REGULATORY FOCUS, EMOTIONS AND TECHNOLOGY ADAPTATION

Liqiong Deng, University of West Georgia

ABSTRACT

Due to the constantly changing and involving information technology (IT) in recent decades, employees are continuously faced with new IT tools at workplaces. IT adoption is a dynamic process and in the initial use of new IT tools employees can experience strong emotions that determine their technology adaptation behaviors. This research draws on the Regulatory Focus Theory (RFT) and Cognitive Appraisal Theory (CAT) to examine the effects of IT users' regulatory foci on their emotions and technology adaptation behaviors. The RFT distinguishes between two motivational orientations: the promotion focus that concerns advancement, growth and maximization of gains, and the prevention focus that concerns security, safety and minimization of losses. Recognizing the critical role of regulatory focus in determining evaluative and emotional sensitivities as well as locus of control, this research proposes that individuals' regulatory foci are significant antecedents influencing their cognitive evaluations of and emotional responses to their IT usage experiences, which consequently determine their technology adaptation behaviors. More specifically, it posits that positive or negative disconfirmation of desires about performance of a new IT will elicit challenge or deterrence emotional responses in promotion-focused individuals, whereas positive or negative disconfirmation of norms about performance of a new IT will evoke achievement or loss emotional responses in prevention-focused individuals. These discrete emotional responses will in turn lead to distinct technology adaptation behaviors.

Keywords: Promotion Focus, Prevention Focus, Emotions, Technology Adaptation

INTRODUCTION

In recent decades, rapid information technology (IT) innovations have given rise to constantly changing and evolving ITs (Lyytinen & Rose, 2003). As a result of organizations' continuous efforts in implementing IT innovations for operational improvements and strategic advantages (Bala & Venkatesh, 2016), employees are constantly faced with new IT tools at workplaces. Innovation research has shown that innovation adoption (e.g., IT innovation adoption) is a dynamic process characterized by changing patterns, or diffusion, of the use of innovation that evokes strong emotions in users (Wood & Moreau, 2006). Thus, the inclusion of emotional responses increases the predictive power of traditional models of innovation diffusion (Wood & Moreau, 2006). The role of emotions in IT use has also received significant attention in the field of IS (information systems) research (Bagozzi, 2007; Beaudry & Pinsonneault, 2005; Beaudry & Pinsonneault, 2010; Deng & Poole, 2010; Gregor, Lin, Gedeon, Riaz & Zhu, 2014; Ortiz de Guinea & Markus, 2009; Stein, Newell, Wagner & Galliers, 2015; Zhang, 2013; Yin, Bond & Zhang, 2014). In technology acceptance research (e.g., Davis, 1989), the emotion concept has been incorporated in a few empirically validated extensions of technology acceptance model (Venkatesh, 2000). Although cognitive constructs are still the major theoretical considerations in studying IS (information systems) usage behaviors and emotions have generally been regarded as supplement

to cognitive constructs, some recent research suggests that those constructs, such as perceived usefulness of IT, which have been once understood as purely cognitive, can be detected at the neuronal level in the brain areas normally associated with emotional activity (Dimoka, 2011; Dimoka, 2012).

Prior IS research suggests that an IT event, such as implementation of new IT tools, elicits particular emotions in users depending on how the IT event is appraised – firstly, as an opportunity or a threat to the achievement of user's personal goal; and secondly, as controllable or uncontrollable by users (Beaudry & Pinsonneault, 2010). Based on these two types of cognitive appraisals of the IT event, one of four classes of emotions may be triggered: challenge emotions, achievement emotions, deterrence emotions, or loss emotions (Beaudry & Pinsonneault, 2010). Beaudry and Pinsonneault (2010) also examined the impact of one exemplary emotion (excitement, happiness, anxiety, and anger) per class on IT use and revealed that emotions influence IT use directly or indirectly through their influence on adaptation behaviors or strategies (Beaudry & Pinsonneault, 2005; Beaudry & Pinsonneault, 2010). For example, happiness has a positive direct effect on IT use, whereas anger has a positive indirect effect on IT use through users' seeking social support. The behavior of seeking social support is part of a general disturbance handling strategy that helps to restore emotional stability and minimize perceived threat (Beaudry & Pinsonneault, 2005).

