ABSTRACT

Title of Dissertation: LINKING EMPOWERMENT AND EMPLOYEE
                          CREATIVITY: THE MEDIATION ROLES OF CREATIVE
                          PROCESS ENGAGEMENT AND INTIRNSIC
                          MOTIVATION
                          Xiaomeng Zhang

Dissertation Directed By: Professor Kathryn M. Bartol
                             Department of Management and Organization

With an increasingly turbulent environment, heightened levels of competition, and unpredictable technological change, more and more organizations are encouraging their employees to be creative. Considerable evidence indicates that employee creativity can substantially contribute to organizational innovation, effectiveness, and survival (Amabile, 1996; Madjar, Oldham, & Pratt, 2002; Shalley, Zhou, & Oldham, 2004). Not surprisingly, the field of organizational behavior has witnessed an increasing interest in understanding factors that promote employee creativity. One factor that has been suggested as being particularly important is empowerment (e.g., Amabile, 1983, 1996; Spreitzer, 1995).

Drawing on leadership theories, empowerment theories, and creativity theories, the major purpose of this dissertation was to develop and empirically test an integrative process model linking empowerment approaches with creativity. More specifically, this model integrates leadership theories and empowerment theories to explore how empowering leadership influences both psychological empowerment and job structural empowerment. It also examines how psychological empowerment and job structural empowerment influence employee creativity via the mediating effect of employee creative process engagement and intrinsic motivation. Finally, it investigates how certain personal characteristics (e.g., domain-relevant skills, openness to experience, and proactivity) and a contextual factor—leader encouragement of creativity—work as moderators to affect employee creativity.

Using survey data from a large information technology company in the People's Republic of China (PRC), the theoretical model was examined though structural equation modeling and hierarchical regression analyses. Findings indicated that empowering leadership was positively related to psychological empowerment, which was fully mediated by creative process engagement in influencing employee creativity. In addition, empowering leadership also had a direct impact on job structural empowerment, whose impact on creativity was mediated by intrinsic motivation directly and also indirectly through its influence on creative process engagement. Further results showed that leader encouragement of creativity interacted with psychological empowerment to further motivate employees to engage in the creative process. Moreover, employees' proactive characteristics strengthened the positive influence of creative process engagement and intrinsic motivation on creativity. Implications for theory and practice and future research direction are discussed.

LINKING EMPOWERMENT AND EMPLOYEE CREATIVITY: THE MEDIATING

ROLES OF CREATIVE PROCESS ENGAGEMENT AND INTRINSIC MOTIVATION

By

Xiaomeng Zhang

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Advisory Committee:

    Professor Kathryn M. Bartol, Chair
    Professor Henry P. Sims, Jr.
    Professor Ken G. Smith
    Professor Paul J. Hanges
    Professor Myeong-Gu Seo

DEDICATION

This dissertation is dedicated to my dear parents, Zihui Wei and Hui Zhang, for their fundamental influences on me in many important ways and to my dear husband, Qi Wang, for his genuine love and unwavering continuous support. This dissertation is especially dedicated to my sweetheart daughter, Angel Y. Wang, who always brings me happiness and is my spiritual support. Without the constant encouragement from all of you, I would never have completed my doctoral degree. Thank you for always believing in me!

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CHAPTER 1: INTRODUCTION

Due to the hypercompetitive global environment and the rapid pace of technological advancement, the central role of organizational innovation and effectiveness in the long-term survival of organizations provokes continued interest among researchers, social scientists and practitioners. Considerable evidence indicates that employee creativity is essential and can fundamentally contribute to organizational innovation, effectiveness, and survival (Amabile, 1996; Shalley, Zhou, & Oldham, 2004). Not surprisingly, the field of organizational behavior has witnessed an increased interest in understanding factors that promote employee creativity (for a complete review, see Shalley et al., 2004). Among those factors several researchers have identified empowerment as one of the most important and powerful influence (e.g., Amabile, 1983, 1988; Amabile, Conti, Coon, Lazenby, & Herron, 1996; Shalley & Gilson, 2004; Shalley et al., 2004; Shin & Zhou, 2003; Spreitzer, 1995; Tierney, Farmer, Grane, 1999; Woodman, Sawyer, & Griffin, 1993).

Major Purpose of Current Study

Empowerment has been studied primarily from two different points of view. One approach, the psychological empowerment approach (e.g., Conger & Kanungo, 1988; Spreitzer, 1995) refers to a process of psychological state as manifested in four cognitions: meaning, impact, competence/self-efficacy, and self-determination (Spreitzer, 1995). Another approach, the job structural view (e.g., Kanter, 1977; Leach, Wall, & Jackson, 2003; London, 1993) focuses heavily on job design and concentrates on five core job characteristics (task variety, task identity, task significance, autonomy, and feedback) (Hackman & Oldman, 1980) leading to employees' intrinsic motivation. Recently however,

Menon (2001) suggested the leadership approach as an empowering process, should not be ignored when investigating the functions of psychological and job structural empowerment. All three approaches are not mutually exclusive; rather, they provide a comprehensive perspective of the empowerment phenomenon. Thus, the first purpose of this dissertation is to explore how the leadership approach—primarily focusing on empowering leader behaviors as organizational contextual variables—influence both psychological empowerment and job structural empowerment.

