a negative impact on organizational outcomes, such as task and job satisfaction.

The presence of verbal and written justification for electronic monitoring was found to positively predict perceived task-relevance of monitoring, and this relationship was mediated by perceived rationale (Hypothesis 6). This finding suggests that when a clear rationale is provided, linking data collected through monitoring to enhanced quality of performance assessment, individuals appear to perceive monitoring to be more task-relevant.

Importantly, justification accounted for additional variance in perceived task-relevance, above and beyond monitoring condition. This finding suggests justification may be an effective means for organizations to identify when and why off-task inclusive behaviors are necessary to monitor, and, in so doing, can bolster employees' perceptions of relevance. If organizations choose to monitor off-task inclusive behaviors (e.g., to dissuade counterproductive work behaviors), justification should be given to impart the importance to the organization and its employees of tracking those behaviors.

Justification was found to have a positive impact on procedural justice perceptions, and this relationship was mediated by perceived rationale (Hypothesis 7). Participants who were provided justification for monitoring perceived monitoring procedures to be fairer relative to those who were not provided with justification. This finding extends previous research (e.g., Hovorka-Mead et al., 2002; Stanton & Weiss, 2003) linking justification to procedural justice by replicating past findings using a simulated work task in a controlled setting. While previous studies have identified an association between justification and justice perceptions, the current findings provide a basis to conclude justification can, in fact, *cause* greater justice perceptions. The current study employed a strong justification (see Hovorka-Mead et al., 2002), which entails providing a detailed and compelling reason for monitoring practices, in both verbal and written formats prior to the simulated work task. This finding suggests organizations may benefit (i.e., reduce negative employee reactions) by clearly communicating a) the extent to which monitoring takes place in the workplace, b) the purpose of monitoring as an organizational function, c) any potential benefits monitoring offers for both individual employees and the organization (e.g., consistency, impartiality of

performance assessment, etc.), and d) how information collected through monitoring will be used (e.g., administrative decisions, development, etc.).

Support was not found for Hypothesis 8, which predicted justification would have a positive impact on task satisfaction and that this relationship would be mediated by perceived rationale. This finding suggests the impact of justification for monitoring practices on satisfaction with work tasks themselves may be modest at best or may simply require time to become evident. As stated previously, the lack of a significant relationship between justification and task satisfaction could be due, in part, to the relatively short duration and low to moderate difficulty level of the simulated work task. Thus, additional research, particularly longitudinal research, is needed to fully understand the impact of justification on task satisfaction.

Evaluation of Research Questions 2 and 3 revealed the impact of justification on procedural justice and task satisfaction did not vary due to the monitoring manipulation. That is, justification did not display a disproportionate impact on either procedural justice or task satisfaction across monitoring conditions. Lind (1988) suggests that justification may be particularly effective (i.e., increasing justice perceptions and satisfaction) in situations in which monitoring practices target off-task inclusive behaviors, relative to monitoring of task-specific behaviors. The current study did not indicate the presence of such an interaction. The lack of significant findings for both research questions may be attributable to the ad hoc, temporary nature of the experimental context. In comparison to a 'participant-experimenter' relationship, employees in organizational settings are more likely to place personal importance on the 'employee-supervisor' relationship. This increased level of importance

may lead to increased scrutiny of the signals sent by monitoring practices as indicators of the extent to which employees are valued. While monitoring off-task inclusive behaviors in a laboratory setting might not cause participants to feel they are not valued, employees may view such practices as signals of mistrust. Therefore, future field research should investigate the potential moderating impact of the task-relatedness of monitoring practices on the relationship between justification and monitoring reactions in employment settings.

Limitations and future research

As with any study collecting data through self-report measures, common methods bias constitutes a potential limitation to some of the findings. One method used in the current study to decrease the rate at which measures co-vary due solely to common methods involved the inclusion of negatively worded questionnaire items. Additionally, steps were taken to provide evidence for the discriminant validity of the constructs measured during this study. Another limitation to the current study is the inability to determine the direction of influence when testing correlational hypotheses. As data pertaining to all latent constructs presented in the hypothesized model were collected simultaneously, conclusions regarding the direction of causality between these constructs are tenuous. However, empirically supported psychological theory strongly suggests the flow of causality occurs in the predicted direction. In addition, causal conclusions can be drawn with respect to the hypotheses that were based on manipulated variables (i.e., monitoring type and justification).

