

**Is Perceived Creativity-reward Contingency Good for Creativity? The Role of Challenge and Threat Appraisals**

Fuli Li

School of Management  
Xi'an Jiaotong University  
No. 28, Xianning West Road, Xi'an, Shaanxi 710049, China  
Tel: (86) 29 8266 8037  
Email: fuli@mail.xjtu.edu.cn

Hong Deng\*

Department of Organisation, Work and Employment  
University House, 116 Edgbaston Park Rd, Birmingham  
Tel: (44) 0121 414 6358  
Email: xhxghome@gmail.com

Kwok Leung†

Department of Management  
Chinese University of Hong Kong  
No.12, Chak Cheung Street, Shatin, N.T., Hong Kong  
Tel: (852) 3943 9541  
Email: leungkwok@baf.cuhk.edu.hk

Zhao Yang

PricewaterhouseCoopers Management Consulting (Shanghai) Limited  
Dongsanhuan Zhong Road, Chaoyang District, Beijing, China  
Email: Zhaoyang0716@gmail.com  
Fax: 86(10) 6533 8800

\*Correspondence concerning this article should be addressed to Hong Deng, University House, 116 Edgbaston Park Rd, Birmingham, UK. Email: xhxghome@gmail.com

**Is Perceived Creativity-reward Contingency Good for Creativity? The Role of  
Challenge and Threat Appraisals**

Abstract

To address the complex effect of perceived reward for creativity on creative performance, we examined the role of cognitive appraisal as an individual difference variable. An individual's appraisal of reward for creativity, including challenge appraisal (perceived potential for recognition, growth, or mastery) and threat appraisal (perceived potential for revealing incompetence and damaging self-respect), is hypothesized to shape the effects of perceived reward for creativity. We further expect creativity-related intrinsic motivation to play a mediating role in the perceived reward-creativity relationship. The results of a three-wave field study showed that when challenge appraisal was high, perceived reward was positively related to creative performance through creativity-related intrinsic motivation, whereas when threat appraisal was high, perceived reward was negatively related to creative performance through creativity-related intrinsic motivation. A similar analysis showed that intrinsic task motivation was not able to channel the moderating effect of perceived reward and individual appraisal on creative performance.

Employee creativity is crucial to organizational growth and its effectiveness and survival (Kanter, 1983; Nonaka, 1991). When employees exhibit workplace creativity, they generate novel and potentially useful ideas concerning organizational products, practices, services, or procedures (Shalley & Gilson, 2004). There has been considerable interest in understanding which management practices can facilitate creativity (Zhou & Oldham, 2001; Zhou & Shalley, 2003). The use of extrinsic rewards such as monetary rewards and management recognition (Fairbank & Williams, 2001; van Dijk & van den Ende, 2002) has a long history in organizations (Klotz, Wheeler, Halbesleben, Brock, & Buckley, 2011; Zhou & Shalley, 2003), and reward programs are commonly used to spur creative performance.

Despite the popularity of the use of extrinsic rewards to drive creativity, conclusive evidence is not yet available from field studies concerning the effects of extrinsic rewards on creativity. A number of field studies have reported a non-significant relationship between perceived reward for creativity and employee creativity (e.g., Baer, Oldham, & Cummings, 2003; Dewett, 2002, Study 3; Eder, 2007; George & Zhou, 2002; Yoon, Choi, Lee, & Kim, 2009). As a result, Zhou and Shalley (2003, p. 204-205) have urged researchers to “systematically untangle the complexity of the impact of rewards on creativity in the workplace.”

To address this issue, it is important to examine the process underlying the relation between perceived reward and intrinsic motivation (Baer et al., 2003), which is a key driver of creativity (Amabile, 1979; Shin & Zhou, 2003). Intrinsic motivation, which refers to “motivation that arises from the individual’s positive reaction to qualities of the task itself; this reaction can be experienced as interest, involvement, curiosity, satisfaction or positive challenge” (Amabile, 1996, p. 115), has long been argued as a pivotal mediator that channels the effects of antecedent variables on creativity (Amabile, 1988, 1996). In fact, the debate on

the effects of extrinsic rewards on creativity is essentially centered on its relationship with intrinsic motivation. Researchers with a social-cognitive orientation argue that extrinsic rewards reduce intrinsic motivation and creativity due to lowered self-determination and the overjustification effect (Amabile, 1996; Hennessey & Amabile, 1988). In contrast, behaviorally oriented researchers argue that extrinsic rewards increase perceived self-determination, thus facilitating intrinsic motivation (Eisenberger & Cameron, 1996; Eisenberger, Rhoades, & Cameron, 1999) and creativity (Eisenberger & Aselage, 2009). This debate has not been settled as empirical field evidence is rather mixed. For instance, Eden (1975) reported a negative correlation between the perception of extrinsic rewards and intrinsic motivation, but Eisenberger and Aselage (2009) found a positive correlation between them.

Shalley, Zhou, and Oldham (2004) suggested that the role of individual differences should be considered because individuals with different characteristics or orientations may respond differently to extrinsic rewards. Their proposal echoes the view of person-context interaction (e.g., George & Zhou, 2001; Oldham & Cummings, 1996; Woodman, Sawyer, & Griffin, 1993), which emphasizes the joint effects of individual differences and rewards, a variable derived from the context. Drawing upon this perspective, this research aims to develop a theoretical framework with a focus on how individuals' characteristics account for the mixed relationship between perceived reward and creativity via intrinsic motivation. In spite of the divergence between the two camps of researchers with different theoretical orientations, they converge on the critical role of competence assessment. Both camps agree that if extrinsic rewards are perceived to convey positive information about one's competence, they would increase intrinsic motivation (e.g., Deci, Koestner, & Ryan, 1999; Deci & Ryan, 1985; Eisenberger, 1992; Eisenberger & Armeli, 1997). The individual difference perspective

suggests that the perceived meaning of reward for creativity is important in determining its effect on intrinsic motivation and hence creativity. Reward for creativity may imbue a variety of meanings and can be perceived as providing an opportunity to acquire recognition or appreciation, respect and personal development (cf. the reflection theory of compensation, Thierry, 2001). We base our theorizing on the well-established transactional theory of stress (Lazarus & Folkman, 1984) because contexts characterized by social evaluation constitute a type of psychological stressor (cf. Byron, Khazanchi, & Nazarian, 2010). Reward for creativity involves social evaluation and can be viewed as a potentially psychological stressor. In fact, research has associated performance-contingent reward with stress-inducing conditions such as time pressure, continuous monitoring of performance and uncertainty of outcomes (Shirom, Westman, & Melamed, 1999) and found it to be stressful (Landy, Quick, & Kasl, 1994).

The conceptualization of reward for creativity as a stressor makes the transactional theory of stress highly relevant for analyzing its effects on creativity. Drawing on this theoretical framework, we introduce the notion of *cognitive appraisal* to the reward context and propose that individual appraisal of the meaning of reward for creativity is a key individual difference that influences the responses to such a reward. Given the fact that failure is likely in creative endeavors (Harackiewicz & Sansone, 2000), the contingent reward for creativity constitutes as much a threat to lose as a chance to win. The fear of failure would make such reward threatening even if it is designed to convey positive competence information (Harackiewicz & Sansone, 2000). The major objective of the present research is to develop a person-reward interaction model that examines how individuals' cognitive appraisal of the meaning of reward for creativity shapes the effect of perceived reward on intrinsic motivation and creativity. Our research is among the first attempts to empirically examine the moderating

roles of individual appraisals for perceived reward. While exploring the antecedents of individual appraisals is also important, we focus on establishing cognitive appraisal style as a proximal moderator that may channel the influences of other individual differences.

In addition, although the literature identifies intrinsic motivation as a key mediator in the reward-creativity relationship, past findings on its mediating role are inconsistent (George, 2007; Shalley et al., 2004). Shalley et al. (2004) suggested that the relatively weak mediating effect of intrinsic motivation may be attributed to the way it is measured, which is typically non-specific and broad. Intrinsic task motivation, a frequently used measure in the literature (e.g., Eisenberger & Aselage, 2009; Shalley & Perry-Smith, 2001), reflects a general interest, involvement, and curiosity in, or satisfaction with tasks (Amabile, 1996). However, its relationship with creativity is rather equivocal (see a review of Grant and Berry, 2011). There may be the problem of “evaluative inconsistency” in that it is too broad to be consistently predictive of a specific performance, namely, creativity (e.g., Ajzen & Fishbein, 2005, p. 178). On the contrary, stronger predictor-criterion relationships occur if both constructs are of similar bandwidth or specificity (Hogan & Roberts, 1996; Ones & Viswesvaran, 1996). Creativity-related intrinsic motivation, defined as “enjoyment for activities related to generating new ideas” (Tierney, Farmer, & Graen, 1999, p. 598), is such a specific measure of intrinsic motivation targeting at creativity, and its relationship with creativity should be more consistent (e.g., Shin & Zhou, 2003; Zhang & Bartol, 2010). The above analysis and reasoning suggests that, compared to intrinsic task motivation, creativity-related intrinsic motivation is a more relevant intermediate variable accounting for the interactive effects between perceived reward for creativity and cognitive appraisal on creative performance. The secondary objective of this research is to corroborate this proposition. Figure 1 presents a graphical overview of our research.

