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The roles of mood and conscientiousness in reporting of self-committed errors on IT projects

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Abstract. *Over the past two decades, several studies have investigated the factors that lead to and away from individuals' reporting of truthful status information on IT projects. These studies have typically considered the reporting decisions of an individual who is aware of negative status information that is attributed to others' errors. These previous studies have seldom examined the situation in which the individual is considering whether to report information about his or her own self-committed error on the project. In this study, we consider this largely unexamined phenomenon. In this context, we focus on the influences that different affective states and a personality trait (conscientiousness) can have on error reporting decisions. Specifically, we investigate how different moods (i.e. positive vs. negative) and conscientiousness can influence error reporting decisions in the context of an IT project. Based on the results from a controlled laboratory experiment, we find that individuals in a negative mood are more willing to report their errors compared to individuals in a positive mood. Conscientiousness also positively influences individuals' willingness to report errors, and it also has an indirect effect through cost–benefit differential (i.e. one's perceptions of benefits relative to costs). Additionally, mood is found to moderate the relationship between conscientiousness and willingness to report. We discuss the implication of our findings and directions for future research and for practice. © 2016 John Wiley & Sons Ltd*

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INTRODUCTION

'I messed up, and once I realized it, I should have acted immediately. I lost my wits because we were celebrating, and it nearly cost me my job.' – A project manager at one of the world's 'Top 10' software companies'Donald,'[1] the project manager (PM) in question, had been in charge of one of his firm's large development teams in India, and a crucial software package release was due the next evening. The coding and testing had been completed several days earlier, and all appeared to be in order. However, while examining the package after office hours, Donald realized that he had not assigned an important coding task – an error recovery routine that would address a certain type of buffer overflow – to any of the team members.The module had been estimated to require four programmer-days' worth of work. However, those hours would be almost impossible to divide so that they could be addressed by more than one worker simultaneously in order to meet the deadline. Donald had noted the task on a hardcopy printout but had neglected to enter it into the project management software's work breakdown list. As the buffer overflow error was a rare one, it was conceivable that the package release would work correctly in most situations, even if the module were not added. However, in those rare situations in which users encountered the buffer overflow without the error recovery routine being in place, the consequences could be disastrous: loss of data and a corrupted database structure.Donald slept fitfully that night. Early the next morning, he tried to perform a contingency analysis to assess his best option for dealing with his oversight. However, the day was filled with meetings and conference calls that demanded Donald's attention. Late in the evening, when the meetings ended and he came back to his office, Donald tried again to focus on the exposure. His first inclination was to call his superiors in the U.S., to tell them about his oversight and to ask for a delay in the rollout so that he could have a team member tackle the error recovery routine.However, before he could even settle into his office, he was pulled into the cafeteria. The team was celebrating the completion of the project with a small party. He was the guest-of-honour. Everyone was in a celebratory mood, and – in the spirit of the moment – Donald decided to go ahead with the rollout. He did not notify the U.S. corporate office about his oversight. The release shipped without the error recovery routine.Just a few days later, one of the firm's large customers and early adopters of the new release encountered the buffer overflow problem, which was quickly traced back to Donald and his team. At that point, Donald reluctantly revealed that he had discovered his oversight before the ship date but had not reported it. He was severely reprimanded, but he was not fired. His superior initiated a backup plan of a patch to be released very soon, and Donald was assigned to another less important project. Donald claims that he learned this lesson: 'priorities are priorities, and nothing in the world – even a celebration – should be able to shake them.'

As the above scenario suggests, PMs and other reporters often face 'pitfalls' associated with reporting 'bad news' on IT projects (e.g. Keil *et al.,* 2014). Reluctance to transmit bad news on IT projects is apparently systemic: one study found that project managers are more than twice

[1]Although based on a composite of actual occurrences, this scenario has been anonymized, and several facts have been changed to simplify the discussion.

as likely to report the status of a project as being better than it really is (vs. worse) (Snow *et al.,* 2007). Indeed, this phenomenon has received much research attention during the past two decades (e.g. Smith *et al.,* 2001; Smith & Keil, 2003; Keil *et al.,* 2004; Keil *et al.,* 2007; Park *et al.,* 2008; Park & Keil, 2009; Park *et al.,* 2009; Keil *et al.,* 2010). However, this prior research stream has by and large focused on reporting problems associated with *others*' actions, and it has assumed that decision-makers were engaging in a *rational calculus* in deciding whether or not to report some heretofore unknown information about an IT project. This study breaks new ground by considering: (a) reporting of *errors that were committed by the decision-maker himself or herself* and (b) the fact that some *factors associated with affective states* may influence decisions that are made about bad news reporting on IT projects. Additionally, we examine the association between a heretofore unexamined individual trait – *conscientiousness* – and reporting decisions.

In this paper, we focus on error reporting, by which we mean an individual's willingness to report his/her *own* error(s) on an IT project. Individuals who commit errors are often reluctant to report them, and this poses a challenge for organizations (Tucker & Edmondson, 2003). One reason for the reluctance to report one's error(s) may be that the costs associated with reporting outweigh the benefits from the perspective of the individual and act as barriers to error reporting. For instance, if one believes that reporting his/her error will result in personal reputational damage (i.e. a cost), then it is not surprising that there would be some reluctance to report the error. Barriers to error reporting may include reprisal, legal actions, an organizational culture of silence, concerns about damage to one's reputation and many other contextual/situational factors.

As was noted by Goes (2013), most information systems (IS) research has relied on an assumption of rational behaviour by decision-makers (sometimes referred to as a 'high effort' or 'central route' cognitive process), and the bad news reporting stream is no exception. However, the disciplines of behavioural economics and psychology remind us that many factors associated with 'low effort' (or 'peripheral route') cognitive processes (Petty & Cacioppo, 1986) can have significant impacts on individuals' decision-making. Such 'central' and 'peripheral' routes are not mutually exclusive; in fact, as a person considers a particular decision, (s)he will embrace some combination of the two, with the proportions varying based on a number of factors and interactions (Petty & Cacioppo, 1986). Because they are always present (even if sometimes shunted to the background) and may actually dominate in some situations, it is reasonable to consider the extent to which such 'low effort' processes may impact decisions about the reporting of errors on IT projects. Therefore, as we consider the manner in which individuals make decisions about reporting their own errors, we also investigate how different moods (i.e. positive vs. negative) influence error reporting decisions in the context of an IT project.

Additionally, we extend the IT bad news reporting research stream by examining the impacts of an innate personality characteristic – conscientiousness – that has heretofore not been considered. This characteristic has been noted as being particularly salient in predicting job performance and, in particular, individuals' proclivities towards, and away from, counter-productive workplace behaviours (Barrick & Mount, 2000).

While reporting errors occur in a wide variety of situations, and while the results of our research may be extended beyond the IT project environment, we chose to situate our study in

this context for several reasons. First, IT has become ubiquitous, and many of the devices we use every day, as well as the organizations for which we work, could not function without it; it is a context that matters and to which everyone can relate in some way. Second, because of the complexity and low observability of tasks/behaviours involved with software development, accurate status reporting plays a key role in controlling IT projects (Kirsch, 1996; Kirsch *et al.,* 2002). However, IT projects are particularly prone to information asymmetry. The intangible nature of software (Reel, 1999) makes it easier to conceal bad news about the project than would be the case for many other types of projects. Because software errors cannot typically be observed in any physical sense, it is possible for many such errors to go unnoticed for a lengthy period of time before being discovered. Further, because it is common to observe more senior executives in the reporting chain who have only limited familiarity with the nature of software development and implementation, it is more likely that quandaries about error reporting would occur in the IT project domain than in many others.