With any laboratory manipulation, the external validity of the current findings constitutes a potential limitation. Laboratory research provides a major source of knowledge and contribution to the electronic monitoring literature (e.g., Aiello & Kolb, 1995; Aiello &

Svec, 1993; Alder & Ambrose, 2005a; Alge, 2001; Douthitt & Aiello, 2001; Hovorka-Mead et al., 2002; Stanton & Barnes-Farrell, 1996). Laboratory research offers the opportunity to assess the precise influence of specific variables of theoretical interest, while controlling the confounding influences of extraneous variables. The current study took steps to emulate a legitimate work task similar in appearance and complexity to tasks electronically monitored in a variety of public and private industries. For instance, participants were informed prior to beginning the work task as to how their progress and activities would be monitored. Also, the opportunity for a performance-based reward served to reinforce participants' motivation to perform well on the task. Future research should attempt to replicate the current findings in an organizational context, if possible, in order to strengthen the conclusions.

Another potential limitation of this study involves the generalizability of the current findings to a full-time work environment. Observed effects of electronic monitoring type and the provision of justification for monitoring may not generalize to a full-time work environment, in which employees may adapt or habituate to the presence of monitoring. Differences between the student worker sample and employees in full-time positions for which electronic monitoring is commonly used, constitute a related threat to generalizability of the results. For instance, participants may not have equivalent previous experience with repetitive computerized work compared to typical data entry employees (Stanton & Barnes-Farrell, 1996). Considering these limitations, it may be most appropriate to generalize the current results to temporary workers or relatively inexperienced employees new to data entry work.

In practice, electronic monitoring techniques can differ substantially within and across organizations. For instance, monitoring can vary with respect to how often it occurs during a period of time, who performs it, the types of tasks it targets, and the degree to which employees have knowledge of or can control the onset of monitoring. Future research is needed to enhance our understanding of potential positive and negative outcomes associated with specific configurations of monitoring characteristics. Also, previous research has contributed little to our understanding of how employees adapt or habituate to the presence of monitoring. Future research should examine how employees adapt to monitoring over time, as well as the role situational and individual characteristics play in this process.

Conclusion

The use of electronic monitoring techniques as a means for collecting performance and productivity information is a pervasive and broadening practice in today's organizations (American Management Association, 2005). As workforces within organizations become more geographically dispersed and more work is handled virtually (i.e., mediated through technology), the opportunity and pressure for organizations to track and monitor employee activities electronically will likely increase. To ensure organizations deploy such practices strategically and in ways that minimize potentially costly negative reactions from employees, researchers and practitioners must continue to develop a thorough understanding of the impact of specific monitoring practices and policies on employee reactions and behaviors. To that end, the current study investigated the role of task-relatedness of monitoring practices and the presence of justification in determining individuals' reactions to monitoring and to a simulated work task. The current findings indicate both of these characteristics influence

perceptions, such that monitoring task-specific behaviors and providing a clear justification for monitoring practices can result in more positive reactions to monitoring relative to monitoring off-task inclusive behaviors and providing no justification for monitoring practices.

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Table 1

Electronic Monitoring

Monitoring type	Description
Task-specific monitoring [a]	
Quantitative	Keystrokes, claims per hour, duration of work transactions, time worker signs on/off a machine, etc.
Qualitative	Compliance with courtesy toward customer, accuracy of information delivered, rules, etc.
Off-task inclusive monitoring [b]	
Eavesdropping	Unobtrusive inspection of Videoconference, telephone calls, voicemail, e-mail
Surveillance	Unobtrusive inspection of Online behavior (WWW) Off-line behavior (security badges, video cameras)

Note. Adapted from "Technology ," by M. D. Coovert, L.F. Thompson, and J. P. Craiger, 2005, In J. Barling, E. K. Kelloway, and M. R. Frone (Eds.), *Handbook of work stress* (p. 308). Thousand Oaks, CA: SAGE Publications.

[a]Coovert et al. (2005) originally labeled this category "Performance Monitoring."

[b]Coovert et al. (2005) originally labeled this category "Behavior Monitoring."