While these findings provide understanding on the effects of emotions on IT use, the extant IS research does not address the effects of individual differences on users' emotion responses to an IT event. The literature on emotions suggests that individual difference factors play important roles in the experience of emotions and subsequent behavioral responses (Krohne, 2003). This research recognizes the importance of individual differences in the emotional experience of IT use, and attempts to investigate the psychological aspects of individuals in order to understand IT emotional experience and adaptation behaviors more thoroughly. In this regard, the Regulatory Focus Theory (RFT) provides an appropriate framework to explain this psychological aspect that influences the variation of the individual differences on emotions and IT adaptation behaviors. The RFT distinguishes between two major motivational orientations – promotion focus and prevention focus (Higgins, 1997; Higgins, 1998). Individuals with a promotion focus are driven by the need for attainment of positive outcomes, and are thereby oriented toward the maximization of gains, such as advancement and accomplishment. In contrast, individuals with a prevention focus are driven by the need for safety and avoidance of negative outcomes, and hence are oriented toward the minimization of losses and security. As a result, individuals with a promotion focus regulate their behaviors toward positive outcomes, and those with a prevention focus regulate their behaviors away from negative outcomes. Whether an individual adopts a promotion or prevention focus influences his/her sensitivities toward positive or negative outcomes (Brendl, Higgins & Lemm, 1995), locus of control (Tang, 2009), and the type of experienced emotions (e.g., Higgins, Shah & Friedman, 1997). Thus, the emotional and motivational consequences of success or failure differ depending on one's regulatory focus. The principles of regulatory focus are important to consider in the context of new IT implementation because these higher order goals of approach and avoidance provide insight into individuals' evaluative sensitivities and emotional framing of IT implementation-related events.

THEORETICAL BACKGROUND

Emotion Theories

Cognitive Appraisal Theory

The Cognitive Appraisal Theory (CAT) views emotions as "valenced reactions to events, agents, or objects, with their particular nature being determined by the way in which the eliciting situation is construed" (Ortony, Clore & Collins, 1988, p. 13). It emphasizes that experience of different emotional feelings is determined by how the emotion-eliciting stimulus is interpreted along a number of appraisal dimensions (Folkman & Moskowitz, 2004; Frijda, 1986; Lazarus, 1966; Lazarus, 1991; Lazarus & Folkman, 1984; Ortony et al., 1988; Roseman, 1984; Roseman, 1991; Scherer, 1988; Smith & Ellsworth, 1985). There is much inconsistency in the number of characteristics of a stimulus to be appraised as well as in their definitions. For example, Roseman (1991) proposed five appraisal dimensions, Smith and Ellsworth (1985) found six, and Scherer (1988) suggested as many as nine. However, recurrent themes are evident in a number of "independently developed, yet highly convergent" (Scherer, 1988, p. 91) perspectives regarding what underlying appraisals cause emotions (Frijda, 1986; Ortony et al., 1988; Roseman, 1984; Roseman, 1991; Scherer, 1988; Smith & Ellsworth, 1985). "Several appraisal dimensions – valence or pleasantness-unpleasantness, certainty, controllability and agency or responsibility – are found in most or all analyses" (Frijda, 1987, p. 116). Patterns of appraisals along these dimensions provide a basis for distinguishing discrete emotions (Ellsworth & Smith, 1988; Frijda, 1993; Izard, 1992; Lazarus, 1991; Smith & Ellsworth, 1985). For example, excitement, an emotion of positive valence, is associated with appraisals of certainty of what happened and self-responsibility/control for positive events. Anger, which is of negative valence, is associated with an elevated sense of certainty and other-responsibility/control for negative events.

The most important cognitive appraisal dimension of emotions is the appraisal of outcome desirability (often referred to as pleasantness or goal achievement), which refers to the appraisal of how desirable or undesirable (positive or negative) an event's outcome is perceived to be with respect to personal goals. It is a cognitive assessment of whether a situation is good or bad relative to some personal benchmark and is widely regarded as the most fundamental appraisal of stimuli. Outcome desirability accounts for the majority of variance (as much as 88% of variance) in emotions and determines the valence of emotions by distinguishing between positive and negative emotions (Ellsworth, 1994; Ruth, Brunel & Otnes, 2002; Smith & Ellsworth, 1985). For example, positive emotions, such as happiness, gratitude, and pride, result from perceived desirable outcomes; while negative emotions, such as disappointment, anger, and shame, are caused by perceived undesirable outcomes.

However, appraisals of positive/negative outcomes alone are not sufficient to distinguish between specific emotions. Other appraisal dimensions are required to combine with outcome desirability to evoke specific emotions. The next most influential appraisal dimension of emotion identified by prior work is the appraisal of agency (Ortony et al., 1988; Roseman, 1991; Smith & Ellsworth, 1985), which is concerned with whom or what (i.e. oneself, another person or thing, or the general circumstances) is perceived to be the cause of an outcome. The appraisal of agency is most important in differentiating among discrete emotions of the same valence (Ellsworth & Smith, 1988; Ortony et al., 1988; Roseman, 1991; Ruth et al., 2002; Smith & Ellsworth, 1985). For