We therefore attempt to answer the following research questions, none of which has received attention in prior IS bad news reporting research:

1 How do individuals decide whether or not to report their own errors on IT projects?
2 In what way do affective states (one driver of low-effort processing) impact individuals' decision-making regarding reporting of their own errors on IT projects?
3 How does the innate personality trait of conscientiousness impact individuals' decision-making regarding reporting of their own errors on IT projects?

The remainder of the paper is organized as follows. First, we offer a brief review of the IS bad news reporting literature and the contribution of our study to that literature stream. Next, we discuss the foundations of our research model and hypotheses. Then, we discuss the experimental procedures and results of this study. Finally, we conclude with a discussion of the implications for research and practice.

BACKGROUND

Since the early 2000s, a substantial body of research has considered factors associated with bad news reporting on IT projects. Especially on troubled IT projects, individuals often become reluctant to transmit bad news to key decision makers with authority to redirect the project; by remaining silent, these individuals contribute to project failure (Smith & Keil, 2003). Much of this work has been grounded in whistleblowing theory (Miceli & Near, 1992), and most studies investigated a variety of organizational and situational factors that may influence an individual's assessment of the project status, reporting responsibilities and willingness to report status information. For example, in the organizational context, Park & Keil (2009) found that when organizations exhibited a climate of inhibiting the transmission of negative information through its structure and practices, individuals were more reluctant to report bad news. In a situational context, Keil *et al.* (2007) showed that when opportunities to attribute problems to an external software vendor existed (i.e. blame-shifting), such opportunities positively influenced individuals' willingness to report bad news.

However, in these studies focused on bad news reporting in IT projects, it has not usually been assumed that the *reporting individual* is responsible for the bad news; rather, it has been assumed that the individual is reporting bad news that is attributed to *others*' actions. Although a few empirical studies in the domain have left the source of bad news unspecified (e.g. Keil *et al.,* 2004), most have attributed the source of negative information to outside entities such as external software vendors (e.g. Park *et al.,* 2008) or fellow employees of the same organization (e.g. Smith *et al.,* 2001). In this study, we further extend research in this domain by considering the reporting of *self-committed* errors (Zhao & Olivera, 2006).

Additionally, while prior research on bad news reporting in IT projects has contributed much to our understanding of the factors that may influence reporting decisions, most studies have been conducted under the (usually hidden) assumption of rationality in decision-making. This assumption is one that is also a common characteristic of much of the broader body of IS research (Goes, 2013). To date, the limited number of studies in the IS literature that consider affective factors have mostly focused on how affect can influence the use of technology (e.g. Beaudry & Pinsonneault, 2010) and human–computer interaction (e.g. Yin *et al.,* 2014) rather than how it can influence critical decision making in IT environments. Even so, the role of some affective factors was noted as a contributing factor to individuals' reporting decisions on IT projects as early as 2003 (Smith & Keil, 2003), although researchers did not pursue that path.

It was also suggested as early as 2003 that personality traits of reporters could impact their reporting decisions (Smith & Keil, 2003), and a few prior studies have investigated some factors. For example, willingness to communicate (Park *et al.,* 2009), risk propensity (Smith *et al.,* 2001), cultural values (Keil *et al.,* 2007) and personal morality (Park *et al.,* 2009) have each been included in a decision-making model within the literature stream. Even so, advancements made through what is emerging as a predominate model of innate personality traits, the 'Big Five' (Goldberg, 1981), have been neglected in the bad news reporting literature. In this study, we consider one of the traits that should arguably exhibit a theoretical linkage with an individual's decision to report his or her own error: conscientiousness. Among the 'Big Five,' conscientiousness is considered a particularly important personality trait that predicts employee performance across almost all general job categories (Barrick & Mount, 1991; Barrick & Mount, 2000; Barrick *et al.,* 2001). More importantly, this factor has been shown to predict (in a converse relationship) 'counterproductive work behaviours' (Barrick & Mount, 2000, p. 21) and 'intentional harmful behaviours at work,' (Barrick & Mount, 2000, p. 22). Further, it is linked to organizational deviance (Berry *et al.,* 2007). Because an individual's decision to avoid reporting his or her error on an IT project could well fall into such categories as 'harmful behaviours' and 'organizational deviance,' conscientiousness appears to be a quite salient trait for consideration in this context.

We note one boundary on the concept of 'errors': while three different types of errors have been identified in the literature (Zhao & Olivera, 2006), for reasons of parsimony we limit our focus here to *slips* that are self-committed. Slips occur when individuals intend to accomplish a desired goal, but the task at hand is not carried out as planned (Rizzo *et al.,* 1987; Zhao & Olivera, 2006). Slips are generally caused by internal or external distractions and commonly occur in everyday life and in the workplace (Zhao & Olivera, 2006). Although we are unaware of any research assessing the frequency and severity of errors in IT projects, it has

been noted that, in general, slips occur more frequently and are more likely to be detected by the individual committing the error than are other types of errors (i.e. rule-based errors or knowledge-based errors) (Rizzo *et al.,* 1987). Therefore, because this is the first study to examine self-committed error reporting, it makes sense to focus on them. Further, we argue that the complexity of IT projects makes them particularly susceptible to such slips, because team members and PMs may frequently be overwhelmed by large and small 'to do' items while working on multiple projects simultaneously and may simply overlook some important tasks. Consequently, in this initial study of error reporting on IT projects, we have limited our focus to slips.

RESEARCH MODEL

As explained above, while many factors have been identified in the literature as potentially influencing an individual's willingness to report an error, we specifically focus on the impacts of mood and conscientiousness. Our research model is depicted in Figure 1 and is grounded in the literature on affect, personality, error reporting and bad news reporting on IT projects.

Influencing factor – mood

Moods are positively or negatively valenced affective states that are of low intensity, enduring and without a clear referent (i.e. what the mood is about) (Forgas, 1992; Schwarz & Clore, 1996). Research has shown that moods can impact the perceptions, judgements and decisions of individuals (Isen *et al.,* 1988; Schwarz & Clore, 1996). Not only are they an essential component of social life, but they also play a crucial role in organizations and work settings, mainly because of the pervasiveness and influence they have on work-related behaviours (Forgas & George, 2001).

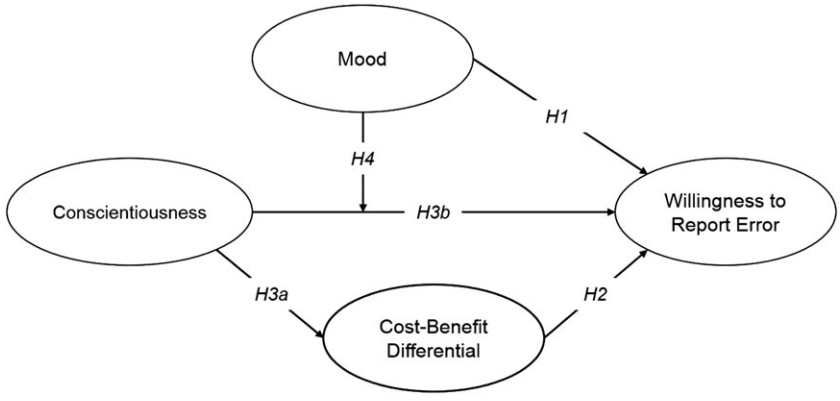

Figure 1. Research model.

According to the mood-behaviour model (MBM), moods can impact behaviour by influencing one's behavioural preferences (Gendolla, 2000). These behavioural preferences are guided by one's hedonic motive – that is, individuals are oriented to prefer behaviours that result in more positive or less negative mood states and to avoid behaviours that result in less positive or more negative mood states (Taylor, 1991; Higgins, 1997; Gendolla, 2000). When behaviours involve hedonic consequences, individuals will behave in the direction that maximizes positive affect and minimizes negative affect. However, the consideration of hedonic consequences may differ depending on one's mood state. Wegener & Petty (1994) suggest that, relative to individuals in a negative mood, individuals in a positive mood are more sensitive to hedonic consequences of behaviour when making behavioural decisions (i.e. hedonic contingency hypothesis). Through a series of experiments, they found that individuals in a positive mood expressed more preference towards choosing subsequent activities (i.e. choosing a video to view) based on its affective quality (i.e. whether the video would be pleasant or not) relative to those in a negative or neutral mood (Wegener & Petty, 1994).