Table 2

Means, Standard Deviations, Coefficient α's, and Intercorrelations Among Study Variables

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. Perceived Relevance [a]	3.86	0.69	(.82)										
2. Perceived Rationale [a]	3.96	0.87	.62**	(.90)									
3. Invasion of Privacy [a]	1.93	0.72	-.50**	-.62**	(.79)								
4. Procedural Justice [a]	4.03	0.70	.57**	.55**	-.68**	(.90)							
5. Task Satisfaction [b]	3.15	1.02	.34**	.29**	-.32**	.46**	(.87)						
6. Gender [b]	1.43	0.50	.13	.03	-.05	.12	-.02	-					
7. Age [b]	19.67	3.13	.03	.02	-.07	.08	-.07	.08	-				
8. Excel Experience [b]	2.93	0.94	.08	.04	.06	.00	.00	-.18*	.06	-			
9. Computer Experience [b]	4.02	0.82	.05	.03	.06	.07	.07	-.10	.03	.30**	-		
10. Internet Experience [b]	4.28	0.77	.10	.04	.04	.09	.15*	-.08	.00	.25**	.77**	-	
11. Task Performance [b]	5.17	1.38	.27**	.18*	-.16	.23**	.17*	.01	-.16*	.15*	.03	.05	-

Note. Scale reliabilities are presented on the diagonal. Gender coded as Male = 1, Female = 2. *$p < .05$. **$p < .01$.
[a] $N = 137$. This variable was only measured in monitored conditions.
[b] $N = 176$. This variable was measured in all conditions.

Table 3

Descriptive Statistics for Study Variables Across Monitoring Conditions

Variable	Task-Specific (N = 68)		Off-task Inclusive (N = 70)		Control (N = 38)	
	M	*SD*	*M*	*SD*	*M*	*SD*
Perceived Relevance	3.96	0.72	3.75	0.65	n/a [a]	n/a [a]
Invasion of Privacy	1.77	0.56	2.09	0.81	n/a [a]	n/a [a]
Procedural Justice	4.14	0.63	3.93	0.75	n/a [a]	N/a [a]
Task Satisfaction	3.35	0.92	3.00	1.04	3.08	1.10
Task Performance	5.43	1.48	5.09	1.36	4.83	1.16

[a] Reactions to monitoring were not measured in the control condition as these participants had no expectation of being monitored.

Table 4

Descriptive Statistics for Study Variables Across Justification Conditions

Variable	Justification (N = 65)		No Justification (N = 72)	
	M	*SD*	*M*	*SD*
Perceived Rationale	4.08	0.84	3.85	0.89
Perceived Relevance	3.90	0.72	3.82	0.67
Invasion of Privacy	1.90	0.74	1.95	0.70
Procedural Justice	4.13	0.62	3.95	0.76
Task Satisfaction	3.28	0.98	3.08	1.00
Task Performance	5.38	1.44	5.15	1.41

Table 5

Comparison of Perceived Monitoring Across Monitoring Conditions

		Perceptions of Task-specific Monitoring		Perceptions of Off-task Inclusive Monitoring	
Monitoring Condition	*N*	*M*	*SD*	*M*	*SD*
Task-specific	68	82.11[a]	21.20	60.42[a]	33.28
Off-task inclusive	70	69.31[b]	24.73	82.09[b]	24.39
Control	38	47.36[c]	33.74	47.11[a]	34.50

Note. Means that do not share the same letter (i.e., a, b, c) are significantly different ($p < .05$).

Table 6

Confirmatory Factor Analysis Factor Loadings For Latent Variables

Item #	Scale	*B*	*S.E.*	β
	Perceived Relevance			
2	I cannot see a clear connection between the electronic monitoring and the activities required to perform the data correction task. (R)	0.82	0.07	0.88
4	I do not understand what the electronic monitoring has to do with the activities required to perform the data correction task. (R)	0.79	0.08	0.79
	Invasion of Privacy			
1	It was acceptable for the computer to collect the information that it did through monitoring. (R)	0.65	0.05	0.86
2	It was not necessary for the computer to collect the information it did through monitoring.	0.65	0.06	0.80
3	I feel comfortable, with the information about me which the computer collected through monitoring. (R)	0.69	0.06	0.81
4	I felt like the manner in which I was monitored was an invasion of my privacy.	0.59	0.07	0.69
5	I feel that the information being monitored through the computer is none of anybody's business but my own.	0.72	0.06	0.83

Note. χ^2 (179) = 311.30, CFI = .92, TLI = .91, RMSEA = .07, SRMR = .06. All loadings are significant ($p < .01$). (R) indicates Reverse-scored items. $N = 137$. Only participants in monitored conditions were included.