-----  
Insert Figure 1 about here  
-----

This research contributes to the literature in two ways. First, drawing on the cognitive appraisal framework of stress (Lazarus & Folkman, 1984), we introduce cognitive appraisal style as a major individual difference variable that can shape the effects of perceived reward, providing a new perspective to clarify the mixed relationship between perceived reward and intrinsic motivation. In doing so, we contribute to the literature on creativity by developing a systematic theoretical framework to understand the effect of perceived reward on creativity. Second, we provide a finer-grained view of the difference in the mediating role of creativity-related intrinsic motivation versus intrinsic task motivation. It may serve as a plausible account of the equivocal mediating role of intrinsic motivation.

The remainder of this paper is presented as follows. We discuss the theoretical background and develop hypotheses for the proposed relationships in the next section. To examine these relationships, we then present the field data collected at three different time points from a sample of office employees in a construction group. In the final section, we discuss the theoretical and managerial implications and limitations of the study, and highlight avenues for future research.

### **Theory and Hypothesis Development**

In order to be consistent with previous field research that has taken a psychological approach to understanding reward and creativity (e.g., Baer et al., 2003; George & Zhou, 2002), we have focused on perceived reward for creativity (i.e., the perception of a reward-creativity contingency that directly links creative outcomes with extrinsic rewards for stimulating employee creativity). Recent theories and empirical findings suggest that human

resource practices may be perceived differently by different employees, resulting in different attitudinal and behavioral outcomes (Nishii & Wright, 2008). Human resource research has also emphasized the key role of employee perceptions in understanding human resource practices (Boxall, Ang, & Bartram, 2011; Piening, Baluch, & Salge, 2013). Following this line of research, the present study addresses the issue of whether perceived reward for creativity is conducive to creative performance.

Amabile (1996, p. 160) argued that “rewards that convey competence information to subjects may not undermine intrinsic motivation,” a view that is also embraced by Eisenberger and Armeli (1997). However, perceived reward for creativity does not guarantee the receipt of such rewards and may pose a threat to the self-image of those who believe they are unlikely to receive it. In fact, performance-contingent reward has been found to be positively correlated with performance pressure (Eisenberger & Aselage, 2009) and can induce distress in some individuals (Landy, Quick, & Kasl, 1994). According to the cognitive appraisal framework of Lazarus and Folkman (1984), individuals appraise a potential stressor as either threatening or promoting mastery, personal growth or future gain. These individual appraisal variables refer to “dispositions to appraise ongoing relationships with the environment consistently in one way or another” (Lazarus, 1991, p. 138) and represent an event’s personal significance in terms of values, well-being, and commitment (Lazarus, 1991; Smith, Haynes, Lazarus, & Pope, 1993). Although appraisal can be event-specific, the optimism and confidence of a challenge appraisal and the pessimism and lack of confidence of a threat appraisal remain relatively stable across situations (Skinner & Brewer, 2002). Drawing on the cognitive appraisal framework of Lazarus and Folkman (1984), we have focused on an individual’s general tendency of evaluating reward for creativity as a challenge or a threat and posit that the two appraisal styles determine how individuals would respond to



perceived reward for creativity.

Challenge appraisal, i.e., appraising a situation as having the potential to promote personal gain or growth, triggers positive emotions and an active or problem-solving style of reactions (e.g., exerting effort to cope with the situation's demand). In contrast, threat appraisal, i.e., appraising a situation as having the potential to damage personal competence and self-respect, triggers negative emotions and a passive or emotional style of reaction (e.g., withdrawing from the situation). Although both types of appraisals call for the mobilization of individual coping effort, they can be distinguished by different cognitive and affective characteristics (Lazarus & Folkman, 1984). Challenge appraisal is associated with the expectation of successful coping in a stressful situation (Gutnick, Walter, Nijstad, & De Dreu, 2012) and positive affect such as eagerness, excitement, and exhilaration (Folkman & Lazarus, 1985). It reflects a psychological state orientated toward realizing potential gains or opportunities (Tomaka, Blascovich, Kelsey, & Leitten, 1993). In contrast, threat appraisal is associated with the anticipation of imminent losses (Gutnick et al., 2012) and negative affect such as fear, anxiety, and anger (Folkman & Lazarus, 1985). It reflects a psychological state oriented toward avoiding unfavorable outcomes. Consistent with Lazarus (1991) and Lazarus and Folkman (1984), we view challenge and threat appraisals as two independent individual orientation variables.

The self-determination theory (Deci & Ryan, 2000) suggests that the motivational effects of external controls such as extrinsic rewards lie along a continuum. At one end of the continuum, individuals internalize extrinsic rewards, have a relatively high sense of autonomy and are motivated to engage in an assigned task required by such rewards. At the other end, individuals view extrinsic rewards as imposed and have no sense of autonomy. Whether individuals internalize an external reward is contingent upon the extent to which

they perceive the performance goals associated with the reward as important based on their own values and goals (Young, Beckman, & Baker, 2012). We argue that individual different appraisals are likely to affect the extent to which they internalize reward and intrinsic motivation. For those who appraise reward for creativity as a challenge, they place a high value on such reward because the assigned creativity performance goals are important and instrumental for the realization of their personal goals such as recognition and personal development. Thus, they are inclined to internalize such reward and thus experience a high degree of autonomy. However, the individuals who appraise reward for creativity as a threat tend to perceive the assigned creativity performance goals and related tasks as a threat to their self-image with potential harms or losses. Thus, this group of people may place a low value on such reward and are inclined to view the assigned performance targets as imposed and feel no sense of autonomy.

As Cameron and Pierce (2002) noted, performance-contingent reward conveys mastery only if the desirable behaviors are likely to be performed but implies failure and negative outcomes if the performance standards are unlikely to be met. A key role of reward is to imbue meaning to an individual's self-identity as reward can be viewed as providing an opportunity for recognition (Thierry, 1992, 2001). The availability of performance-contingent reward does not guarantee better performance or positive competence feedback, especially for creative demands, where failure is likely. For extrinsic rewards that are contingent on performance, the anticipation of success or failure should shape how an individual reacts to such rewards. In the case of challenge appraisal of reward for creativity, an individual tends to see the potential gains inherent in such reward, including recognition, respect, and personal development, and regard reward for creativity as providing an opportunity to affirm one's competence. In contrast, when an individual appraises the reward situation as a potential

source of incompetence or failure, the promised reward is perceived as a threat associated with a potential damage to self-respect and self-esteem (cf. Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986).

Specifically, challenge appraisal can enhance the positive effect of perceived reward in several ways. When contingent reward is appraised as providing an opportunity to achieve personal goals, positive emotions will be aroused and people are likely to experience satisfaction and enjoy what they are doing (Cameron & Pierce, 2002), which is the core of intrinsic motivation. In addition, previous research has suggested that challenges trigger an approach orientation (Gutnick et al., 2012), defined as the attempt to reduce the discrepancy between current states and desired end-states and achieve the ideal standard (Higgins, 1997). Driven by the approach orientation, individuals will engage in an activity with concentration and involvement and have optimal, enjoyable experience, thereby giving rise to the experience of flow, which promotes intrinsic motivation (Csikszentmihalyi & LeFevre, 1989). Our proposition is consistent with empirical evidence in the extant literature. Scientists regard tangible rewards from the scientific community (e.g., Nobel Prize) as symbols of personal competence, and experience positive affect despite the demand of the strenuous work involved (Eisenberger & Shanock, 2003; Mansfield & Busse, 1981). Ambitious musicians and artists are often motivated by extrinsic rewards such as the Grammy and Oscar awards (Cameron & Pierce, 2002). Closer to our study, Amabile, Phillips, and Collins (1993) found that for professional artists who perceived the extrinsic incentive of a commissioned work as an opportunity to achieve recognition, the extrinsic incentive exerted positive rather than negative influence on creativity.

If an individual evaluates reward for creativity as a threat because it may reveal one's incompetence, the availability of such reward may reduce intrinsic motivation. Drawing upon

Lazarus and Folkman (1984), when individuals perceive contingent reward as a threat, they tend to adopt an avoidance-oriented approach, which is characterized by an avoidance of thinking about the reward, distancing themselves from the activities required, and resorting to well-learned responses to cope with the demands (cf. Lazarus & Folkman, 1984; Staw, Sandelands, & Dutton, 1981). In other words, these employees respond to reward in a rigid and maladaptive manner, and their enjoyment of work, i.e., intrinsic motivation, suffers as a result (cf. Zhou, Shin, & Cannella, 2008). Prior research has provided indirect empirical evidence for the moderating effect of threat appraisal. In testing the effect of performance failure on intrinsic motivation, Eisenberger, Pierce, and Cameron (1999) reported that participants who received high levels of failure performance feedback together with “less than expected reward” (reward’s diminution from an expected level) exhibited a large decrement in free-choice intrinsic motivation. This finding suggests that the failure to receive an expected reward may symbolize incompetence and performance failure, resulting in decreased intrinsic motivation (Eisenberger et al., 1999). We extrapolate that the anticipation of low performance and failure to obtain reward also impair intrinsic motivation.