Based on the above, we posit that an individual's mood will have influence on his or her willingness to report a self-committed error–more specifically, individuals in a positive mood will be less willing to report a self-committed error relative to individuals in a negative mood. Error reporting may result in severe negative consequences (e.g. damage to one's reputation, legal actions or even job loss) to the reporter (Zhao & Olivera, 2006). The anticipated negative consequences associated with error reporting may put the reporter in a more negative affective state. Because individuals in a positive mood (relative to individuals in a negative mood) are more sensitive to the affective qualities of their actions, they will be more concerned about the unpleasant feelings derived from the anticipated negative consequences of error reporting, which in turn may lead to greater reluctance to report a self-committed error. Thus:

H1: Individuals in a positive mood will be less willing to report a self-committed error relative to individuals in a negative mood.

Cost/benefits and reporting

Keil *et al.* (2010) found that when individuals perceived more benefits than costs associated with bad news reporting, they were more willing to report. Although the impact of perceived costs and benefits has not been empirically tested in the context of self-committed error reporting, Zhao & Olivera (2006) suggest that the decision to report one's error will involve a careful evaluation of the costs and benefits. That is, individuals will weigh the perceived benefits and costs associated with error reporting and will make their decision accordingly. Thus, we state the following hypothesis:

H2: Individuals who perceive more benefits relative to the costs of error reporting will be more willing to report their error.

Individual trait – conscientiousness

Personality traits are well known for affecting employee performance and workplace behaviours, and they have been studied by researchers in psychology (Costa *et al.,* 1987; Tett & Burnett, 2003), organizational behaviour (Heller *et al.,* 2002), management (Segal, 2012), and IS. Considerable attention has been placed on the 'Big Five' personality traits, and – as noted earlier – we focus on one of these in our study: conscientiousness. Highly conscientious individuals tend to be persistent, hardworking, achievement striving, dependable, careful, thorough and organized (Barrick & Mount, 1991). Conscientiousness has been shown to be significantly related to better employee performance (Barrick & Mount, 1991). We derive hypotheses predicting conscientiousness will be associated with individuals' assessments of cost/benefits and willingness to report their own errors on an IT project.

Cost/benefits

One major aspect of conscientiousness is a sense of duty that tends to make highly conscientious individuals act on behalf of others rather than maintain a self-centred focus (Moon, 2001). Podsakoff *et al.* (2000) observed that highly conscientious individuals demonstrate altruism, which is positively related to organizational citizenship, and Van Dyne *et al.* (1995) argue that conscientious individuals will tend to be more inclined to show selfless behaviours. Therefore, we expect that highly conscientious individuals will perceive more benefits relative to the costs associated with error reporting. Because of their sense of duty and their selfless nature, highly conscientiousness individuals will be more sensitized to the organizational benefits of error reporting and less sensitive to the costs, which likely accrue only to themselves. Hence, we hypothesize:

H3a: Individuals who are highly conscientious will perceive more benefits relative to costs of reporting a self-committed error.

Error reporting

Barrick & Mount (1991) posit that highly conscientious individuals have a strong sense of purpose and obligation, and they usually follow the rules: they have a 'tendency to adhere to standards and principles' (Junglas *et al.,* 2008, p. 392), to comply with existing rules (Barrick & Mount, 2000), and they strive to be 'team player[s]' (Barrick & Mount, 2000, p. 22).

High conscientiousness is closely correlated with organizational citizenship (Konovsky & Organ, 1996), which is defined as 'behaviour that contributes to the goals of the organization' (Barrick & Mount, 2000, p. 21). (For an overview of organizational citizenship and its dimensions, see Borman *et al.,* 2001.) At the same time, high conscientiousness is negatively correlated with 'intentional harmful behaviours at work' (Barrick & Mount, 2000, p. 21), and with organizational deviance, defined as 'deviant behaviours targeted towards the organization' (Berry *et al.,* 2007, p. 410). Examples of such deviant behaviours are given in the literature as 'intentionally working slowly' and 'damaging company property' (Berry *et al.,* 2007, p. 410).

Looking across these depictions of highly conscientious individuals, we find a profile of employees who follow the rules, who attempt to further the goals of the organization, and who

avoid behaviours that are inconsistent with organizational expectations. Thus, in addition to their calculus regarding cost/benefits (as in H3a), highly conscientious individuals will likely view organizational expectations as trumping any other factors. They will therefore comply with what can reasonably be assumed to be the action that will best further their organization's objective: reporting their own error. Thus, we hypothesize:

H3b: Individuals who are highly conscientious will be more willing to report a self-committed error.

The moderating role of mood

In the section Influencing factor – mood, we argued that an individual's mood would have a direct effect on his or her willingness to report a self-committed error by relying on the association between current and future affective states. While such a theory addresses the direct effect, it is inadequate to explain the more complex moderating effect of mood on the relationship between conscientiousness and willingness to report. To explain that moderating effect, we turn to a concept from psychology known as the elaboration likelihood model (ELM) (Petty & Cacioppo, 1986).

The ELM posits that an individual makes decisions about his or her actions through a mixture of high-effort (highly engaged cognitive) and low-effort (less engaged cognitive) processes.[2] Many of the factors that drive low-effort processing are of an affective nature – that is, they are grounded in either strong emotions (e.g. anger) or mood (e.g. happy or sad). Several studies examining positive moods found evidence that individuals in a positive mood relied more on simplistic, heuristic processing of information relative to individuals in a negative mood (Isen & Means, 1983; Mackie & Worth, 1989; Schwarz & Bless, 1991). It has been generally found that a positive mood reduces an individual's cognitive processing capacity (i.e. capacity reduction hypothesis) or processing motivation because of intruding positive thoughts (Schwarz & Clore, 1996; Bless & Schwarz, 1999). On the other hand, negative moods are generally associated with a more substantial, systematic processing of information (Schwarz & Clore, 1996). In situations of uncertainty and risk, negative moods may 'trigger increased focus' to reduce the uncertainty (Blay *et al.,* 2012, p. 81), thus motivating the decision maker to engage in more effortful, systematic processing of information (Blanchette & Richards, 2010). In short, individuals in sad moods tend to engage in high-effort cognitive processing, whereas individuals in happy moods rely more on heuristics and biases.

Based on the perspective that an individual's mood state can influence his or her information processing strategy, we theorize that mood will moderate the effect that conscientiousness has on an individual's willingness to report a self-committed error. In error reporting situations, individuals in a negative mood are more likely to adopt a thorough, effortful information processing strategy for making error reporting decisions, thus limiting the effect of their own innate

[2]Although some researchers have referred to the low-effort route as 'irrational,' this is not strictly accurate, because many decisions on the low-effort path are rational, even if affective factors play a role.

personality traits. Accordingly, we expect that a negative mood will weaken the influence of conscientiousness on willingness to report error. On the other hand, because individuals in a positive mood rely on less effortful, simplistic information processing strategies for assessing the error reporting situation, we expect that a positive mood will strengthen the influence of conscientiousness, because such individuals will expend less cognitive energy implying that their decision will be driven more by their innate personality traits. Thus, we hypothesize:

> **H4**: Mood moderates the relationship between conscientiousness and willingness to report error such that the effects of conscientiousness are stronger when individuals are in a positive mood than when they are in a negative mood.