example, the emotions of anger, shame, and disappointment are all negative in valence, but they differ in terms of the appraisal of agency. Anger results from highly perceived other agency; shame is a result of highly perceived self agency; and disappointment is caused by highly perceived circumstance agency. Likewise, the emotions of gratitude, pride, and happiness, while all being positive emotions, are respectively characterized by high other agency, high self agency, and high circumstance agency. The concept of agency is derived from attribution theory, which also includes a dimension related to controllability – whether an agent had control over the commission of an act. In general, when someone is responsible for an event it is believed that he/she had control over the event, otherwise the event is attributed to others or circumstance. It was found that appraisals of agency and controllability combine to explain the second highest amount of variance in emotions after outcome desirability (Ruth et al., 2002; Smith, Haynes, Lazarus & Pope, 1993). Some researchers propose a broad definition of agency that encompasses both the agent and his/her perceived control over the event being appraised (Watson & Spence, 2007).

The Functional View of Emotions

The functional view of emotions suggests that emotions provide individuals with the ability to respond to the changes in their surrounding environment by triggering different psychological situations and behaviors (Frijda, 2005; Mehrabian & Russell, 1974). According to Schwarz's "affect as information" framework (Schwarz, 1986; Schwarz, 1990), the halo effect of emotional response toward a stimulus carries over to the evaluation of stimulus characteristics and general attitude to the stimulus (Norman, 2003; Rafaeli & Vilnai-Yavetz, 2004; Vilnai-Yavetz & Rafaeli, 2006).

It has been well established that emotions influence people's decision-making and judgments (Lerner & Keltner, 2000; Lewis & Barrett, 2009), such as social judgment (Keltner, Ellsworth & Edwards, 1993), risk perception (Lerner & Keltner, 2000; Lerner & Keltner, 2001), and attribution (Lerner, Goldberg & Tetlock, 1998). Schwarz and Clore's study (1983) suggests that people tend to reply on their emotions as easily accessible information to judge new objects. People experiencing negative emotions may refer to their negative feelings as a sign that they dislike a new object; on the contrary, feelings of positive emotions may be taken as a sign of liking a new object.

Consistent with Schwarz's (1986) notion of "feelings as information," positively valenced emotions inform individuals that the world is a safe place, one characterized by presence of positive outcomes or lack of threats to current goals; however, negatively valenced emotions tell the person that the current situation is problematic, characterized by a lack of positive outcomes or a threat of negative outcomes. To the extent that individuals are motivated to obtain positive outcomes and avoid negative outcomes, negatively valenced emotions cause avoidance behaviors, such as physical movement away from the stimuli; whereas positively valenced emotions induce approach actions, such as physical movement toward, staying with, and exploring the environment. There has been ample evidence that emotional valence is a significant predictor of approach–avoidance behaviors, with positively valenced emotions (e.g., pleasantness) motivating approach tendency and negatively valenced emotions (e.g., unpleasantness) promoting avoidance behavior in a variety of environments (Frijda, Kuipers & Schure, 1989; Mehrabian & Russell, 1974; Menon & Kahn, 2002; Schwarz, 1986). The impact of emotions even goes beyond the influence of affective valence. More recent research findings highlight the differential influence of discrete

emotions with the same valence on cognition and behaviors (DeSteno, Petty, Rucker, Wegener & Braverman, 2004; Griskevicius, Shiota & Neufeld, 2010; Lerner & Keltner, 2000; Raghunathafn & Corman, 2004; Yi & Baumgartner, 2004).

Emotions in IS Research

In IS Research, it has been suggested that individuals evaluate an IT implementation event along two appraisal dimensions: first, to determine whether the new IT constitutes a threat or an opportunity to the achievement of individuals' personal goals (primary appraisal); and second, to assess the extent of control individuals have over the expected outcomes of IT implementation (secondary appraisal) (Beaudry & Pinsonneault, 2010). Depending on an individual's appraisals of IT implementation, he/she may experience one of four classes of emotions: challenge emotions (e.g., excitement, hope), triggered by appraisals of opportunity and high control; achievement emotions (e.g., happiness, relief), evoked by appraisals of opportunity and low control; deterrence emotions (anxiety, distress), activated by appraisals of threat and high control; and loss emotions (anger, frustration), aroused by appraisals of threat and low control (Beaudry & Pinsonneault, 2010). Beaudry and Pinsonneault (2010) further demonstrate how specific emotions influence IT use directly or indirectly through their influence on adaptation behaviors or strategies. For example, excitement is positively associated with IT use through task adaptation, which involves users' modifying their work practices to maximize benefits from the new IT. Happiness is directly positively related to IT use. Anger is positively related to IT use through seeking social support. And anxiety is negatively related to IT use, both directly and indirectly through psychological distancing. Anxiety is also indirectly positively related to IT use through seeking social support, which countered its original negative effect on IT use. The behaviors of seeking social support and psychological distancing are both part of a general disturbance handling strategy that helps to restore emotional stability and minimize the perceived threat (Beaudry & Pinsonneault, 2005).