Our theoretical analysis suggests that challenge and threat appraisals moderate the effect of perceived reward on intrinsic motivation in opposite directions. Since creativity-related intrinsic motivation matches the specificity of creative performance, we focus on this specific form of intrinsic motivation in the following hypotheses:

*Hypothesis 1:* Challenge appraisal moderates the relationship of perceived reward for creativity with creativity-related intrinsic motivation such that the relationship is positive when challenge appraisal is high.

*Hypothesis 2:* Threat appraisal moderates the relationship of perceived reward for creativity with creativity-related intrinsic motivation such that the relationship is negative

when threat appraisal is high.

Hypotheses 1 and 2, together with the well-documented positive relationship between creativity-related intrinsic motivation and creativity (Shin & Zhou, 2003; Tierney et al., 1999; Zhang & Bartol, 2010), suggest a first-stage moderated mediation model (Edwards & Lambert, 2007). That is, the indirect effect of perceived reward on creativity through creativity-related intrinsic motivation is conditional on the levels of challenge and threat appraisals. This moderated mediation model clarifies when (high challenge appraisal or high threat appraisal) and why (through creativity-related intrinsic motivation) perceived reward is beneficial or harmful to creativity.

*Hypothesis 3:* The indirect effect of perceived reward for creativity on creative performance through creativity-related intrinsic motivation is positive when challenge appraisal is high.

*Hypothesis 4:* The indirect effect of perceived reward for creativity on creative performance through creativity-related intrinsic motivation is negative when threat appraisal is high.

## **Method**

### **Sample, Research Setting, and Procedure**

Our sample consisted of 196 office employees from four divisions of a construction group for electricity power plants in the People's Republic of China. The four divisions followed similar human resource practices and started a new reward program to promote employee creativity not long before the present study. The construction group aimed to satisfy customer demands and provide good services. Individual employees were encouraged to generate creative ideas (e.g., improving service processes and finding new solutions to meet customer needs) to obtain extrinsic rewards, such as monetary incentives, positive

performance evaluation or promotion, and there was no such reward plan for work teams and units. The regular weekly meetings between the managers and employees provided the opportunity for employees to express creative ideas and exchange information.

Surveys were administered by personnel managers to employees and their immediate supervisors from different departments, including engineering, accounting, and manufacturing. Small gifts were offered to encourage participation, and the confidentiality of the survey responses was assured. We employed a three-phase, multi-source design that temporally separated the predictors, mediators, and outcome variable to reduce the common method bias (Podsakoff, MacKenzie, & Podsakoff, 2012). The control variables (e.g., education and tenure), the independent variable (perceived reward for creativity), and the two moderators (challenge and threat appraisals) were measured at Time 1 by employees. The mediators, creativity-related intrinsic motivation and intrinsic task motivation, were measured at Time 2 by employees. A total of 234 surveys were distributed at Time 1, and 224 surveys were returned at Time 2. The dependent variable, employee creative performance, was rated by immediate supervisors at Time 3. After matching the responses across the three waves and dropping cases with irregular responses that had missing values or identical responses to all questions, a total of 196 cases remained with an effective response rate of 84%. The 196 employees were nested within 82 supervisors. In the sample considered for the study, 84% were male, 53% were between 20 to 29 years old, 78.7% had an associate degree or above, and 44.1% had a work experience of fewer than 3 years in the organization.

### **Measures**

All the measures, except creative performance, were answered on a 5-point Likert-type scale (1 = *strongly disagree*; 5 = *strongly agree*). The original survey items were developed in English, and we followed the translation and back-translation process (Brislin, 1986) to

create the Chinese version by three bilingual researchers in the field of management. One researcher translated the English version into Chinese, and the other two translators then independently translated the items back into English. Disagreements were discussed among the three translators to reach a consensus for refining and finalizing the Chinese version. All the items of our focal measures are shown in the appendix.

**Perceived reward for creativity (Time 1)** was measured by three items from Baer et al. (2003). Consistent with previous research (Baer et al., 2003; Yoon et al., 2009), this scale included both tangible rewards, such as financial incentives, as well as intangible rewards such as recognition. The sample items included “We have programs in this organization that reward individual creativity”, and “This organization rewards people financially for developing unique ideas or products” ( $\alpha = .78$ ).

**Challenge appraisal (Time 1)** was measured by four items adapted from Hayes (2005), which were based on Thierry’s (1992, 2001) meaning of pay scale for the motivational meaning of pay. The sample items included “Reward for creativity provides opportunities ‘to be recognized by supervisors and my organization’ and ‘to enhance personal growth’” ( $\alpha = .87$ ).

**Threat appraisal (Time 1)** was measured by three items adapted from Folkman et al. (1986). The sample items included “Reward for creativity may create the possibility of ‘appearing incompetent’ and ‘losing my self-respect’” ( $\alpha = .92$ ).

**Creativity-related intrinsic motivation (Time 2)** was measured by five items from Tierney et al. (1999). These items measured the extent to which engagement in creativity-related activities brings enjoyment to an individual, which is consistent with the core definition of intrinsic motivation. Considerable research has provided support for the validity of this scale (e.g., Jaussi & Dionne, 2003; Zhang & Bartol, 2010). The sample items

included “I enjoy coming up with new ideas for products” and “I enjoy improving existing processes or products” ( $\alpha = .83$ ).

**Intrinsic task motivation (Time 2)** was measured by six items adopted from Warr, Cook and Wall (1979). These items focused on how employees felt when they did their jobs well, reflecting an individual’s positive reactions to a task. Considerable research has supported the validity of this scale (e.g., Shalley et al., 2009; Zhang, Kwan, Zhang, & Wu, 2014). The sample items were “I try to think of ways of doing my job effectively” and “I take pride in doing my job as well as I can” ( $\alpha = .72$ ).

**Creative performance (Time 3)** was measured by six items developed by Scott and Bruce (1994) on a 6-point Likert-type scale ranging from “*strongly disagree*” to “*strongly agree*”. The sample items included “searches out new technologies, processes, techniques, and/or product ideas” and “generates creative ideas” ( $\alpha = .90$ ).

**Control variables.** Education and organizational tenure were controlled for because they have been shown to relate to creativity at work and may confound the relationships of interest (Zhou, Shin, Brass, Choi, & Zhang, 2009). We also created three dummy variables for the four divisions to capture the potential influence of inter-unit variation. To confirm the unique effect of cognitive appraisal, we controlled for informational perception of reward (Deci & Ryan, 1985), which reflected the extent to which reward for creativity is perceived as providing information about an individual’s task competence. To measure informational perception of reward, we adapted six items from Hayes (2005) to a creativity context, which were based on Thierry’s (1992, 2001) meaning of pay scales for the relative position dimension (defined as the extent to which pay signals the competence of individuals in comparison with others or with normative standards). The sample items included “Through reward for creativity, I learn ‘how well I took on and completed creativity activities’ and ‘the



extent to which I performed creativity activities efficiently" ( $\alpha = .88$ ).

### Results

We conducted a series of confirmatory factor analyses to evaluate the discriminant validity of the scales (perceived reward for creativity, challenge appraisal, threat appraisal, creativity-related intrinsic motivation, intrinsic task motivation, creative performance, and informational perception). As expected, the seven-factor model fit the data well,  $\chi^2 = 673.91$ ,  $df = 474$ , CFI = .94, TLI = .93, RMSEA = .05 and was significantly better than a) the six-factor model combining challenge appraisal and threat appraisal into one common factor ( $\Delta\chi^2 = 475.54$ ,  $\Delta df = 6$ ,  $p < .01$ , CFI = .78, TLI = .76; RMSEA = .08); b) the six-factor model combining creativity-related intrinsic motivation and intrinsic task motivation ( $\Delta\chi^2 = 108.75$ ,  $\Delta df = 6$ ,  $p < .01$ , CFI = .90, TLI = .89; RMSEA = .06); c) the five-factor model combining challenge appraisal, threat appraisal, and informational perception ( $\Delta\chi^2 = 781.56$ ,  $\Delta df = 11$ ,  $p < .01$ , CFI = .69, TLI = .66; RMSEA = .10); d) the three-factor model combining challenge appraisal, threat appraisal, informational perception, creativity-related intrinsic motivation, and intrinsic task motivation ( $\Delta\chi^2 = 1279.72$ ,  $\Delta df = 18$ ,  $p < .01$ , CFI = .53, TLI = .49; RMSEA = .12), and e) the two-factor model combining constructs reported by employees and supervisors, respectively ( $\Delta\chi^2 = 1388.65$ ,  $\Delta df = 20$ ,  $p < .01$ , CFI = .49, TLI = .46; RMSEA = .13). For means, standard deviations, zero-order correlations, and scale reliabilities, see Table 1.