Table 6 (continued)

Confirmatory Factor Analysis Factor Loadings For Latent Variables

Item #	Scale	*B*	*S.E.*	*β*
	Procedural Justice			
1	Overall, I think the computer monitoring procedures used in this experiment were fair.	0.56	0.07	0.69
2	The way the computer monitored my performance was unfair. (R)	0.62	0.08	0.64
3	I was satisfied with the monitoring procedure that was used.	0.58	0.07	0.68
4	The computer monitoring procedures were effective.	0.74	0.08	0.70
5	I did not feel good about the way the electronic monitoring was conducted. (R)	0.66	0.09	0.59
	Task Satisfaction			
1	All in all, I was satisfied with this task.	0.73	0.08	0.68
2	In general, I didn't like this task. (R)	1.02	0.09	0.87
3	In general, I liked working on this task.	1.04	0.08	0.90

Note. χ^2 (179) = 311.30, CFI = .92, TLI = .91, RMSEA = .07, SRMR = .06. All loadings are significant ($p < .01$). (R) indicates reverse-scored items. $N = 137$. Only participants in monitored conditions were included.

Table 6 (continued)

Confirmatory Factor Analysis Factor Loadings For Latent Variables

Item #	Scale	*B*	*S.E.*	*β*
	Perceived Rationale			
1	Clear reasons were given explaining why electronic monitoring was used.	0.89	0.08	0.79
2	The experimenter did not provide a logical rationale for why I was being electronically monitored. (R)	1.02	0.08	0.85
3	The electronic monitoring was conducted for a particular purpose.	0.45	0.06	0.61
4	Justification was not given for the electronic monitoring conducted during the data correction task. (R)	1.06	0.08	0.92
5	I do not really understand why the experimenter needed to monitor my computer activities. (R)	0.77	0.09	0.65
6	The experimenter did not seem to have a reason for monitoring my computer activities. (R)	0.80	0.07	0.80

Note. χ^2 (179) = 311.30, CFI = .92, TLI = .91, RMSEA = .07, SRMR = .06. All loadings are significant ($p < .01$). (R) indicates reverse-scored items. $N = 137$. Only participants in monitored conditions were included.

Table 7

Measurement Model Comparisons

Model	χ^2	*df*	$\Delta\chi^2$	Δdf	CFI	TLI	RMSEA	SRMR
5 factors [a]	311.30	179	-	-	0.92	0.91	0.07	0.06
3 factors	396.87	182	85.57**	3	0.88	0.86	0.09	0.07
2 factors	606.62	185	295.32**	6	0.76	0.72	0.13	0.09
1 factors	776.18	189	464.87**	10	0.66	0.62	0.15	0.11

Note. CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual.
[a] Represents the hypothesized model.
**$p < .01$.