Beaudry and Pinsonneault's coping model of user adaptation (CMUA) postulates four adaptation strategies associated with the four different classes of emotions in the context of IT implementation: 1) benefits maximizing (e.g., taking full advantage of the opportunities offered by an IT to maximize personal benefits) in response to challenge emotions, 2) benefits satisficing (e.g., being satisfied with the limited benefits an IT offers), in response to achievement emotions, 3) disturbance handling (e.g., restoration of personal emotional stability and minimization of the perceived negative consequences associated with an IT) in response to deterrence emotions, and 4) self-preservation (e.g., restoration of emotional stability, with little or no impact on individuals' performance at work using an IT) in response to loss emotions (Beaudry & Pinsonneault, 2005; Beaudry & Pinsonneault, 2010).

Building on Beaudry and Pinsonneault's CMUA (2005), Bala and Venkatesh (2016) posit four different technology adaptation behaviors based on whether users appraise a new IT as an opportunity or a threat to goal achievement and whether they have perceptions of control over the new IT: exploration-to-innovate (finding, extending, and/or changing features of an IT to accomplish tasks in novel ways) caused by appraisals of opportunity and high control characterizing the challenge emotions, exploitation (utilizing a recommended set of features of an IT to perform tasks) caused by appraisals of opportunity and low control characterizing the achievement emotions, exploration-to-revert (finding, extending, and/or changing features of an

IT to fit with pre-implementation work processes and/or habits) caused by appraisals of threat and high control characterizing the deterrence emotions, and avoidance (not using an IT when accomplishing tasks) caused by appraisals of threat and low control characterizing the loss emotions.

Regulatory Focus Theory

The regulatory focus theory (RFT) distinguishes between two major motivational orientations – promotion focus and prevention focus – that guide individuals' preferences and goal pursuit behaviors (Higgins, 1997; Higgins, 1998). The promotion focus is driven by the need nurturance concerning an ideal self (the kind of person an individual would like to be) and thus are related to attainment of positive outcomes, such as advancement, accomplishment and aspirations. In contrast, the prevention focus is driven by the need for safety concerning an ought self (the kind of person an individual ought to be) and are related to avoidance of negative outcomes and fulfillment of responsibilities, duties, and obligations. Individuals with a promotion focus are sensitive to positive outcomes. They consider gains as success and non-gain as failure and regulate their attentions, perceptions and behaviors toward maximization of gains. Individuals with a prevention focus are sensitive to negative outcomes. They regard non-loss as success and loss as failure and regulate their attentions, perceptions and behaviors toward security and minimization of losses (Higgins & Tykocinski 1992; Shah, Higgins & Friedman, 1998). These two distinct motivational orientation states can be either enduring personality characters or situationally induced by environmental cues (Forster, Higgins & Bianco, 2003; Forster, Higgins & Idson, 1998; Shah & Higgins, 1997). Irrespective of being dispositional or situationally induced, individuals' regulatory foci guide their strategic preferences, information processing, decision making, and behaviors (Dholakia, Gopinath, Bagozzi & Nataraajan, 2006; Pham & Avnet, 2004; Sengupta & Zhou, 2007; Vellido, Lisboa & Meehan, 2000).

Individuals' regulatory foci prompt them to adopt strategies and engage in activities that are consistent with their regulatory orientations. Specifically, individuals utilize an eagerness strategic means to pursue a promotion goal but adopt a vigilance strategic means to fulfill a prevention goal (Crowe & Higgins, 1997). Let us consider a signal detection situation where individuals decide whether an action is worth pursuing (Tanner & Swets, 1954; Trope & Liberman, 1996). There are four possible outcomes of each signal-detection trial: 1) a hit – deciding to take a correct action, 2) a miss – deciding not to take a correct action, 3) a correct rejection – deciding not to take a wrong action, and 4) a false alarm – deciding to take a wrong action. Since a promotion focus is concerned with the pursuit of gains and advancements, it entails the eagerness strategy to ensure hits and avoid misses (i.e., a loss of an opportunity for accomplishment). In contrast, since a prevention focus is concerned with safety and avoidance of failures, it involves the vigilance strategy to seek correct rejections and ensure against false alarms (i.e., making a mistake). In line with this reasoning, RFT suggests that individuals' emotional responses to success and failure may differ depending on their regulatory foci.