RESEARCH METHODOLOGY

In order to test our research model, we conducted a scenario-based laboratory experiment. Internal validity was our primary concern as we sought to test the causal relationships depicted in our research model. By examining the hypothesized relationships in a controlled experimental setting, we were able to achieve high internal validity. The experiment involved a one-factor, two-cell design with mood being manipulated at two levels (i.e. positive or negative). A series of pilot tests were conducted to refine the experimental treatments and measures and to test the laboratory environment used in this study. More specifically, the first pilot was focused on testing the set of candidate film clips for our mood manipulation and identifying the most effective film clip for inducing positive/negative moods. During the second pilot, we focused on: (1) refining the scenario to ensure that subjects found it understandable, (2) validating the measures used in this study to ensure they demonstrated sufficient construct validity and reliability and (3) integrating the mood manipulation into the experimental instrument. Finally, the third pilot was conducted with a focus on creating a laboratory environment in which distractions caused by other subjects were minimized while administering the film mood induction procedure. It was possible that the mood manipulations might be weakened because of different reactions to the two film clips (e.g. laughing out loud for the positive mood induction vs. crying out loud for the negative mood induction). Furthermore, subjects' reactions were different in terms of intensity while watching the *same* film clip (e.g. laughing out loud vs. giggling quietly for the positive mood induction), which might influence the mood manipulation of other subjects. Therefore, we unified the treatment for each lab session, and chose a laboratory environment with individual cubicles, workstations and headphones to minimize distractions caused by other subjects. Students from a university in the southeastern U.S. were recruited to participate in the pilot testing and the final experiment.

Mood manipulation and manipulation checks

We manipulated the subjects' mood using the film mood induction procedure (MIP). Among the various MIPs (e.g. Velten MIP (Velten, 1968), which involves reading aloud statements

progressing from a relatively neutral mood to a negative mood), imagination MIP (Schwarz & Clore, 1983), music MIP (Sutherland *et al.,* 1982), the film MIP is considered to be reliable and particularly successful in mood induction (Martin, 1990; Westermann *et al.,* 1996) and has been adopted in many studies (Wegener & Petty, 1994; Sanna *et al.,* 1999; Sy *et al.,* 2005; Forgas, 2011). In the positive mood condition, subjects watched a humorous clip from the film *Planes*, *Trains and Automobiles*, which lasted for approximately 6 min. In the negative mood condition, subjects watched a sad clip from the film *The Champ*, which lasted for approximately 7 min.

For manipulation checks, we followed the approach of Watson (1988) by asking the subjects to indicate their current feelings through rating a series of positive and negative adjectives. More specifically, we used seven positive and seven negative adjectives from Sanna *et al.* (1999) which had been adapted from Watson (1988). The positive adjectives used were *happy*, *glad*, *satisfied*, *pleased*, *relieved*, *content* and *delighted*. The negative adjectives were *sad*, *depressed*, *gloomy*, *disappointed*, *annoyed*, *miserable* and *frustrated*. Each adjective was rated by the subjects using a seven-point semantic differential scale which ranged from 'not at all' (1) to 'very much' (7).

Scenario and measures

The experimental instrument consisted of a short scenario describing a troubled IT project involving the implementation of an electronic health record (EHR) software product. Subjects were asked to assume the role of an IT staff member in a community health centre (see Appendix A) who is responsible for developing code for the integration of the EHR product and the existing billing system. The scenario was created to be as realistic as possible and is consistent with reports in the health information technology literature suggesting that integration between billing and EHR software can yield financial benefits (Miller & Sim, 2004). In the specific scenario that we used, the subject discovers two days before the EHR product is turned on and the old system is shut down, that (s)he has neglected an essential piece of code (i.e. the error), which will affect the system's performance. To ensure the error reflected a slip (Zhao & Olivera, 2006), the scenario described the code as being neglected because of several unexpected distractions on the day the subject was scheduled to complete the task.

With regards to the measures, we adapted three measures for willingness to report error from Park *et al.* (2008). To capture the perceived benefits relative to costs, we followed Keil *et al.*'s (2010, p. 791) approach by adapting their cost–benefit differential construct (which is defined as 'the net difference between the perceived costs and expected benefits' of error reporting). Four items were used to measure cost–benefit differential. For the conscientiousness measures, we adopted four items from the Mini-International Personality Item Pool (Mini-IPIP) (Donnellan *et al.,* 2006) which is considered to be psychometrically acceptable and has been successfully used in several studies (Grant & Berry, 2011; Grant *et al.,* 2011; Richards & Schat, 2011). All items were based on seven-point Likert scales, with the willingness to report error anchors ranging from 'very unlikely' (1) to 'very likely' (7), and the conscientiousness anchors ranging from 'very inaccurate' (1) to 'very accurate' (7). The measures for conscientiousness,

cost/benefit differential and willingness to report error are shown in Appendix B, along with the descriptive statistics.

Procedure

Subjects arrived at the laboratory, and each subject was directed to sit in a cubicle that was equipped with an individual workstation and a headphone for the film MIP. A group of 15–25 subjects participated in each experiment session. At the beginning of each session, subjects were told that this was an experimental study on business decision making and that they would be rewarded $10 for their participation. While subjects were randomly assigned to the two treatment conditions, each session focused on one of the two treatments (i.e. positive or negative mood). This was done to prevent any possible distractions that might have arisen from subjects who received a different treatment.

The experimental procedure consisted of two parts. In the first part, subjects were asked to watch a film clip corresponding to their respective treatment group. The playback of the film clip was controlled by a central workstation for two reasons: (1) to ensure that subjects started and finished watching the film at the same time and (2) to ensure that subjects did not skip portions of the film. After watching the film clip, subjects were asked to rate a series of adjectives as a mood manipulation check. In the second part, subjects were asked to read the experimental scenario (shown in Appendix A) carefully and to complete a questionnaire that measured their willingness to report the error, their perceptions of the cost–benefit differential associated with reporting the error, and their self-assessment of conscientiousness. They were also asked to provide basic demographic information. After all subjects completed the experimental procedure, they were rewarded with $10 as they left the laboratory.

Subjects

A total of 102 undergraduate students enrolled at a large urban university in the southeastern U. S. were recruited for this experiment. The average age of the subjects was 20.9 years, and the average work experience was 1.6 years. Approximately 42% of the subjects were male (43), and 58% were female (59).

Attention has been focused recently on student subjects in the overall IS research domain (Compeau *et al.,* 2012). Keil *et al.* (2007) provide an extensive discussion of the appropriateness of student subjects in the immediate domain of experiments involving bad news reporting on IT projects. They argue, in line with Calder *et al.* (1981), that the following question is essential in assessing whether student subjects are acceptable for a given study: Is the objective of the research ‘effects application’ (findings that can be applied directly to a situation in the real world) or ‘theory application’ (scientific theory that provides a general understanding of the real world)? For studies that focus solely on ‘effects application,’ student subjects are usually inappropriate. For those that focus on ‘theory application,’ ‘data from student subjects are acceptable, even if they would differ from non-student responses’ (Keil *et al.,* 2007, p. 70).

In this study, the objective is furtherance of theoretical development regarding willingness to report self-committed errors on IT projects, specifically in the context of varying mood states

and in consideration of an individual trait. Therefore, based on the argument proffered by Keil *et al.* (2007), student subjects are appropriate for this study.

RESULTS

Manipulation checks and descriptive statistics

We conducted manipulation checks following Sanna *et al.*'s (1999) approach to ensure that the mood manipulation was effective. A mood index was created by reverse coding the ratings of the seven negative adjectives (Cronbach's $\alpha = 0.927$) and averaging them with the ratings of the seven positive adjectives (Cronbach's $\alpha = 0.834$). The mean difference between the positive mood ($n = 52$, $M = 5.22$) and the negative mood ($n = 50$, $M = 3.30$) condition was significant and in the expected direction (F (1, 100) = 107.40, $p < 0.001$), indicating that the mood manipulations were effective.