-----

Insert Table 1 about here

-----

Subordinates were nested within supervisors in the data, and we adopted multilevel analysis using Mplus 5.1 to test the hypotheses. The results of the analysis of variance

(ANOVA) showed that creative performance, perceived reward for creativity, threat appraisal, and creativity-related intrinsic motivation had significant between-group variances with the  $F$  value significant at  $p < .05$ , justifying the need for multilevel analysis. All of our hypotheses were tested in an integrative model involving both mediation and moderation. All the focal variables were standardized prior to modeling (Aiken & West, 1991).

The overall results are shown in Table 2. Consistent with Hypothesis 1, the interaction term between perceived reward for creativity and challenge appraisal was significant ( $B = .22$ ,  $p < .01$ ). We followed the recommendation of Preacher, Curran, and Bauer (2006) and Preacher, Rucker, and Hayes (2007) and examined the regions of significance using the Neyman-Johnson technique. This technique revealed that the slope of the relationship between perceived reward and creativity-related intrinsic motivation became positively significant for values of challenge appraisal at or above a standardized score of 1.10 ( $p < .05$ ), and negatively significant for values of challenge appraisal at or below a standardized score of  $-0.97$  ( $p < .05$ ). Thus, Hypothesis 1 was fully supported. Consistent with Hypothesis 2, the interaction between perceived reward and threat appraisal was also significant ( $B = -.19$ ,  $p < .05$ ). The analysis based on the Neyman-Johnson technique showed that the slope for the relationship between perceived reward and creativity-related intrinsic motivation was positively significant when threat appraisal was at or below a standardized score of  $-2.21$ , and negatively significant when threat appraisal was at or above a standardized score of 1.78. Thus, Hypothesis 2 was also supported.

To illustrate the interactive patterns for both challenge and threat appraisals, we plotted the interactions at two standard deviations above (+2.5) and below ( $-2.5$ ) the mean level of the two appraisals to make the high and low values fall into their respective region of significance (see Figures 2 and 3). The conventional use of one standard deviation for plotting simple slopes is arbitrary (Bauer & Curran, 2005), and we chose our values based on

the results of regions of significance. As expected, perceived reward was positively related to creativity-related intrinsic motivation when challenge appraisal was high (simple slope = .54,  $p < .01$ ), but negatively related to intrinsic motivation when challenge appraisal was low (simple slope =  $-.57$ ,  $p < .01$ ). Similarly, when threat appraisal was high, the relationship between perceived reward and creativity-related intrinsic motivation was negative (simple slope =  $-.49$ ,  $p < .05$ ). When threat appraisal was low, this relationship was positive (simple slope = .47,  $p < .05$ ).

-----  
Insert Table 2, and Figures 2 and 3 about here  
-----

We followed the method of Selig and Preacher (2008) based on Monte Carlo simulation to test the conditional indirect effects hypothesized as this method ameliorates the power problem associated with the non-normal sampling distribution of the product term (MacKinnon, Lockwood, & Williams, 2004). To test Hypotheses 3 and 4, we calculated the conditional indirect effect of perceived reward on creative performance under high and low levels of challenge appraisal as well as threat appraisal (two standard deviations above and below the mean value). Confidence intervals (CIs) were reported to indicate the significance of conditional indirect effects.

The relationship between creativity-related intrinsic motivation and creative performance was significant and positive ( $B = .11$ ,  $p < .05$ ). In addition, the effect of perceived reward on creative performance through creativity-related intrinsic motivation was contingent on challenge appraisal. When challenge appraisal was high, the indirect effect was positive (indirect effect = .06, 95% CI = [.004, .140]). Thus, Hypothesis 3 was supported. However, when challenge appraisal was low, the indirect effect was negative (indirect effect =  $-.06$ , 95% CI =  $[-.146, -.005]$ ). An opposite pattern was observed for threat appraisal. The

indirect effect of perceived reward on creative performance was negative when threat appraisal was high (indirect effect =  $-.05$ , 95% CI =  $[-.141, .002]$ , 90% CI =  $[-.125, -.003]$ ), but positive when threat appraisal was low (indirect effect =  $.05$ , 95% CI =  $[-.002, .134]$ , 90% CI =  $[.003, .117]$ ). Thus, Hypothesis 4 was partially supported.

### **Results Based on Intrinsic Task Motivation**

Many studies have examined the mediating role of intrinsic task motivation in channeling the effects of antecedent variables on creativity (e.g., Amabile, 1979; Amabile, Goldfarb, & Brackfield, 1990; Shalley & Perry-Smith, 2001). To demonstrate that this general type of intrinsic motivation is not a reliable mediator, we examined whether intrinsic task motivation played a role in mediating the perceived reward-creativity link with cognitive appraisals as moderators. We conducted a similar set of analysis with creativity-related intrinsic motivation replaced by intrinsic task motivation and described the results based on intrinsic task motivation. As shown in Table 2, it is not a significant mediator of the joint effects of perceived reward for creativity and appraisal variables on creativity. Our results indicate that the relationship between perceived reward and intrinsic task motivation was not moderated by appraisal variables (challenge appraisal:  $B = .00$ , *ns*; threat appraisal:  $B = -.15$ , *ns*). In addition, although intrinsic task motivation was significantly and positively related to creative performance, the moderated mediation models with intrinsic task motivation as the mediator were not supported. This is consistent with previous research that failed to support the mediating role of intrinsic task motivation (e.g., Eisenberger & Aselage, 2009, Study 3; Shalley & Perry-Smith, 2001). The results further demonstrated that challenge and threat appraisals of reward moderated the effect of perceived reward on creativity-related intrinsic motivation, but not on intrinsic task motivation.

### **Discussion**

Our results support the utility of Lazarus and Folkman's (1984) transactional theory of

stress to provide a nuanced account of the effects of perceived reward on intrinsic motivation and creativity. In line with this theory, for people who appraise reward for creativity as a challenge, perceived reward is positively related to creative performance through higher creativity-related intrinsic motivation. For those who appraise reward for creativity as a threat, perceived reward has a negative relationship with creative performance through lower creativity-related intrinsic motivation. These moderated mediation effects are not significant with intrinsic task motivation as the mediator.

### **Theoretical Implications**

Our study follows the person-reward interaction approach to addressing the controversial relationship of perceived reward with intrinsic motivation and creativity. Some researchers have examined the moderating role of personal characteristics (Baer et al., 2003) and recognized that individuals with certain characteristics may respond positively or negatively to perceived reward (e.g., Shalley et al., 2004). However, no systematic theoretical framework has been developed to account for the moderating effects of individual characteristics. The present research makes several valuable contributions to the literature on reward and creativity. First, our study provides a new perspective to clarify the mixed relationship between perceived reward and intrinsic motivation. We based our research on the consensus between social cognitive psychologists and behaviorally oriented researchers about the positive effects of competence information conveyed by reward. Accordingly, we have adapted the cognitive appraisal framework from Lazarus and Folkman's (1984) transactional theory of stress to the reward for creativity context and introduced the construct of cognitive appraisal as a major individual difference variable that can shape the effects of perceived reward. This theoretical perspective focuses on individuals' subjective appraisal of a reward-creativity contingency to explicate the diverse effects of perceived reward. The results

of our study show that the appraisal of reward for creativity affects the responses to such reward, providing empirical support for the call of Shalley et al. (2004) to consider the joint effects of extrinsic rewards and individual differences. A promising direction for future research is to examine the role of individual characteristics in shaping the interpretation of the competence-related information signaled by extrinsic rewards. Individuals may interpret and react to similar signals in different ways, and these differences need to be considered in theorizing about the effects of extrinsic rewards on creativity.

Second, our focus on an individual's appraisal of reward extends prior theorizing about the types of reward used or the characteristics of an interpersonal context as contingent factors that affect the effects of extrinsic rewards on intrinsic motivation (e.g., Deci, Nezlek, & Sheinman, 1981). To account for the inconsistent relationship between extrinsic rewards and intrinsic motivation, Ryan and Deci (2000, p. 27) posited that "it is the relative salience of the competence-relevant versus controlling aspects of a performance-contingent reward that determines its effect on intrinsic motivation." The type of reward contingency used and the nature of an interpersonal context (e.g., the interpersonal style adopted in administering performance-contingent rewards) may determine the relative salience of the informational and controlling aspects of reward, thereby leading to a positive or negative effect of reward on intrinsic motivation (for details, see Deci et al., 1999).