Due to the difference in strategic inclinations and tactical preferences when individuals are in a promotion focus versus a prevention focus, success and failure in a promotion versus prevention focus differ emotionally and motivationally. When individuals succeed in a promotion focus, their eagerness increases (experienced as high-intensity excitement). In contrast, when individuals

succeed in a prevention focus, their vigilance reduces (experienced as low-intensity relief). When individuals fail in a promotion focus, their eagerness reduces (experienced as low-intensity distress). In contrast, when individuals fail in a prevention focus, their vigilance increases (experienced as high-intensity anger). Therefore, individuals' degrees of promotion and prevention foci influence the nature and intensity of their emotional reactions to success and failure (Brockner & Higgins, 2001).

The RFT is consistent with the Self Discrepancy Theory, which posits that emotions are caused by a discrepancy between actual self-state and self-guides and that self-regulation in relation to an ideal self-guide (individuals' representations of the attributes that someone would like them ideally to possess – someone's hopes, wishes, or aspirations for them) as a desired end-state is emotionally distinct from self-regulation to an ought self-guide (individuals' representations of the attributes that someone believes they should or ought to possess – someone's beliefs about their duties, obligations, or responsibilities) as a desired end-state (Higgins & Tykocinski, 1992). More specifically, it indicates that congruency or match between actual self and ideal self-guide represents the presence of positive outcomes in a promotion focus (promotion success), resulting in the experience of cheerfulness-related emotions (e.g. excitement). In contrast, mismatch between actual self and ideal self-guide represents the absence of positive outcomes in a promotion focus (promotion failure), resulting in the experience of dejection-related emotions (e.g., distress). Furthermore, congruency between actual self and ought self-guide represents the absence of negative outcomes in a prevention focus (prevention success), resulting in the experience of quiescence-related emotions (e.g., relief). In contrast, mismatch between actual self and ought self-guide represents the presence of a negative outcome in a prevention focus (prevention failure), resulting in the experience of agitation-related emotions (e.g., anger). A large body of literature has examined the predictions made by RFT (Boldero, Moretti, Bell & Francis, 2005). The emotional significance of the two regulatory foci is no longer restricted to actual-self in relations to ideal and ought self-guides. It has extended to any case of success or failure when individuals pursue a goal with a promotion focus or a prevention focus.

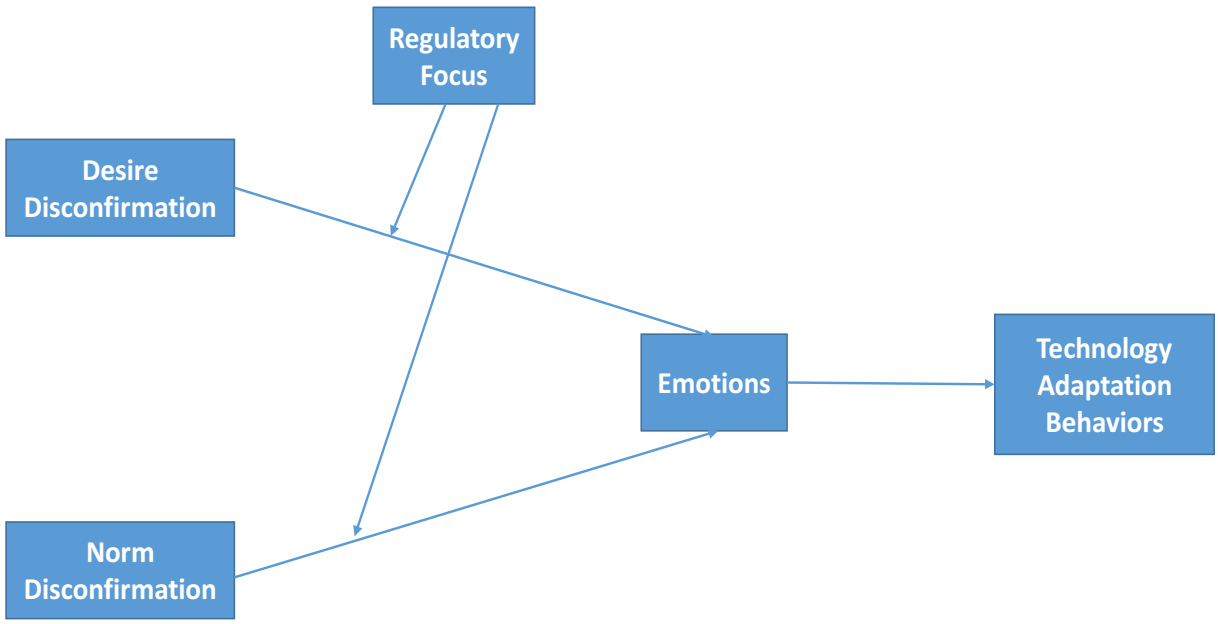
Regulatory focus differences in strategic preferences have other effects as well. Prior research also suggests that regulatory foci influence individuals' locus of control. Locus of control is defined as one's belief that event outcomes are within or outside of personal control (Lefcourt, 1966; Rotter, 1966). Locus of control varies on a bipolar dimension from internal to external control. Internal control refers to the belief that control of outcomes resides primarily in oneself (Vijayashree & Jagdischchandra, 2011). Individuals with an internal locus of control view outcomes of events as resulting from their own actions (Marsh & Weary, 1995). In contrast, external control refers to the belief that control is outside of oneself, either in the hands of powerful other people or due to fate or chance (Vijayashree & Jagdischchandra, 2011). People with an external locus of control view outcomes of events as being under the control of external factors such as chance (Marsh & Weary, 1995). For example, when failing to meet a desired goal, an individual with an internal locus of control will attribute the failure to poor personal preparation, whereas, one with an external locus of control will attribute failure to other people or circumstances beyond the individual's control. Since individuals with a promotion focus adopt eagerness strategies for the fulfilment of internal desires, aspirations, and ideals, they tend to be internally focused (Bless, Mackie & Schwarz, 1992; Bless, Schwarz, Clore, Golisano, Rabe & Wölk, 1996). The salience of internal attributes will lead promotion-focused individuals to rely more on stable internal dispositions when