Table 1 shows the means, standard deviations and zero-order correlation of all variables in this study. Willingness to report error was found to be significantly correlated with mood, conscientiousness, and cost–benefit differential. Additionally, conscientiousness was significantly correlated with cost–benefit differential.

Partial least squares analyses

Partial Least Squares (PLS) analysis with SmartPLS 2.0 (Ringle *et al.,* 2005) was used to validate the psychometric properties of our measures and to test the paths hypothesized in Figure 1. We chose PLS because it permits the modeling of latent variables and the simultaneous assessment of the measurement and structural models, while placing minimal demands on sample size and distributional assumptions (Chin, 1998). Additionally, we chose PLS to accommodate the mediating and moderating relationships in our research model. We first examined the psychometric properties of our measures through the measurement model, and we then tested our hypotheses through the structural model. The two-stage approach (Chin *et al.,* 2003; Henseler & Fassott, 2010) was used to estimate parameters and to assess the significance of the moderation effect (i.e. mood moderating the relationship between conscientiousness and willingness to report error) as recommended by Henseler & Chin (2010). In the

Table 1. Means, standard deviations and zero-order correlations

	Variable	Mean	SD	1	2	3	4
1.	Mood***			—			
2.	Conscientiousness	5.142	1.204	−0.088	—		
3.	Cost–benefit differential	4.647	1.346	−0.035	.209*	—	
4.	Willingness to report error	5.503	0.994	−0.354**	.282**	.301**	—

Note
SD = standard deviation.
***Experimetally manipulated between subjects.
*$p < 0.05$.
**$p < 0.01$.

first stage, we ran the PLS model with main effects to obtain the latent variable score (LVS) estimates. Using the LVS estimates, we modelled the moderation effect by creating a product term of mood and conscientiousness in the second stage. This product term and the LVS for all other constructs were then used to run the PLS path model.

Measurement model

We examined standardized loadings to assess convergent validity of our reflective constructs. To ensure that the variance between each item and the associated construct exceeds the error variance, it is suggested that the standardized loadings (shown in Table 2) should exceed 0.707 (Carmines & Zeller, 1979). However, it is still acceptable for a measure to have a loading of 0.6 or higher if all other measures associated to the same construct have high loadings (Chin, 1998). With the exception of two measurement items – CON1 and WTR2 – all of our measures exceeded the 0.707 threshold. While the loadings associated with CON1 and WTR2 were 0.638 and 0.673, respectively, we decided to retain both items for reasons of content validity.

In order to assess the internal consistency of our measures for each construct, we examined Cronbach's alpha, composite reliability and average variance extracted for each construct. For Cronbach's alpha and composite reliability, it is suggested that values of 0.7 or higher are adequate (Yi & Davis, 2003). As seen in Table 2, with the exception of willingness to report error (Cronbach's $\alpha = 0.663$), all values were above 0.757. With regard to AVE, Fornell & Larcker (1981) suggest that values should exceed 0.50 to ensure that more variance is captured by the measures relative to measurement error. AVEs for all constructs were 0.569 or higher. Given the assessment of convergent validity, all measures were retained for subsequent analysis.

To assess discriminant validity, we first examined the item loadings and cross-loadings on each construct. As shown in Table 3, all measures had higher loadings for the intended construct than other constructs, providing evidence of discriminant validity. Additionally, we calculated the squared correlation of all construct pairs and compared it with the AVE of each construct to ensure that more variance associated with each construct is captured by its indicators rather than the indicators of other constructs (Fornell & Larcker, 1981). As shown in Table 4,

Table 2. Item loadings and construct measurement properties

Construct	Item	Standardized loading	Cronbach's alpha	Composite reliability	Average variance extracted
Conscientiousness	CON1	0.638	0.758	0.839	0.569
	CON2	0.717			
	CON3	0.791			
	CON4	0.854			
Cost–benefit differential	CBD1	0.849	0.837	0.888	0.665
	CBD2	0.785			
	CBD3	0.852			
	CBD4	0.772			
Willingness to report error	WTR1	0.821	0.663	0.809	0.588
	WTR2	0.673			
	WTR3	0.798			

Table 3. Item loadings and cross-loadings

Construct		Item	1	2	3
1.	Conscientiousness (CON)	CON1	**0.638**	0.076	0.104
		CON2	**0.717**	0.205	0.214
		CON3	**0.791**	0.215	0.230
		CON4	**0.854**	0.197	0.340
2.	Cost–benefit differential (CBD)	CBD1	0.324	**0.849**	0.299
		CBD2	0.115	**0.785**	0.278
		CBD3	0.202	**0.852**	0.299
		CBD4	0.072	**0.772**	0.211
3.	Willingness to report error (WTR)	WTR1	0.279	0.294	**0.821**
		WTR2	0.162	0.089	**0.673**
		WTR3	0.272	0.342	**0.798**

Table 4. AVEs vs. squares of correlations between constructs

Construct	Average variance extracted	CON	CBD	WTR
CON	0.569	—		
CBD	0.665	0.060	—	
WTR	0.588	0.103	0.116	—

the AVE for each construct exceeded the squared correlation of all construct pairs, providing further evidence of discriminant validity.

Based on the assessment of convergent and discriminant validity, we concluded that the measurement model was sufficiently robust to allow us to proceed to evaluation of the structural model.

Common method bias analyses

Because conscientiousness, cost–benefit differential and willingness to report error were obtained using the same experimental instrument, we conducted two different tests to examine common method bias in our data.[3] The first test we conducted was Harman's single-factor test (Podsakoff *et al.,* 2003). We conducted an exploratory factor analysis with all items used to measure the main variables in our study. The unrotated factor solution produced three factors with eigenvalues greater than 1, and together they explained 63.5% of the variance in the data. The first extracted factor accounted for 32.2% of the variance in the data. These results suggest that common method bias is unlikely to be a significant problem in our data, given that more than one factor emerged from the factor analysis and that the first factor did not account for the majority of the variance in our data.

[3]Mood is not susceptible to common method bias because it was experimentally manipulated in this study. Therefore, it was excluded from the tests of common method bias.

The second test we conducted was based on the unmeasured latent method factor approach suggested by Podsakoff *et al.* (2003) and Liang *et al.* (2007), which involved converting all observed indicators into single-indicator constructs and linking them to a method factor associated with all indicators in the PLS measurement model. We compared the variance explained by the substantive constructs vs. the variance explained by the method factor. The results (shown in Appendix C) indicated that the average variance explained by substantive constructs was 0.633, while the average variance explained by the method factor was 0.024 (i.e. a ratio of 26:1). Moreover, most of the factor loadings for the method factor were insignificant. Given the small magnitude of the method variance in addition to the insignificant factor loadings, we concluded that common method bias was not a significant concern in this study.

Structural model

Before testing our hypotheses, we assessed the explanatory power of our structural model by examining the R^2 value of the final dependent variable. The R^2 for willingness to report error was 0.32, indicating that 32% of the variance was accounted for. This is comparable to some prior studies that have used similar methods to examine willingness to report bad news. For example, R^2 values reported by Smith *et al.* (2001) and Park *et al.* (2008) for willingness to report bad news were 0.24 and 0.34, respectively. The R^2 for cost–benefit differential was 0.06, which indicates that only 6% of the variance has been explained by conscientiousness. While this percentage appears small, it must be remembered that our objective was not to provide an exhaustive explanation of factors affecting individuals' assessments of costs and benefits; rather, cost–benefit differential is included as an intermediate variable as our model's ultimate dependent variable is willingness to report. It is quite likely that a large number of other factors combine to explain individuals' assessments of costs and benefits (for example, other personality traits, as well as many situational and contextual factors).