Although this approach is sensible, it is complicated and difficult to determine the precise nature of contingent reward based on this approach. Our theoretical perspective provides a parsimonious approach to deciphering the meaning of extrinsic rewards. While deciding whether extrinsic rewards are administered or experienced as informational versus controlling is complicated, people's appraisal of reward in terms of challenge and threat is relatively straightforward and provides a powerful framework to account for the diverse effects of

extrinsic rewards on intrinsic motivation and creativity. If employees are oriented toward appraising such reward as an opportunity to confirm their competence, reward will exert a positive impact on intrinsic motivation. Our theorizing and results also confirm the concern of cognitive evaluation theory (CET) theorists that “the use of rewards as motivational strategy is clearly a risky proposition” (Deci, Ryan, & Koestner, 2001, p. 50). This is because the reward can have a negative effect for employees who appraise reward as a threat. Our theorizing suggests that the types of reward used or the characteristics of an interpersonal context may exert their influence on the effects of extrinsic rewards through the cognitive appraisal of a reward-creativity contingency, a possibility that needs to be evaluated in the future.

Third, this research clarifies the view on competence information conveyed by extrinsic rewards proposed by Eisenberger and his colleagues (e.g., Eisenberger, 1992; Eisenberger, & Armeli, 1997). In sharp contrast to researchers who subscribe to CET, they posit that contingent reward increases rather than decreases perceived self-determination by providing the freedom of action to reward recipients, who can decide on the level of reward they would aim for. This view assumes that extrinsic rewards have a symbolic function of signaling competence and self-efficacy (Eisenberger et al., 1999). From our perspective, however, it is obvious that not all people would find extrinsic rewards liberating, and some people may feel threatened by a reward program for creativity even if it is designed to be informational instead of controlling. For this group of people, perceived reward for creativity may signal the possibility of revealing one’s incompetence rather than competence as well as damaging self-image. The distinction of challenge and threat appraisals provides a useful framework to capture this type of individual difference. Our results are also in accordance with the assertion of Cameron and Pierce (2002, p. 64) who hold that the competence information conveyed by

external reward contingencies does not inevitably lead to higher intrinsic motivation. Reward given for progress and achievement provides positive feedback for competence, thereby increasing intrinsic interest. However, a negative feedback in the form of loss of reward based on inadequate performance can reduce perceived self-efficacy and create obstacles to perception of self-determination, thereby decreasing intrinsic interest (Cameron & Pierce, 2002: 64-65).

Finally, our study contributes to the literature on intrinsic motivation by differentiating the role of creativity-related intrinsic motivation versus intrinsic task motivation. A match between predictors and criteria in specificity helps enhance predictive validity (Hogan & Roberts, 1996). Many studies have examined the mediating role of intrinsic task motivation in channeling the effects of antecedent variables on creativity, but they have provided varying results (e.g., Amabile, 1979; Amabile et al., 1990). In the current study, we have tested a “quadruply matched” model in which the predictor, the two moderators, the mediator (creativity-related intrinsic motivation) and the outcome variable (creative performance) share the same bandwidth. The moderated mediation results support the prediction that creativity-related intrinsic motivation channels the moderated effect of perceived reward and the appraisal of reward on creative performance. A similar set of analysis shows that the mediating effect of intrinsic task motivation and the associated moderating effects are not significant. Thus, we propose that the equivocal mediating effect of intrinsic task motivation in the creativity literature (Shalley et al., 2004) may be due to its non-specific nature. Since considerable research on intrinsic motivation in the creativity field is based on general measures of intrinsic motivation (e.g., Shalley, Gilson, & Blum, 2009; Shalley & Perry-Smith, 2001), our theorizing and findings suggest that creativity-related intrinsic motivation deserves further attention in future research.



### **Practical Implications**

Our research has important practical implications. The majority of prior studies on extrinsic rewards and creativity have been conducted in experimental settings where children or college students were asked to perform simple tasks (e.g., Cameron, Pierce, Banko, & Gear, 2005; Eisenberger & Armeli, 1997; Eisenberger & Rhoades, 2001). Both the reward context and the contingent-reward tasks in organizations are different from those in experiments, and the extent to which the experimental results based on children or students can generalize to employees in organizations is unclear. Based on field data, our research provides more direct evidence that can be used to guide management practices.

Specifically, we suggest that how individuals under a reward program for creativity appraise reward for creativity is important for the effectiveness of the program in an organizational setting. When exposed to an extrinsic reward or incentive program for creativity, employees benefit by appraising such reward as a challenge rather than a threat and become more motivated to engage in creative activities. These results highlight the need for managers to evaluate the appraisal style of employees and adopt a selective approach to identifying those with challenge appraisal when administering monetary incentives and recognition programs. Managers are suggested to promote challenge appraisal and suppress threat appraisal in employees. Managers may distinguish employees with a challenge appraisal style from employees with a threat appraisal style by observing their daily work behaviors and seeking their feedback about the reward program. To encourage challenge appraisal of reward, the management should emphasize the potential developmental benefits of reward and focus employees' attention on possible personal growth and achievements associated with a reward program. Instilling self-efficacy in employees is also conducive to challenge appraisal (Jerusalem & Schwarzer, 1992). Setting up role models who have

intrinsically benefited from a reward program and encouraging knowledge sharing regarding good practices in promoting creativity are effective measures to highlight the potential for gain, growth, or mastery inherent in reward. To suppress threat appraisal of reward, managers should boost employees' self-confidence in their ability by providing training and support to develop their competence and skills and help them see the inner value of the process of striving for excellence.

### **Limitations and Opportunities for Future Research**

Although we adopted a three-wave design with temporal gaps between each wave and multiple source data to reduce the common method bias, this research still has certain limitations. First, our research was conducted in China although our theorizing is not limited to the Chinese context. Future studies can generalize our findings to other cultures by evaluating our model in diverse cultural contexts. Second, our theorizing is causal, but our research design does not provide causal data. Longitudinal and experimental studies are recommended for more definitive conclusions about the causal effects implied in our theorizing. Finally, our study is an initial attempt to empirically examine the moderating roles of individual appraisals. We have not focused on their antecedents because it is important to first demonstrate the utility of this perspective in the creativity context before we take a further step. However, the exploration of the antecedents of challenge and threat appraisals is a promising future research direction and can further validate our proposed model. Several personal factors can influence individuals' tendency to perceive the reward as a challenge or threat. For example, self-efficacy may be a predictor of individual appraisal as employees who are confident of their ability to fulfill the creative demands are likely to appraise reward for creativity as carrying challenging implications rather than appraise it as a threat that reveals their incompetence and damages their self-respect. In addition, regulatory focus

(Higgins, 1997) is also likely to influence the appraisal of reward as a challenge or a threat because individuals with a promotion regulatory focus are more sensitive to potential gains and may view the reward as a challenge. In addition, negative affectivity may be related to threat appraisal of reward because individuals with a high negative affectivity tend to have a more negative outlook and report more distress compared to those having low negative affectivity (Brief & Atieh, 1987).

In conclusion, it can be said that the effects of reward on intrinsic motivation and creativity are complicated (Shalley et al., 2004; Zhou & Shalley, 2011). Our understanding of this important topic can be advanced by incorporating the influence of personal characteristics, challenge appraisal and threat appraisal in the present research. Our research represents the first step in developing a systematic theoretical framework that offers a more nuanced understanding of the effects of perceived reward as a function of individual appraisal and extends the research on extrinsic rewards and employee creativity from a new perspective.

### References

- Aiken, L., & West, S. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Ajzen, I., & Fishbein, M. (2005). The influence of attitudes on behavior. In D. Albarracín, B. T. Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes* (pp. 173-221). Hillsdale, NJ: Erlbaum.
- Amabile, T. M. (1988). A model of creativity and innovation in organizations. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (pp. 123-167). Greenwich, CT: JAI Press.
- Amabile, T. M. (1979). Effects of external evaluation on artistic creativity. *Journal of Personality and Social Psychology*, 37, 221–233.
- Amabile, T. M. (1996). *Creativity in context: Update to “the social psychology of creativity”*. Boulder, Colorado: Westview Press.
- Amabile, T. M., Goldfarb, P., & Brackfield, S. C. (1990). Social influences on creativity: Evaluation, coercion, and surveillance. *Creativity Research Journal*, 3, 6–21.
- Amabile, T. M., Phillips, E. D., & Collins, M. A. (1993). *Creativity by contract: Social influences on the creativity of professional artists*. Unpublished manuscript, Brandeis University.
- Baer, M., Oldham, G. R., & Cummings, A. (2003). Rewarding creativity: When does it really matter? *Leadership Quarterly*, 14, 569-586.
- Bauer, D. J., & Curran, P. J. (2005). Probing interactions in fixed and multilevel regression: Inferential and graphical techniques. *Multivariate Behavioral Research*, 40, 373-400.
- Boxall, P., Ang, S. H., & Bartram, T. (2011). Analysing the ‘black box’ of HRM: Uncovering HR goals, mediators, and outcomes in a standardized service environment. *Journal of*