making attribution judgments. Therefore, promotion-focused individuals are likely to have an internal locus of control. In contrast, individuals with a prevention focus are concerned with protection and vigilance against losses for the fulfillment of external norms, duties and obligations. Thus, they are likely to be externally focused (Bless et al., 1992; Bless et al., 1996). The salience of external factors will lead prevention-focused individuals to make attribution to external circumstances. Consequently, prevention-focused individuals are likely to have an external locus of control.

RESEARCH MODEL AND HYPOTHESES

Drawing on the CAT, functional view of emotions, research on emotions in the IS field, and the RFT, this paper proposes a research model of factors influencing IT adaptation behaviors along the regulatory focus perspective (Figure 1). This model focuses on individuals' evaluation of IT performance against certain standard of performance (i.e., disconfirmation judgments about IT performance), their regulatory foci, as well as their emotional responses to IT in the context of new IT implementation. According to the RFT, prevention focus (avoidance orientation) is associated with pursuing minimal goals (e.g., obligations and norms) and external locus of control, whereas promotion focus (approach orientation) is associated with pursuing maximal goals (e.g., desires and aspirations) and internal locus of control (Bless et al., 1992; Bless et al., 1996; Forster et al., 1998). Since succeeding or failing to achieve goals in a promotion focus versus a prevention focus are emotionally and motivationally distinct, it is reasonable to argue that regulatory foci are significant antecedents influencing their cognitive evaluations of and emotional responses to their IT usage experiences, which consequently determine their technology adaptation behaviors.

Figure 1. Research Model of Factors Influencing IT Adaptation Behaviors



The CAT suggests that the appraisal dimensions of outcome desirability and agency combine to explain the highest amount of variance in emotions. These two dimensions coincide with the primary appraisal – appraisal of opportunity/threat to the achievement of personal goals based on the expected outcomes of new IT implementation, and secondary appraisal – appraisal of high/low control over the features and functionalities of new IT in IS research (Beaudry & Pinsonneault, 2010). Beaudry and Pinsonneault (2010) use these two appraisal dimensions to classify emotion into four classes – challenge emotions, achievement emotions, deterrence emotions, and loss emotions. In the context of IT implementation, the appraisal of outcome desirability encompasses the overall evaluation of how positive or negative (desirable/undesirable) the performance of new IT is relative to a personal benchmark, driven by certain goals. And the appraisal of agency comprise both the agent (e.g., an IT user) and his/her perceived control over the new IT's features and functionalities.

Since the appraisal of outcome desirability involves the evaluation of goal achievement, a key factor driving an individual's emotional response to a new IT is likely to be the goal standard that is used to evaluate the outcome of using the new IT. The IT user spontaneously recruits his/her personal goal of IT usage and compares the outcome of IT usage to the goal, thus the assessment of IT performance relative to that goal will drive his/her emotions. The self-discrepancy theory distinguishes between two fundamental goal classifications that dominate human behaviors: ideals, referred to as maximal goals, and oughts, referred to as minimal goals (Forster et al., 1998; Higgins, 1987). According to the RFT, promotion-focused individuals are oriented toward the fulfillment of ideals and pursuit of maximal goals (such as desires and aspirations), whereas prevention-focused individuals are oriented toward the avoidance of mistakes and fulfillment of minimal goals (such as norms and obligations) (Forster et al., 1998). In the context of new IT implementation, promotion-focused users are likely to recruit their desires about IT performance as the goal standard, whereas prevention-focused users tend to adopt their norms about IT performance as the goal standard. Desires refer to individuals' inner emotional needs and wants reflecting the performance that they desire or want the new IT to provide, while norms are the standards that reflect the performance individuals believe the new IT should provide. Whether in a promotion focus or in a prevention focus, individuals compare their perceived IT performance against their goal standard of performance (desires in a promotion focus or norms in a prevention focus), resulting in a disconfirmation/discrepancy judgment (Jiang, Klein & Saunders, 2012; Niedrich, Kiryanova & Black, 2005), which in turn evokes emotions. The disconfirmation judgment can be positive or negative. Positive disconfirmation will result when perceived IT performance is better than the goal standard; and negative disconfirmation will occur if perceived IT performance is worse than goal standard (Cadotte, Woodruff & Jenkins, 1987). Due to the distinct emotional consequences of goal pursuits in different regulatory foci, positive/negative disconfirmation of desires about IT performance in a promotion focus is emotionally different from positive/negative disconfirmation of norms about IT performance in a prevention focus.