To test *H1–H4*, we assessed the structural model by examining the path coefficients and their significance levels, which were obtained by using the two-stage approach in PLS. First, we computed the path coefficients using the entire sample. Next, to obtain the *t*-values

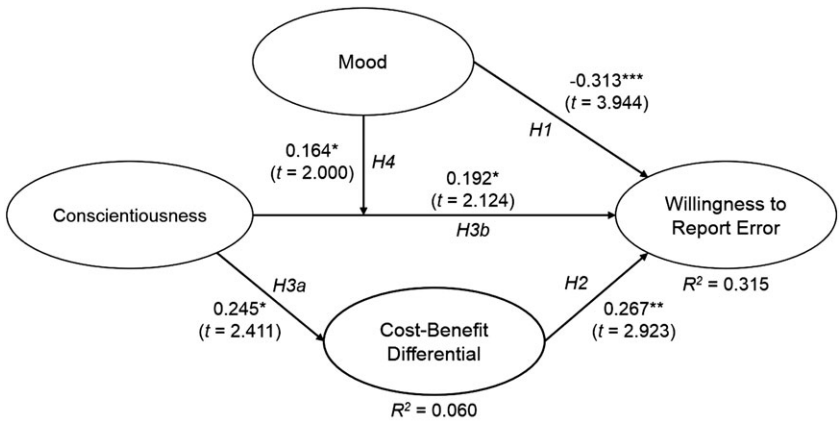

Figure 2. Structural model results.

associated with each path, we applied the bootstrapping method with 1000 resamples (results shown in Figure 2). During these processes, we controlled for gender for willingness to report error but did not find any significant effect. As shown in Figure 2, mood had a significant negative effect on willingness to report error ($\beta = -0.31$, $p < 0.001$). Specifically, individuals in a positive mood were less willing to report their error than individuals in a negative mood, thus supporting *H1*. There was a significant positive effect of cost–benefit differential on willingness to report error ($\beta = 0.27$, $p < 0.01$), supporting *H2*. Individuals who perceived the benefits of reporting to outweigh the costs were more willing to report their error. *H3a* was also supported, as conscientiousness had a significant positive effect on cost–benefit differential ($\beta = 0.25$, $p < 0.05$). Individuals who are more conscientious perceived the benefits to be greater than the costs associated with reporting an error. Conscientiousness had a significant positive effect on willingness to report error ($\beta = 0.19$, $p < 0.05$). Specifically, individuals with high conscientiousness were more willing to report their error than individuals with low conscientiousness, thus supporting *H3b*.

H4 concerned the moderating role of mood on the relationship between conscientiousness and willingness to report error. Using the results obtained from the two-stage approach in PLS, we examined the product term between mood and conscientiousness for testing moderation. This product term was significant ($\beta = 0.16$, $p < 0.05$), thus providing support for *H4*. Figure 3 illustrates the moderating effects of mood on the relationship between conscientiousness and willingness to report error, while holding the effects of cost–benefit differential at its mean value. Following the approach suggested by Aiken & West (1991), we tested whether the simple slopes differed from zero. The results (as shown in Table 5) indicated that when individuals were in a positive mood, there was significant positive relationship between conscientiousness and willingness to report error ($\beta = 0.27$, $p < 0.01$). On the contrary, there was no significant relationship between conscientiousness and willingness to report

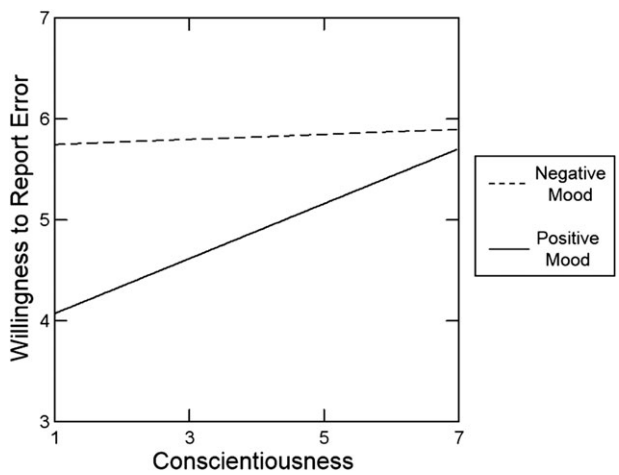

Figure 3. Interaction plot showing the moderating effect of mood on the relationship between conscientiousness and willingness to report error.

Table 5. Test of simple slopes

	Conscientiousness	*SE*	*t*-Value	95% confidence interval	
				Lower	Upper
Positive mood	0.272**	0.096	2.817	0.080	0.463
Negative mood	0.025	0.111	0.222	−0.196	0.246

Note
**$p < 0.01$.

error when individuals were in a negative mood ($\beta = 0.16$, $p < 0.05$). The findings suggest that conscientiousness has a greater effect on willingness to report error when individuals are in a positive mood. In other words, individuals who are in a positive mood are more strongly affected by how conscientious they are as compared to individuals who are in a negative mood. Because individuals in a negative mood are more likely to engage in effortful systematic assessments of the error reporting situation, the influence of conscientiousness on error reporting decisions may be lessened.

Because we hypothesized that conscientiousness would positively influence cost–benefit differential (*H3a*) which in turn would positively influence willingness to report error (*H2*), we conducted a mediation test using the Shrout & Bolger (2002) approach to examine how much of the influence of the independent variable (IV) on the final dependent variable (DV) was expressed through the mediator. As shown in Table 6, conscientiousness has a significant total effect on willingness to report error ($\beta_{total} = 0.209$, $p < 0.01$). When the mediator (i.e. cost–benefit differential) is introduced, conscientiousness still remains significant, indicating partial mediation. The indirect effect (i.e. described by the product of point estimates for the CON-CBD and CBD-WTR paths) mediated through cost–benefit differential was 0.042, with a bias corrected 95% confidence interval (CI) of 0.008 to 0.120. Because the CI does not contain zero, this indicates that cost–benefit differential plays a significant mediating role. We also calculated the proportion of the effect that was expressed through the mediator as suggested by Shrout & Bolger (2002) by computing the ratio of the indirect effect over the total effect. We obtained a value of 0.20, which indicates that 20% of the effect of conscientiousness is mediated through cost–benefit differential, while 80% is captured through the direct effect.

Table 6. Mediation analysis following Shrout & Bolger's (2002) approach

Total effect of IV on DV		Direct effect of IV on DV			Indirect effect BC*** 95% confidence interval	
Coefficient	*t*-Value	Coefficient	*t*-Value	Product of point estimates† (a x b)	Lower	Upper
0.209**	2.778	0.166*	2.236	0.042	0.008	0.120

Note
***Bias corrected confidence interval.
*$p < 0.05$.
**$p < 0.01$.
†a and b indicate the point estimate for the CON - > CBD and the CBD - > WTR path, respectively.

DISCUSSION

Having presented the results of our analysis, we now consider implications for research and for practice. We also discuss some limitations of this study and how they might also inform future research initiatives.

Implications for research

Prior research on bad news reporting has focused on errors committed by *others*. This study breaks new ground by examining the factors that influence reporting of *self-committed* errors. To the best of our knowledge this is also the first attempt to investigate the role of affective states and conscientiousness in either of these contexts. The main contributions of our study are: (1) providing and testing a model for explaining individuals' decisions regarding the reporting of self-committed errors on an IT project, (2) empirically demonstrating that an individual's mood influences such reporting decisions, (3) showing that conscientiousness affects willingness to report error both directly and indirectly (through the assessment of costs and benefits associated with error reporting) and (4) providing evidence that mood moderates the relationship between conscientiousness and willingness to report errors.

We found that people in a positive mood were less willing to report their errors, while highly conscientious people were more willing to report theirs. The effect of conscientiousness was partially mediated through cost–benefit differential. Additionally, we found mood to moderate the relationship between conscientiousness and willingness to report error.