- Management Studies, 48(7), 1504-1532.
- Brief, A. P., & Atieh, J. M. (1987). Studying job stress: Are we making mountains out of molehills? *Journal of Organizational Behavior*, 8, 115-126.
- Brislin, R. W. (1986). The wording and translation of research instruments. In W. J. Lonner & J. W. Berry (eds.), *Field methods in cross-cultural research*: (pp. 137-164). Beverly Hills, CA: Sage.
- Byron, K., Khazanchi, S., & Nazarian, D. (2010). The relationship between stressors and creativity: A meta-analysis examining competing theoretical models. *Journal of Applied Psychology*, 95, 201-212.
- Cameron, J., & Pierce, W. D. (2002). *Rewards and intrinsic motivation: Resolving the controversy*. Westport, CT: Bergin and Garvey.
- Cameron, J., Pierce, W. D., Banko, K. M., & Gear, A. (2005). Achievement-based rewards and intrinsic motivation: A test of cognitive mediators. *Journal of Educational Psychology*, 97, 641-655.
- Csikszentmihalyi, M., & LeFevre, J. (1989). Optimal experience in work and leisure. *Journal of Personality and Social Psychology*, 56, 815-822.
- Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin*, 125, 627-668.
- Deci, E. L., Nezlek, J., & Sheinman, L. (1981). Characteristics of the rewarder and intrinsic motivation of the rewardee. *Journal of Personality and Social Psychology*, 40, 1-10.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Deci, E. L., & Ryan, R. M. (2000). *Self-determination theory and the facilitation of intrinsic*

- motivation, social development, and well-being. *American Psychologist*, 55, 68-78.
- Deci, E. L., Ryan, R. M., & Koestner, R. (2001). The pervasive negative effects of rewards on intrinsic motivation: Response to Cameron (2001). *Review of Educational Research*, 71, 43-51.
- Dewett, T. C. (2002). Differentiating outcomes in employee creativity: Understanding the role of risk in creative performance (Unpublished doctoral dissertation). Texas A&M University, College Station.
- Eden, D. (1975). Intrinsic and extrinsic rewards and motives: Replication and extension with Kibbutz workers. *Journal of Applied Social Psychology*, 5, 348-361.
- Eder, P. J. (2007). Integrating the componential and interactionist models of employee creativity (Unpublished doctoral dissertation). University of Delaware, Newark.
- Edwards, J. R., & Lambert, L. S. (2007). Methods for integrating moderation and mediation: A general analytical framework using moderated path analysis. *Psychological Methods*, 12, 1-22.
- Eisenberger, R. (1992). Learned industriousness. *Psychological Review*, 99, 248-267.
- Eisenberger, R., & Armeli, S. (1997). Can salient reward increase creative performance without reducing intrinsic creative interest? *Journal of Personality and Social Psychology*, 72, 652-663.
- Eisenberger, R., & Aselage, J. (2009). Incremental effects of reward on experienced performance pressure: positive outcomes for intrinsic interest and creativity. *Journal of Organizational Behavior*, 30, 95-117.
- Eisenberger, R., & Cameron, J. (1996). Detrimental effects of reward: Reality or myth? *American Psychologist*, 51, 1153-1166.
- Eisenberger, R., Pierce, W. D., & Cameron, J. (1999). Effects of reward on intrinsic

- motivation - negative, neutral, and positive: Comment on Deci, Koestner, and Ryan (1999). *Psychological Bulletin*, 125, 677-691.
- Eisenberger, R., & Rhoades, L. (2001). Incremental effects of reward on creativity. *Journal of Personality and Social Psychology*, 81, 728-741.
- Eisenberger, R., Rhoades, L., & Cameron, J. (1999). Does pay for performance increase or decrease perceived self-determination and intrinsic motivation? *Journal of Personality and Social Psychology*, 77, 1026-1040.
- Eisenberger, R., Rhoades, L., & Cameron, J. (1999). Does pay for performance increase or decrease perceived self-determination and intrinsic motivation. *Journal of Personality and Social Psychology*, 77(5), 1026-1040.
- Eisenberger, R., & Shanock, L. (2003). Rewards, intrinsic motivation, and creativity: A case study of conceptual and methodological isolation. *Creativity Research Journal*, 15, 121-130.
- Fairbank, J. F., & Williams, S. D. (2001). Motivating creativity and enhancing innovation through employee suggestion system technology. *Creativity & Innovation Management*, 10, 68-74.
- Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology*, 48, 150-170.
- Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology*, 50, 992-1003.
- George, J. M. (2007). Creativity in organizations. *Academy of Management Annals*, 1, 439-477.
- George, J. M., & Zhou, J. (2001). When openness to experience and conscientiousness are

- related to creative behavior: An interactional approach. *Journal of Applied Psychology*, 86, 513–524.
- George, J. M., & Zhou, J. (2002). Understanding when bad moods foster creativity and good ones don't: The role of context and clarity of feelings. *Journal of Applied Psychology*, 87, 687-697.
- Grant, A. M., & Berry, J. W. (2011). The necessity of others is the mother of invention: Intrinsic and prosocial motivations, perspective taking, and creativity. *Academy of Management Journal*, 54, 73-96.
- Gutnick, D., Walter, F., Nijstad, B. A., & De Dreu, C. K. W. (2012). Creative performance under pressure: An integrative conceptual framework. *Organizational Psychology Review*, 2, 189-207.
- Harackiewicz, J. M., & Sansone, C. (2000). Rewarding competence: The importance of goals in the study of intrinsic motivation. In C. Sansone & J. M. Harackiewicz (Eds.), *Intrinsic and extrinsic motivation: The search for optimal motivation and performance* (pp. 79-103). New York: Academy Press.
- Hayes, S. C. (2005). The relationship between the symbolic meaning of money and referent choice under situations of inequity. Unpublished doctoral dissertation, University of Maryland, College Park, Maryland.
- Hennessey, B. A., & Amabile, T. M. (1988). The conditions of creativity. In R. J. Sternberg (Ed.), *The nature of creativity* (pp. 11-38). Cambridge, England: Cambridge University Press.
- Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist*, 52, 1280-1300.
- Hogan, J., & Roberts, B. W. (1996). Issues and non-issues in the fidelity-bandwidth trade-off. *Journal of Organizational Behavior*, 17, 627-637.



- Jaussi, K. S., & Dionne, S. D. (2003). Leading for creativity: The role of unconventional leader behavior. *The Leadership Quarterly*, 14, 475-498.
- Jerusalem, M., & Schwarzer, R. (1992). Self-efficacy as a resource factor in stress appraisal processes. In R. Schwarzer (Ed.), *Self-efficacy: Thought control of action* (pp. 195–213). Washington, DC: Hemisphere.
- Kanter, R. (1983). *The change masters*. New York: Simon & Schuster.
- Klotz, A. C., Wheeler, A. R., Halbesleben, J., Brock, M. E., & Buckley, M. R. (2011). Can reward systems influence the creative individual? In M. D. Mumford (Ed.), *Handbook of organizational creativity* (pp. 607-632). Oxford, United Kingdom: Elsevier Science.
- Landy, F., Quick, J. C., & Kasl, S. (1994). Work, stress, and well-being. *International Journal of Stress Management*, 1, 33-73.
- Lazarus, R. S. (1991). *Emotion and adaptation*. New York: Oxford University Press.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer Pub. Co.
- MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research*, 39, 99-128.
- Mansfield, R. S., & Busse, T. V. (1981). *The psychology of creativity and discovery: Scientists and their work*. Chicago: Nelson-Hall.
- Nishii, L. H., & Wright, P. M. (2008). Variability within organizations: Implications for strategic human resources management. In D. B. Smith (Ed.), *The people make the place: Dynamic linkages between individuals and organizations* (pp. 225–248). Mahwah, NJ: Erlbaum.
- Nonaka, I. (1991). The knowledge-creating company. *Harvard Business Review*, 69, 96-104.

- Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal*, 39, 607-634.
- Ones, D. S., & Viswesvaran, C. (1996). Bandwidth-fidelity dilemma in personality measurement for personnel selection. *Journal of Organizational Behavior*, 17, 609-626.
- Piening, E. P., Baluch, A. M., & Salge, T. O. (2013). The relationship between employees' perceptions of human resource systems and organizational performance: Examining mediating mechanisms and temporal dynamics. *Journal of Applied Psychology*, 98(6), 927-947.
- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, 63, 539-569.
- Preacher, K. J., Curran, P. J., & Bauer, D. J. (2006). Computational tools for probing interactions in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics*, 31, 437-448.
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42, 185-227.
- Ryan, R. M., & Deci, E. L. (2000). When rewards compete with nature: The undermining of intrinsic motivation and self-regulation. In C. Sansone & J. M. Harackiewicz (Eds.), *Intrinsic and extrinsic motivation: The search for optimal motivation and performance* (pp. 13-54). San Diego, CA: Academic Press.
- Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal*, 37, 580-607.
- Selig, J., & Preacher, K. (2008). Monte Carlo method for assessing mediation: An interactive

tool for creating confidence intervals for indirect effects [Computer software].