IT users' regulatory foci may also influence their appraisal of agency when using a new IT. Promotion focus predisposes individuals to internal locus of control, leading them to attribute IT usage outcomes to selves and perceive high control over IT's functionalities, whereas prevention focus predisposes individuals to external locus of control, resulting in attribution of IT usage outcomes to external factors (e.g., other people and external circumstances) and perception of low control over IT's functionalities. Due to their significant implications for the appraisals of IT usage

outcome desirability (primary appraisal) and agency (secondary appraisal), IT users' regulatory foci and disconfirmation judgements about IT performance interact to elicit discrete emotional responses to IT implementation. In a promotion focus, the users' positive or negative disconfirmation of desires about performance of a new IT will elicit challenge or deterrence emotional responses, whereas in a prevention focus, the users' positive or negative disconfirmation of norms about performance of a new IT will evoke achievement or loss emotional responses. Therefore, the following hypotheses can be proposed:

> Hypothesis 1: Positive disconfirmation of desires about IT performance will be positively associated with challenge emotions in promotion-focused users.
>
> Hypothesis 2: Negative disconfirmation of desires about IT performance will be positively associated with deterrence emotions in promotion-focused users.
>
> Hypothesis 3: Positive disconfirmation of norms about IT performance will be positively associated with achievement emotions in prevention-focused users.
>
> Hypothesis 4: Negative disconfirmation of norms about IT performance will be positively associated with loss emotions in prevention-focused users.

According to the functional views of emotions, individuals' emotional responses toward a new IT are likely to influence their adaptation strategies to cope with the new IT. Prior IS research provides understanding of the links between discrete emotions and IT adaptation behaviors (Bala & Venkatesh, 2016; Beaudry & Pinsonneault, 2005, Beaudry & Pinsonneault, 2010). Bala and Venkatesh (2016) identify four distinct technology adaptation behaviors based on a combination of primary appraisal and secondary appraisal: 1) exploration-to-innovate, defined as users' behaviors of trying to find, extend, and/or change features of an IT to accomplish their tasks in novel ways, 2) exploitation, referred to as using a recommended set of features of an IT to perform tasks, 3) exploration-to-revert, defined as users' actions of trying to find, extend, and/or change features of an IT to fit with their preimplementation work processes and/or habits, and 4) avoidance, referred to as trying not to use an IT when accomplishing tasks. The manner in which an emotion informs behavior is a function of the appraisal information that elicits the emotion (Salerno, Laran & Janiszewski, 2015). Therefore, emotions serve to mediate the relationships between cognitive appraisals and subsequent behaviors. Bala and Vehkatesh found that the appraisals of opportunity and high control characterizing challenge emotions positively influence exploration-to-innovate, the appraisals of opportunity and low control characterizing achievement emotions positively influence exploitation, the appraisals of threat and high control characterizing deterrence emotions positively influence exploration-to-revert, and the appraisal of threat and low control characterizing loss emotions positively influence avoidance. In line with Bala and Venkatesh's (2016) findings, users' discrete emotional responses to a new IT elicited by the primary and secondary appraisals will in turn lead to distinct technology adaptation behaviors, as stated in the following hypotheses.

> Hypothesis 5: Challenge emotions will be positively associated with exploration-to-innovate.

Hypothesis 6: Achievement emotions will be positively associated with exploitation.

Hypothesis 7: Deterrence emotions will be positively associated with exploration-to-revert.

Hypothesis 8: Loss emotions will be positively associated with avoidance.

RESEARCH DESIGN

Sample and Data Collection

To test the proposed research model and its associated hypotheses, a web-based survey will be conducted in the context of a video platform implementation for teaching and learning at a southeast university in the USA. To solicit participation, an email invitation will be sent to all faculty and students at the university. Interested participants may click on the link in the email invitation to be directed to the survey website. A screening question will be included at the beginning of the survey to determine whether the respondent has used the newly implemented video platform for teaching or learning. The survey website will be designed in such a way that only those who have used the new video platform will be able to proceed with the survey. To encourage participation, prizes (Amazon.com Gift Cards) will be provided by means of a lucky draw. Respondents will be asked to respond to all survey questions related to their regulatory foci, disconfirmation judgements about the software's performance, emotional responses to the software, technology adaptation behaviors, and etc.