Our model does not purport to be an exhaustive one, however, and this study is best viewed as the first step on a path that seeks greater understanding of the linkages between various factors and decisions associated with reporting self-committed errors on IT projects. Other researchers can build upon the findings and test the model with IS practitioners who are likely to face the decision of reporting a self-committed error. This would strengthen the generalizability of our findings by demonstrating whether IS practitioners exhibit similar reporting behaviour and variance in terms of conscientiousness relative to the subjects used in our study. Furthermore, the model can be extended by considering other affective states, other factors that may influence error reporting, and other mediating/moderating mechanisms that may lend additional insight into the cognitive processes through which such decisions are made. We highlight some potential avenues in each of these categories.

Other affective states and other affective impacts

As we noted earlier, moods are only one form of affect, with emotions constituting the other major category. Moods have no immediate referent, but emotions do (e.g. one is angry at *someone* or *something*). Obviously, one extension of this study would be the incorporation of emotions as an alternative form of affect. Although mood induction is usually viewed as fairly simple, induction of emotions is often more complex (e.g. Lobbestael *et al.,* 2008). There is also some evidence that the effects of moods and emotions on individuals' information processing and decision-making may not always be strictly symmetric (e.g. Mitchell *et al.,* 2001; Nabi, 2002), so researchers are cautioned to explore other induction methods carefully.

In this study, we bounded the model by assuming that a subject had committed an error and was now confronting a reporting decision. The model may well be extended by considering the impacts of various factors (affective, trait-based or situational) on individuals' error detection processes themselves. For example, it might be conjectured that individuals who are in a sad mood state would more readily detect their own errors or others' reporting mistakes. To the best of our knowledge, little prior research has been conducted in this domain, but it does appear to be a fruitful avenue for future work. Relatedly, future research might also consider the affective responses that could result from error detection or from the process of making an error reporting decision. For instance, error detection may arouse an individual's feelings of guilt because his/her error can lead to system failure. One avenue for future research may involve taking into consideration the affective responses from post-error detection and investigating how this interacts with pre-error detection moods in influencing error reporting decisions in IT projects. Furthermore, the literature on IS bad news reporting suggests that not only the affective responses of the *reporter* but also those of the *recipient* may influence reporting decisions (Smith & Keil, 2003). Future research may take into account the potential affective responses of the recipients in error reporting situations.

Also, as the first such study to be conducted in this domain, we focused on slips – which occur more frequently and are more likely to be detected than are other types of errors (Rizzo *et al.,* 1987). However, there are two other types of errors (Reason, 1990) that could conceivably be observed on IT projects: rules-based mistakes, which 'happen when well-known rules or procedures are wrongly applied in familiar, or so presumed, situations' (Zhao & Olivera, 2006, p. 1014) and knowledge-based mistakes, which 'occur when people are not able to properly analyse a problem or recognize the relations among its elements' (Zhao & Olivera, 2006, p. 1014). Although it is likely that these types of errors occur less frequently on IT projects than do slips, it would nevertheless behoove researchers to expand the model to consider these distinct types of errors in future studies.

Other influencing factors

As the first study to consider factors that may influence the reporting of self-committed errors on IT projects, the present initiative obviously faced a research domain that lacks strong theory. Consequently, we were forced to rely on related bases of research theory and to engage in our own logical argumentation in choosing the factors to include in our initial model.

Of course, many other factors could be included in expansions of our model. Obviously, a large number of additional personality traits might also be considered. Conscientiousness, considered in this study, is only one of the 'Big Five' personality traits; four others (neuroticism,[4] extraversion, openness to experience and agreeableness) are often considered by psychologists (Judge *et al.,* 2002). Although one might be able to interpret some conjectures by other authors regarding neuroticism (e.g. Barrick & Mount, 2000) as providing some insight into individuals' decisions regarding error reporting, we are unaware of previous theory that would provide any guidance regarding hypotheses for the other three traits. Even so, enterprising researchers may wish to include more of the 'Big Five' traits in future models.

[4]Neuroticism is sometimes called emotional stability.

Additionally, other personality factors that go beyond the 'Big Five' might also be included. For example, paranoia (Fenigstein, 1994) could well be associated with individuals' assessments of probable blame for self-committed errors, and it could therefore influence cost/benefit calculations as well as reporting decisions. An individual trait known as need for cognition has also been postulated to drive individuals towards high-level cognitive processing (Cacioppo & Petty, 1982). It has also been suggested – albeit for a different but related domain (Miceli & Near, 1992) – that other personality traits such as tolerance for ambiguity (MacDonald, 1970), level of moral judgement development (Kohlberg, 1969), self-esteem (Graham, 1986) and locus of control (Rotter, 1966; Spector, 1982) could impact reporting decisions. While additional theoretical development would be required prior to inserting these traits into a model associated with self-committed errors, they stand as viable constructs meriting additional consideration.

Other mediating/moderating mechanisms

While this study considered mood as an affective factor that can cause greater or lesser cognitive effort to be expended in decision-making, the ELM (Petty & Cacioppo, 1986) considers many other factors that could similarly impact the level of effort and, hence, the ultimate reporting decision. For example, it has been argued that distraction will have a much more pronounced effect in high-effort cognitive processing situations than in low-effort situations (Petty & Brock, 1981). Relatedly, time pressure – a subject believing that (s)he must make a decision quickly – is likely to lead to low-effort cognitive processing (Bitner & Obermiller, 1985). This list of factors is obviously not an exhaustive one, but it does suggest that many other factors may mediate or moderate the relationships in the model.

Implications for practice

As noted above, the primary objective of this research was to investigate an initial *theoretical* model that was intended to explain some of the decision-making associated with reporting of self-committed errors on IT projects. Even so, the results of our study suggest several practical implications for individuals who are deciding whether to report a self-committed error and for managers who may be the recipients of such reports. The key concept for both of these entities is that of *awareness* of the importance of various factors in these decisions.

Implications for reporters

Individuals who find themselves in the situation of having committed an error should recognize that their own mood could impact their thinking about the error and their decision regarding reporting. In particular, individuals may be reluctant to report an error if they are in a positive mood, and they should be especially alert to their decision-making during such situations. At the same time, it is conceivable that an especially negative mood state could lead them to over-examine a decision and/or to report an error that was so trivial as to be meaningless. Thus, for individuals who recognize they are in either a happy or sad mood state and who face a reporting decision, it may be desirable to postpone the decision until they are in a more neutral mood state.

Relatedly, individuals who know themselves to be less conscientious should consider how that trait may be influencing their decision-making, particularly in positive mood states. For these individuals, particular caution is appropriate during times of elation as that is when reporting tendencies may be especially inhibited.

Implications for managers

For managers who are on the receiving end of the error reporting relationship, it is important to recognize that the decision to report a self-committed error can be influenced by events outside of the project. Managers should be aware of their employees' mood state and realize that being in a positive mood state can impede cognitive processing and make an individual reluctant to report. One potential way for managers to compensate for the negative impact of positive mood on reporting decisions would be to emphasize the benefits of reporting self-committed errors. To promote greater awareness of the impact of mood on reporting behaviour, managers might also want to consider including coverage of the topic in training seminars.

In addition, managers should be aware that less conscientious members of the project team might be especially susceptible to the influences of mood. Such emphasis on the conscientiousness of project members could be especially critical for IT projects in which the consequences of errors can be severe (e.g. when even a small bug or error in the software could impair system quality and lead to launch delays, project failure, or downstream consequences that could put lives at risk).