Shalley, C. E., & Gilson, L. L. (2004). What leaders need to know: A review of social and contextual factors that can foster or hinder creativity. *The Leadership Quarterly*, 15(1), 33-53.

Shalley, C. E., Gilson, L. L., & Blum, T. C. (2009). Interactive effects of growth need strength, work context, and job complexity on self-reported creative performance. *Academy of Management Journal*, 52, 489-505.

Shalley, C. E., & Perry-Smith, J. E. (2001). Effects of social-psychological factors on creative performance: The role of informational and controlling expected evaluation and modeling experience. *Organizational Behavior and Human Decision Processes*, 84, 1–22.

Shalley, C. E., Zhou, J., & Oldham, G. R. (2004). The effects of personal and contextual characteristics on creativity: Where should we go from here? *Journal of Management*, 30, 933-958.

Shin, S. J., & Zhou, J. (2003). Transformational leadership, conservation, and creativity: Evidence from Korea. *Academy of Management Journal*, 46, 703-714.

Shirom, A., Westman, M., & Melamed, S. (1999). The effects of pay systems on blue-collar employees' emotional distress: The mediating effects of objective and subjective work monotony. *Human Relations*, 52, 1077-1097.

Skinner, N., & Brewer, N. (2002). The dynamics of threat and challenge appraisals prior to stressful achievement events. *Journal of Personality and Social Psychology*, 83, 678-692.

Smith, C. A., Haynes, K. N., Lazarus, R. S., & Pope, L. K. (1993). In search of the “hot” cognitions: Attributions, appraisals, and their relation to emotion. *Journal of Personality and Social Psychology*, 65, 916–929.

Staw, B. M., Sandelands, L. E., & Dutton, J. E. (1981). Threat-rigidity effects in

- organizational behavior: A multilevel analysis. *Administrative Science Quarterly*, 26, 501-524.
- Tierney, P., Farmer, S. M., & Graen, G. B. (1999). An examination of leadership and employee creativity: The relevance of traits and relationships. *Personnel Psychology*, 52, 591-620.
- Thierry, H. (1992). Payment: Which meanings are rewarding? *American Behavioral Scientist*, 35, 694-707.
- Thierry, H. (2001). The reflection theory on compensation. In M. Erez, U. Kleinbeck, & H. Thierry (Eds.), *Work motivation in the context of a globalizing economy* (pp. 149-166). Mahwah, NJ: Erlbaum.
- Tierney, P., Farmer, S. M., & Graen, G. B. (1999). An examination of leadership and employee creativity: The relevance of traits and relationships. *Personnel Psychology*, 52, 591-620.
- Tomaka, J., Blascovich, J., Kelsey, R. M., & Leitten, C. L. (1993). Subjective, physiological, and behavioral effects of threat and challenge appraisal. *Journal of Personality and Social Psychology*, 65, 248-260.
- van Dijk, C., & van den Ende, J. (2002). Suggestion systems: Transferring employee creativity into practicable ideas. *R&D Management*, 32, 387-395.
- Warr, P., Cook, J., & Wall, T. (1979). Scales for the measurement of some work attitudes and aspects of psychological well-being. *Journal of Occupational Psychology*, 52, 129-148.
- Woodman, R. W., Sawyer, J. E., & Griffin, R. W. (1993). Toward a theory of organizational creativity. *Academy of Management Review*, 18, 293-321.
- Yoon, H. J., Choi, J. N., Lee, K., & Kim, S. (2009, August). Tangible and intangible rewards and employee creative performance. Paper presented at the annual meeting of the

Academy of Management, Chicago, IL.

- Young, G. J., Beckman, H., & Baker, E. (2012). Financial incentives, professional values and performance: A study of pay-for-performance in a professional organization. *Journal of Organizational Behavior*, 33, 964-983.
- Zhang, X., & Bartol, K. M. (2010). Linking empowering leadership and employee creativity: The influence of psychological empowerment, intrinsic motivation, and creative process engagement. *Academy of Management Journal*, 53, 107-128.
- Zhang, H., Kwan, H. K., Zhang, X., & Wu, L-Z. (2014). High core self-evaluations maintain creativity: A motivational model of abusive supervision. *Journal of Management*, 40, 1151-1174.
- Zhou, J., & Oldham, G. R. (2001). Enhancing creative performance: Effects of expected developmental assessment strategies and creative personality. *Journal of Creative Behavior*, 35, 151-167.
- Zhou, J., & Shalley, C. E. (2003). Research on employee creativity: A critical review and directions for future research. In J. Martocchio (Ed.), *Research in personnel and human resource management* (pp. 165-217). Oxford, England: Elsevier.
- Zhou, J., & Shalley, C. E. (2011). Deepening our understanding of creativity in the workplace: A review of different approaches to creativity research. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology* (pp. 275-302). Washington, DC: American Psychological Association.
- Zhou, J., Shin, S. J., Brass, D. J., Choi, J., & Zhang, Z. (2009). Social networks, personal values, and creativity: Evidence for curvilinear and interaction effects. *Journal of Applied Psychology*, 94, 1544-1552.
- Zhou, J, Shin, S. J, & Cannella, A. A. (2008). Employee self-perceived creativity after

mergers and acquisitions: Interactive effects of threat—opportunity perception, access to resources, and support for creativity. *The Journal of Applied Behavioral Science*, 44, 397-421.

TABLE 1

## Means, Standard Deviations, Correlations, and Reliability Coefficients

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. Division dummy 1	0.65	0.48	-											
2. Division dummy 2	0.19	0.40	-.67**	-										
3. Division dummy 3	0.06	0.23	-.33**	-.12	-									
4. Tenure	3.72	1.81	-.07	.15*	.06	-								
5. Education	3.07	0.71	.01	-.06	-.05	-.63**	-							
6. Perceived reward for creativity	4.20	0.66	-.18*	.04	.01	.09	-.04	(.78)						
7. Informational perception	3.78	0.60	-.07	-.05	.11	.06	-.15*	.49**	(.87)					
8. Challenge appraisal	3.74	0.73	-.10	-.02	.01	-.04	-.05	.30**	.35**	(.86)				
9. Threat appraisal	2.30	0.89	.03	.02	.02	-.01	.01	-.23**	-.19**	-.05	(.92)			
10. Creativity-related intrinsic motivation	3.90	0.56	.08	-.03	.02	.12	-.08	.12	.27**	.00	-.08	(.81)		
11. Intrinsic task motivation	4.08	0.52	.01	.00	.01	.16*	-.11	.20**	.13	.18*	-.03	.41**	(.70)	
12. Creative performance	4.53	0.69	.13	-.16*	-.17**	-.14*	.14*	-.06	-.09	-.10	.03	.13	.00	(.93)

The three dummy variables are for the four divisions included in the sample. Reliabilities are shown in parentheses on the diagonal.

\*  $p < .05$ ; \*\*  $p < .01$ .

TABLE 2

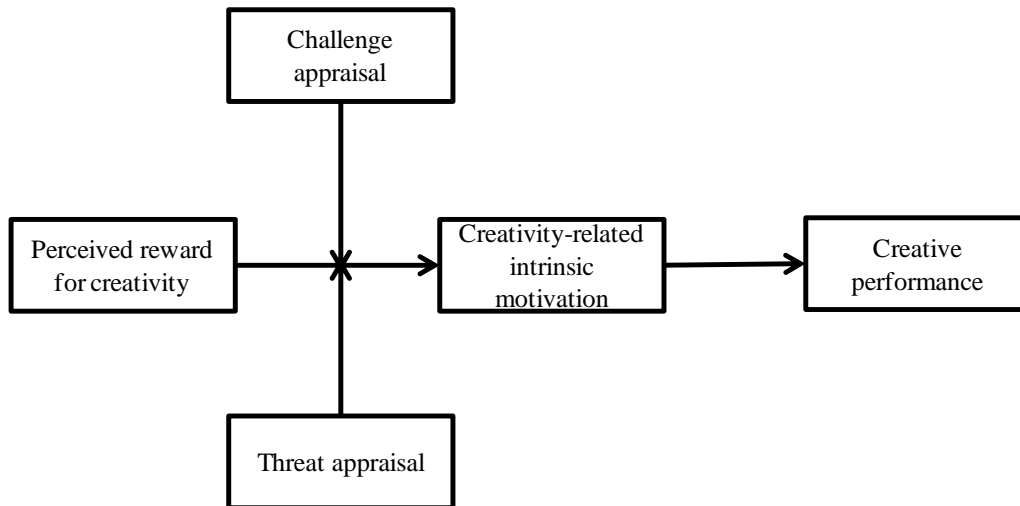
**Results for Mediation and Moderated Mediation for Creativity-related Intrinsic Motivation and Intrinsic Task Motivation**