Since data will be collected from a sample of university faculty members and students, the results of the proposed study may not be applicable to other populations. However, both university faculty members and students are technology users, and the proposed study is designed to study their goal states and emotional responses that are considered primitive and instinctive for all human beings, the use of faculty and student samples hould not present a serious threat to the validity of this study.

Measures

The survey instrument will be developed by incorporating and adapting existing valid and reliable scales where appropriate. The promotion focus and prevention focus will be measured using Lockwood, Jordan and Kunda's (2002) measurement scales. The measurement of desire disconfirmation involves a comparison of perceived performance of the new IT tool with originally desired performance comprised of four dimensions – ease of use, usefulness, functionality, and reliability (Lankton & McKnight, 2011), using a 7-point Likert scale ranging from "much worse than I wanted" (1) to "much better than I wanted" (7). A different label will be used to measure norm disconfirmation using a scale ranging from "much worse than it should be" (1) to "much better than it should be" (7). In order to examine the antecedents and impacts of Beaudry and Pinsonneault's four classes of emotions (2010), the study will focus on one emotion per class from their framework: excitement (challenge emotion), relief (achievement emotion), distress (deterrence emotion), and anger (loss emotion). Lazarus and Folkman's (1984) measurement scale of emotion intensity will be used to measure each of the above-mentioned emotions. The measurement scales of four technology adaptation behaviors – exploration-to-innovate, exploration-to-revert, exploitation, and avoidance will be adopted from the work of Bala and

Venkatesh (2016). Additionally, the participants' age and prior experience with the video platform of interest will be measured as control variables.

CONCLUSIONS

This study proposes a research model of factors influencing IT users' emotions and technology adaptation behaviors by incorporating the effects of individual differences. Drawing on the RFT and CAT, the research model suggests that IT users' regulatory focus as well as the interaction between users' regulatory foci and their evaluations of IT usage outcomes have important implications for their emotions and technology adaptation behaviors. It contributes to the understanding of how users' disconfirmation judgements about IT performance interact with their goal states to influence their emotions and technology adaptation behaviors. Previous IS research on emotions has primarily examined how cognitive appraisals can elicit emotions and affect adaptation behaviors (Bala & Venkatesh, 2016; Beaudry & Pinsonneault, 2005, Beaudry & Pinsonneault, 2010). However, there is a lack of research examining how IT users' goal pursuits inform their emotions and behaviors. In this respect, the RFT is an appropriate framework for studying this issue because it emphasizes the distinct emotional nature of success and failure in goal pursuit depending on the regulatory focus (Brockner & Higgins, 2001). This is the first attempt to investigate the antecedents of emotional responses to IT implementation from a motivational perspective. It further expands beyond the traditional technology usage research in explaining IT users' emotions and technology adaptation behaviors. This paper also provides guidance for managers to better predict and influence employees' technology adaptation behaviors.

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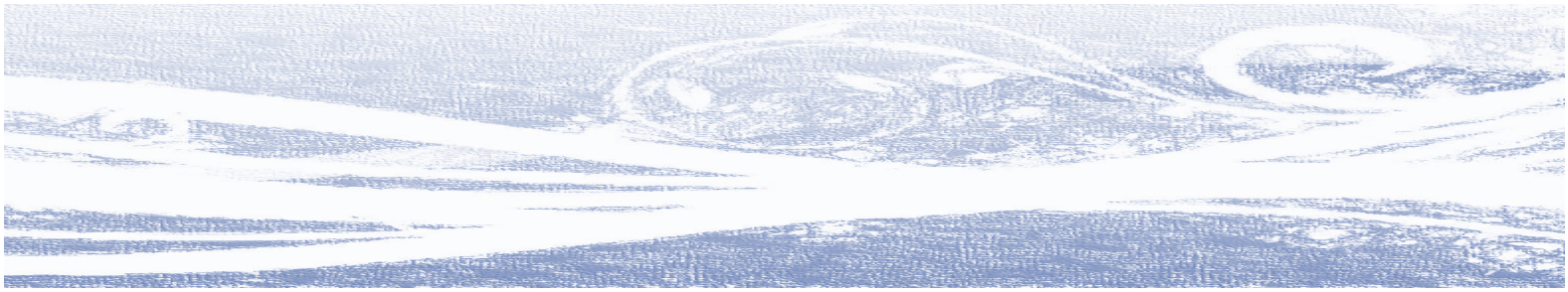

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