Limitations

Like any other research, this study is not without its limitations. First, we measured subjects' error reporting intentions rather than their actual behaviours – this does not necessarily equate to subjects behaving as they have indicated. However, considering the sensitivity of the topic, we believe this was a reasonable substitute for measuring actual behaviours, and also consistent with existing bad news reporting studies in the IS literature (e.g. Smith *et al.,* 2001; Keil *et al.,* 2007; Park *et al.,* 2008).

Second, while mood was experimentally manipulated and would not be subject to common method bias, there is some potential for common method bias in our non-manipulated constructs which were measured with a survey instrument. The results from Harmon's single-factor test (Podsakoff *et al.,* 2003) and the unmeasured latent method factor approach (Podsakoff *et al.,* 2003; Liang *et al.,* 2007) suggest, however, that common method bias was not a significant threat to our study. However, it is still possible for common method bias to exist as each of these statistical approaches has limitations (Podsakoff *et al.,* 2003). Further research is warranted to replicate our findings while implementing procedural remedies for controlling common method bias. Because individual personality traits are considered to be stable over time (Vaidya *et al.,* 2002), the temporal (e.g. time-lag) separation technique suggested by Podsakoff *et al.* (2003) may be utilized to separate the measurement of personality traits and willingness to report error.

Third, we conducted a scenario-based laboratory experiment, which gave us a high degree of internal validity by providing a highly controlled environment. While the scenario was created to be as realistic as possible, the scenario was fairly simple; only essential information was

provided to the subjects for the decision making task because our main focus was on the pure impact of moods and conscientiousness on error reporting decisions. Specific costs and benefits were not detailed in the experimental scenario, as subjects were expected to impute their own assessments of each. In future studies, researchers may wish to be more explicit about costs and benefits, and they may wish to consider granular distinctions, especially in relation to costs. For example, a reporter could face costs as disparate as a career adjustment, reputational damage, a disciplinary procedure, a fine (in cases where the IT project fell within a certain legal category), etc. The magnitude and the consequences of the error could also vary greatly in terms of impact on various stakeholder units (i.e. from inconvenience to more severe consequences including death). Further exploration along these lines could provide fruitful avenues for future research.

Fourth, our measures of cost–benefit differential had a limited focus in that the referent for costs and benefits was the *self* (i.e. the error reporter). Based on some prior theoretical models (e.g. Dozier & Miceli, 1985; Di Norcia & Tigner, 2000; Jones *et al.,* 2007), there is ample reason to view this 'egoistic' perspective on costs and benefits as empirically salient in a large percentage of IT project decision contexts. We acknowledge, however, that error reporting situations in IT projects could be more complex in that there may be potential benefits or costs of reporting an error not only to the reporter, but also to the reporter's team, supervisor or organization. We did not take these multiple stakeholders into account in this study. Future research may incorporate the various stakeholders involved with the IT project into the error reporting scenario and the cost–benefit differential measures.

Finally, we considered error reporting behaviour as a binary response: that is, an individual may either report or not report the error. However, even when one decides to report an error, other options may exist. For example, an individual may report his/her own error as someone else's, thereby shifting blame. Future research may investigate how differences in personal attributes or affective states lead to different behavioural responses.

CONCLUSION

Although a growing stream of studies has emerged to examine various factors and contexts associated with bad news reporting in IT projects, most prior research has focused on the reporting of *others*' errors rather than a subject's *own*. Further, little previous attention has been paid to factors associated with affect, and only limited attention has been paid to subjects' individual characteristics. In this study, we investigate how mood and conscientiousness influences one's decision to report a self-committed error. We find that individuals in a negative mood were more willing to report a self-committed error than those in a positive mood. Conscientiousness positively influenced error reporting decisions, both directly and indirectly through the perceptions of the benefits relative to the costs of reporting. Furthermore, we found that mood moderated the direct effect of conscientiousness on error reporting such that the effect of conscientiousness was stronger when individuals were in a positive mood. Overall, we demonstrate that mood states and conscientiousness can play a critical role in the context of reporting self-committed errors in IT projects. We hope that this study will lead to increased exploration of these important contexts of reporting decisions.

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APPENDIX A: EXPERIMENTAL SCENARIO

CASE INSTRUCTIONS: The business case that follows is part of a study that examines business decision-making. Please take a few minutes to read over the case and to answer the questionnaire that follows. There are no right or wrong answers.

You are a member of the information technology staff in a community health centre comprised of 10 sites. Your institution has recently partnered with a big electronic health record (EHR) vendor to implement their product in your organization. Your institution's chief operating officer (COO) has entrusted you and a business manager to be jointly responsible for EHR implementation across the organization. The business manager is responsible for the business process analysis, and you are responsible for developing some custom code to allow the new EHR product to be integrated with your existing billing system.

The project plan is aggressive, and you had been given 3 months for the project to 'go live' (i.e. the day when the EHR product is turned on and the old system is shut down). The 'go live' date is now just 2 days away. The president of your organization, the vendor and the news media have been invited for the event when the project goes live.

While preparing for the project 'go live', you have just discovered, somewhat by accident, that you have made an error by neglecting to focus on an essential piece of code without which the system's performance will suffer. You now recollect that you had several unexpected interruptions on the day you were scheduled to do that task, and because you let yourself get distracted, you completely forgot to prepare this.

Fixing the above error will take at least 5 days, and it cannot be completed by the project 'go live' date.

You are now wondering whether or not to report the error.

APPENDIX B: CONSTRUCTS AND MEASURES

CONSCIENTIOUSNESS

Measure	Mean	SD	Item wording (1 = very inaccurate; 7 = very accurate)
CON1	4.75	1.46	I get chores done right away.
CON2 (reversed)	4.73	1.76	I often forget to put things back in their proper place.
CON3	5.72	1.40	I like order.
CON4 (reversed)	5.38	1.68	I make a mess of things.

COST–BENEFIT DIFFERENTIAL

Measure	Mean	SD	Item wording (1)	Item wording (7)
CBD1	4.72	1.70	The costs to me of reporting the error would exceed the benefits.	The benefits to me of reporting the error would exceed the costs.
CBD2	4.57	1.56	If I report the error, my costs will be substantial compared to my benefits.	If I report the error, my benefits will be substantial compared to my costs.
CBD3 (reversed)	4.76	1.74	The benefits to me of reporting the error would exceed the costs.	The costs to me of reporting the error would exceed the benefits.
CBD4 (reversed)	4.54	1.56	If I report the error, my benefits will be substantial compared to my costs.	If I report the error, my costs will be substantial compared to my benefits.

WILLINGNESS TO REPORT ERROR

Measure	Mean	SD	Item wording (1 = very unlikely; 7 = very likely)
WTR1	5.30	1.44	Please indicate your willingness to report the error to your COO.
WTR2	5.48	1.30	At this time, how likely are you to go directly to your COO to report the error?
WTR3 (reversed)	5.73	1.12	Please indicate how likely it is that you would avoid telling your COO about the error.

APPENDIX C: COMMON METHOD BIAS ANALYSIS USING UNMEASURED LATENT METHOD FACTOR

Construct	Indicator	Construct loading (CL)	CL^2	Method factor loading (MFL)	MFL^2
Conscientiousness	CON1	0.869***	0.755	−0.194	0.038
	CON2	0.734***	0.539	0.058	0.003
	CON3	0.698***	0.487	0.040	0.002
	CON4	0.751***	0.564	0.082	0.007
Cost–benefit differential	CBD1	0.595***	0.354	0.246	0.061
	CBD2	0.881***	0.776	−0.080	0.006
	CBD3	0.791***	0.626	0.059	0.003
	CBD4	1.010***	1.020	−0.224	0.050
Willingness to report	WTR1	0.654***	0.428	0.138	0.019
	WTR2	0.933***	0.870	−0.261*	0.068
	WTR3	0.741***	0.549	0.109	0.012
Average		0.787	0.633	−0.002	0.024

*$p < 0.05$.
***$p < 0.001$.