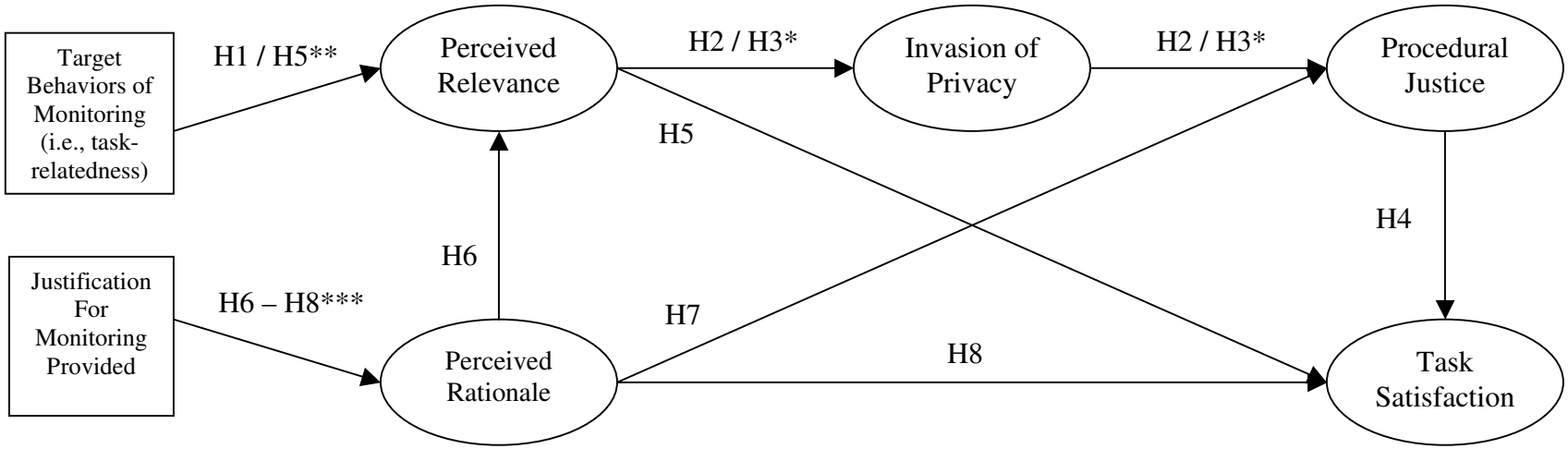

Figure 1. Framework depicting hypothesized relationships between monitoring characteristics, monitoring cognitions, and task satisfaction.

* Hypothesis 2 predicts a positive relationship between perceived relevance and procedural justice, and Hypothesis 3 predicts this relationship will be mediated by invasion of privacy.

** Hypothesis 5 predicts a relationship between task-relatedness and task satisfaction that is mediated by perceived relevance. Therefore, the path from task-relatednees to perceived relevance is included in this hypothesis.

*** Hypotheses 6-8 predict a relationship between justification and an outcome variable that is mediated by perceived rationale. Therefore, the path from justification to perceived rationale is included in all three hypotheses.

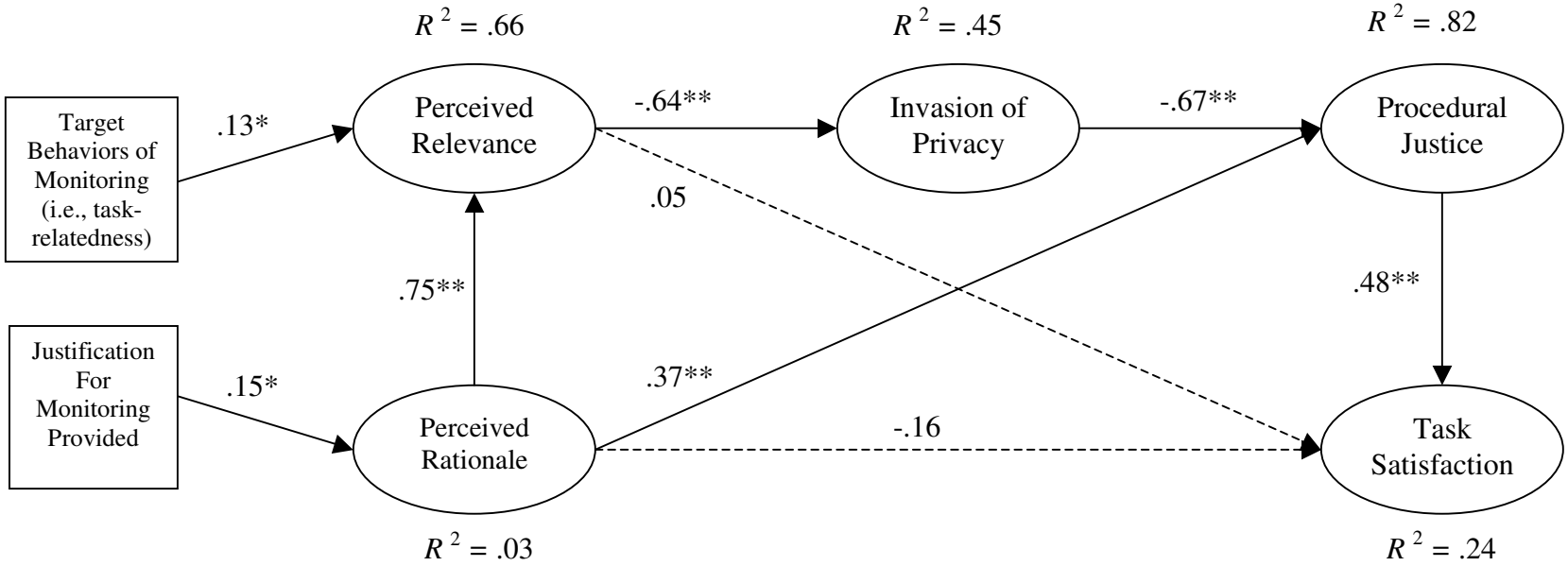

Figure 2. Results of the hypothesized model.