Predictor	Creativity-related intrinsic motivation	Intrinsic task motivation	Creative performance	Creative performance
	<i>B</i> (se)	<i>B</i> (se)	<i>B</i> (se)	<i>B</i> (se)
Division dummy 1	.43 <sup>00</sup> (.23)	.25 <sup>00</sup> (.25)	-.04 <sup>00</sup> (.30)	.04 <sup>00</sup> (.30)
Division dummy 2	.27 <sup>00</sup> (.27)	.13 <sup>00</sup> (.29)	-.31 <sup>00</sup> (.36)	-.32 <sup>00</sup> (.36)
Division dummy 3	.33 <sup>00</sup> (.36)	.20 <sup>00</sup> (.38)	-.05 <sup>00</sup> (.40)	-.08 <sup>00</sup> (.40)
Tenure	.06 <sup>00</sup> (.05)	.10 <sup>*</sup> (.05)	.03 <sup>00</sup> (.04)	.02 <sup>00</sup> (.04)
Education	.00 <sup>00</sup> (.12)	.04 <sup>00</sup> (.12)	.13 <sup>00</sup> (.08)	.12 <sup>00</sup> (.08)
Perceived reward for creativity	-.01 <sup>00</sup> (.10)	.12 <sup>00</sup> (.10)	.06 <sup>00</sup> (.06)	.05 <sup>00</sup> (.06)
Informational perception	.30 <sup>**</sup> (.08)	.01 <sup>00</sup> (.08)	-.05 <sup>00</sup> (.06)	-.02 <sup>00</sup> (.05)
Challenge appraisal	-.10 <sup>00</sup> (.07)	.18 <sup>*</sup> (.08)	-.03 <sup>00</sup> (.05)	-.06 <sup>00</sup> (.05)
Threat appraisal	-.02 <sup>00</sup> (.07)	.00 <sup>00</sup> (.07)	-.02 <sup>00</sup> (.05)	-.03 <sup>00</sup> (.05)
Perceived reward for creativity × Informational perception	-.05 <sup>00</sup> (.05)	-.09 <sup>00</sup> (.05)		
Perceived reward for creativity × Challenge appraisal	.22 <sup>**</sup> (.07)	.00 <sup>00</sup> (.07)		
Perceived reward for creativity ×Threat appraisal	-.19 <sup>*</sup> (.09)	-.15 <sup>00</sup> (.09)		
Creativity-related intrinsic motivation			.11 <sup>*</sup> (.05)	
Intrinsic task motivation				.10 <sup>*</sup> (.05)

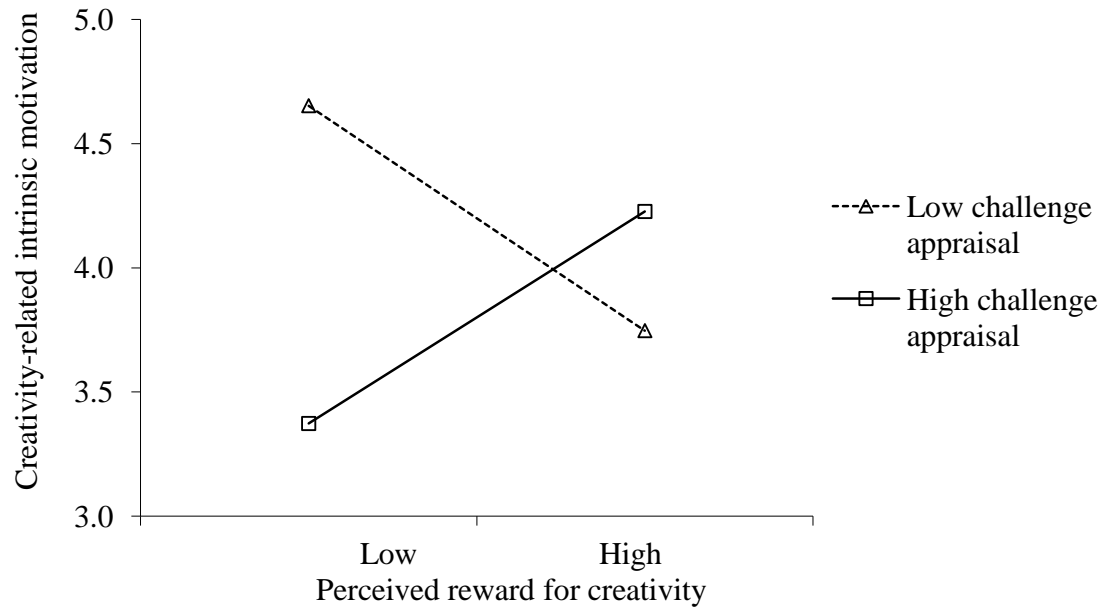
Unstandardized coefficients and standard errors are reported.

\*  $p < .05$ ; \*\*  $p < .01$

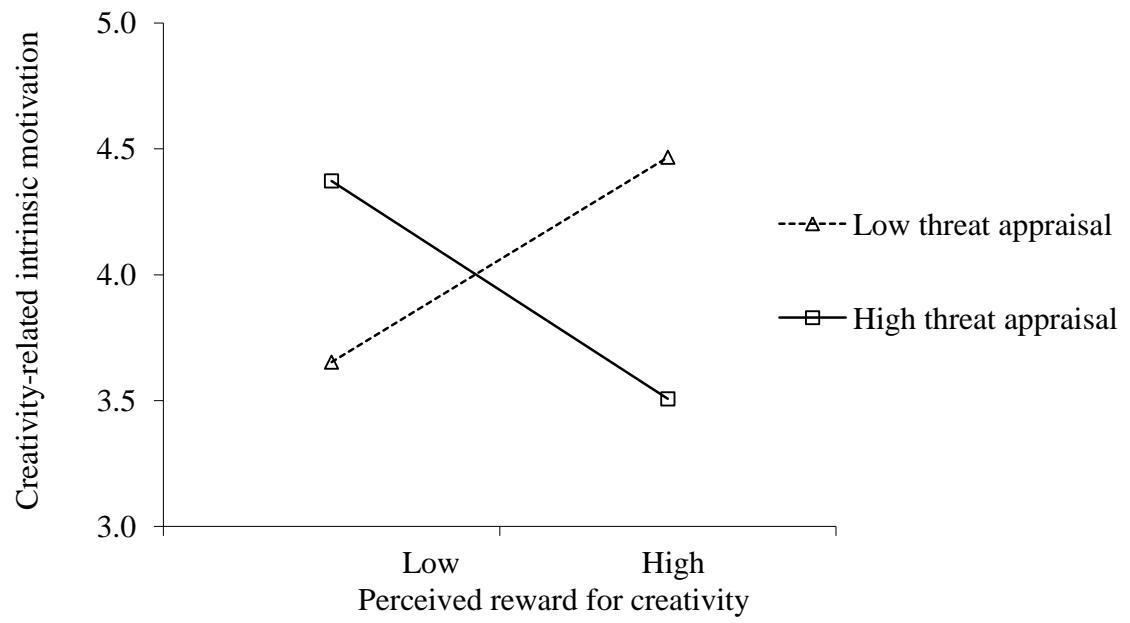




*Figure 1. Conceptual Framework and Hypotheses.*



**Figure 2. The Interaction between Perceived Reward for Creativity and Challenge Appraisal.**



**Figure 3. The Interaction between Perceived Reward for Creativity and Threat Appraisal**

**Appendix**

*Perceived reward for creativity (3 items)*

We have programs in this organization that reward individual creativity.

This organization rewards people financially for developing unique ideas or products

Individuals in my work unit receive special recognition for unique contributions.

*Challenge appraisal (4 items)*

Reward for creativity provides opportunities to be recognized by supervisors and my organization.

Reward for creativity provides opportunities to enhance personal growth.

Reward for creativity provides opportunities to be admired for my success.

Reward for creativity provides opportunities to be respected for my success.

*Threat appraisal (3 items)*

Reward for creativity may create the possibility of appearing incompetent.

Reward for creativity may create the possibility of losing my self-respect.

Reward for creativity may create the possibility of losing the affection of someone important to me.

*Creativity-related intrinsic motivation (5 items)*

I enjoy coming up with new ideas for products.

I enjoy improving existing processes or products

I enjoy finding solutions to complex problems.

I enjoy engaging in analytical thinking.

I enjoy creating new procedures for work tasks.

*Intrinsic task motivation (6 items)*

I try to think of ways of doing my job effectively.

I take pride in doing my job as well as I can.

I feel a sense of personal satisfaction when I do this job well.

My opinion of myself goes down when I do this job badly.

I like to look back on the day's work with a sense of a job well done.

I feel unhappy when my work is not up to my usual standard.

*Creative performance (6 items)*

Searches out new technologies, processes, techniques, and/or product ideas.

Generates creative ideas.

Promotes and champions ideas to others.

Investigates and secures funds needed to implement new ideas.

Develops adequate plans and schedules for the implementation of new ideas.

Is innovative.