Note. χ^2 (317, N = 137) = 516.69, p < .01, CFI = .89, TLI = .87, RMSEA = .07, SRMR = .07. Monitoring condition coded as 1 = task-specific, 0 = off-task inclusive. Justification condition coded as 1 = justification provided, 0 = no justification provided. Standardized regression coefficients are presented. Control variable paths are not presented. N = 137. * p < .05. ** p < .01. Significance tests are one-tailed.

APPENDICES

APPENDIX A: Task Relevance of Electronic Monitoring Scale

1. All data monitored by the computer are relevant in determining my performance.
2. I cannot see a clear connection between the electronic monitoring and the activities required to perform the data correction task. (R)
3. The actual information collected through the monitoring program is related to performance on the data correction task.
4. I do not understand what the electronic monitoring has to do with the activities required to perform the data correction task. (R)

Note. Adapted from Alge (2001) and Schmitt, Oswald, Kim, Gillespie, and Ramsay (2004). (R) – Indicates the item is reverse-scored.

APPENDIX B: Perceived Rationale For Electronic Monitoring Items

1. Clear reasons were given explaining why electronic monitoring was used.
2. The experimenter did not provide a logical rationale for why I was being electronically monitored. (R)
3. The electronic monitoring was conducted for a particular purpose.
4. Justification was not given for the electronic monitoring conducted during the data correction task. (R)
5. I do not really understand why the experimenter needed to monitor my computer activities. (R)
6. The experimenter did not seem to have a reason for monitoring my computer activities. (R)

(R) – Indicates the item is reverse-scored.

APPENDIX C: Procedural Justice of Electronic Monitoring Scale

1. Overall, I think the computer monitoring procedures used in this experiment were fair.
2. The way the computer monitored my performance was unfair. (R)
3. I was satisfied with the monitoring procedure that was used.
4. The computer monitoring procedures were effective.
5. I did not feel good about the way the electronic monitoring was conducted. (R)

Note. Adapted from Alder and Ambrose (2005a) and Hovorka-Mead et al. (2002).

(R) – Indicates the item is reverse-scored.

APPENDIX D: Invasion of Privacy Scale

1. It was acceptable for the computer to collect the information that it did through monitoring. (R)
2. It was not necessary for the computer to collect the information it did through monitoring.
3. I feel comfortable, with the information about me which the computer collected through monitoring. (R)
4. I felt like the manner in which I was monitored was an invasion of my privacy.
5. I feel that the information being monitored through the computer is none of anybody's business but my own.

Note. Adapted from Tolchinsky et al. (1981) and Alge (2001).

(R) – Indicates the item is reverse-scored.

APPENDIX E: Task Satisfaction Scale

1. All in all, I was satisfied with this task.
2. In general, I didn't like this task. (R)
3. In general, I liked working on this task.

Note. Adapted from Cammann, Fichman, Jenkins, and Klesh (1983).

(R) – Indicates the item is reverse-scored.

APPENDIX F: Perceived Task-Specific Monitoring Items

1. In between 0 and 100 percent, what do you think the probability is that the computer was monitoring your progress through the data correction task?
2. In between 0 and 100 percent, what do you think the probability is that the computer was monitoring your keystrokes while you worked on the data correction task?
3. In between 0 and 100 percent, what do you think the probability is the computer was monitoring the number of corrections you made per minute while working on the data correction task?
4. In between 0 and 100 percent, what do you think the probability is that the computer was monitoring the time you spent per order form while working on the data correction task?
5. In between 0 and 100 percent, what do you think the probability is that the computer was monitoring the accuracy of each correction you made while working on the data correction task?

APPENDIX G: Perceived Off-Task Inclusive Monitoring Items

1. In between 0 and 100 percent, what do you think the probability is that the computer was configured to monitor your e-mail activity while you were working on the data correction task?
2. In between 0 and 100 percent, what do you think the probability is that the computer was configured to monitor any instant messaging activity that occurred while you worked on the data correction task?
3. In between 0 and 100 percent, what do you think the probability is that the computer was configured to monitor any web surfing activity that occurred while you were working on the data correction task?
4. In between 0 and 100 percent, what do you think the probability is that the computer was configured to monitor any time spent away from the database screen while you were working on the data correction task?

APPENDIX H: Demographics Questionnaire

	Male	Female
What is your gender?	1	2

	Freshman	Sophomore	Junior	Senior	Graduate Student	Other
What is your class standing (according to credit hours earned)?	1	2	3	4	5	6

	African American	Asian American	Caucasian	Hispanic	Native American	Other
What is your ethnicity?	1	2	3	4	5	6

What is your age?	_____ years