In addition, although there are abundant arguments in the literature suggesting that psychological empowerment and job structural empowerment are critical to employee creativity through their effects on employees' intrinsic motivation (see Amabile, 1996; Spreitzer, 1995), empirical studies have been surprisingly absent for directly testing the mediating role of intrinsic motivation between both psychological empowerment and job structural empowerment and creativity (Shalley et al., 2004). Thus, this dissertation aims to address and fill this gap. Furthermore, according to Amabile's (1983) componential conceptualization of creativity, intrinsic task motivation is a necessary, but not sufficient, condition for creative outcomes. Engagement in creative process has an equal, if not more important, role in influencing individual creative behaviors. Several researchers emphasize the value of understanding creative process engagement wherein individuals come to develop creative ideas, and they call for more empirical studies addressing this issue (Drazin, Glynn, & Kazanjian, 1999; Mumford, 2000; Shalley et al., 2004). Thus, the empirical investigation of the mediating role of creative process engagement between psychological empowerment and employee creativity becomes another purpose of this

dissertation.

Overall, there are three major purposes of this dissertation. First, it integrates leadership theories and empowerment theories to explore how empowering leadership influences psychological empowerment and job structural empowerment. Second, it examines how psychological empowerment and job structural empowerment influence employee creativity via the mediating effect of employee creative process engagement and intrinsic motivation. Last, it investigates how certain personal characteristics (e.g., individual differences such as domain-relevant skills, openness to experience, and proactivity) and a contextual factor—leader encouragement of creativity—work as moderators in the whole process to affect employee creativity.

Potential Contributions

By exploring those relationships among empowering leader behaviors, empowerment (both psychological empowerment and job structural empowerment), intrinsic motivation, creative process engagement, individual differences, and employee creativity as described above, the current study contributes to the literature in several major ways. First of all, this is the first research, to the author's knowledge, to connect empowering leadership with both psychological and job structural empowerment in one study. Specifically, empowering leadership is defined in this dissertation as leader behavior consisting of four components: (1) enhancing the meaningfulness of work, (2) fostering participation in decision making, (3) expressing confidence in high performance, and (4) providing autonomy from bureaucratic constraints. By definition, empowering leadership is an important leader behavior in considering its influence on followers' psychological and job structural

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empowerment. Surprisingly, theoretical and empirical studies examining the links between empowering leadership and empowerment have been few and far between. As a result, empirically investigating how empowering leader behaviors are associated with psychological empowerment and job structural empowerment becomes potentially meaningful in helping researchers understand the empowering process in the leadership literature.

Second, several scholars (e.g., Mainemelis, 2001; Mumford, 2000; Shalley et al., 2004) have suggested that future research should focus more on understanding the factors that lead to employee creative outcomes. The creative process, as a result, holds substantial promise because it encompasses any problem-solving approach that individuals use to search their memory and surroundings to arrive at different alternatives and generate potential responses (Perry-Smith, 2006). Until now, only one study (Gilson & Shalley, 2004) attempted to offer an initial empirical look at what might influence employee engagement in creative process. However, they focused on examining the antecedents of the creative process, and not on whether this creative process might consequently affect employee creativity. Thus, the current study bridges this gap by developing a construct designated creative process engagement—which is defined in this dissertation as employee involvement or engagement in creativity-relevant processes, including (1) problem identification, (2) information searching and encoding, and (3) ideas and alternatives generation—and investigating its mediating effect between psychological empowerment and employee creativity. In addition to this contribution, this dissertation also contributes to the creativity literature by empirically examining the mediating role of intrinsic motivation.

There is a great need for empirical support for the mediating role of intrinsic motivation between different conceptions of empowerment and employee performance although such mediation effect has been extensively discussed theoretically in the literature (see Shalley et al., 2004).

Finally, this dissertation explores several moderator variables (e.g., personality, contextual variables) that are important to creativity. Mumford and Gustafson (1988) indicate that creativity can be conceptualized as a syndrome including: motivational variables, cognitive process to generate creative outcomes, individual abilities, personalities, and contextual variables. Shalley and Gilson (2004) and Shalley et al. (2004) also suggest that employee creativity is a function of the employee's personal characteristics, contextual characteristics, and the interactions among these factors. Thus, I examine the functions of several individual difference factors, namely domain-relevant skills, openness to experience, and proactivity, and one contextual factor—leader encouragement of creativity.

Individual difference variables such as abilities and personalities are central factors in Amabile's componential conceptualization of creativity. Although both psychological empowerment and job structural empowerment may not directly affect employee ability and personality, studying their moderating role contributes to the creativity literature by specifying how certain personal characteristics can influence the effects of intrinsic motivation and creative process engagement on employee creativity. Besides individual difference variables, leader encouragement of creativity as a contextual factor moderates the effect of employee psychological empowerment on creative process engagement. The

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logic is that leaders usually do not empower followers to do whatever they want. Certain

directions from leaders are important to encourage followers to engage in a creative process.

Thus, by exploring the moderating role of leader's encouragement of creativity, I add more

value to the connection between empowerment literature and creativity literature.

Overall, investigating a model of relationships among leadership, empowerment,

intrinsic motivation, creative process engagement, individual differences, and employee

creativity, this study adds unique value to leadership theory and empowerment theory by

elucidating how empowering leader behaviors are related to both job structural

empowerment and psychological empowerment. It also contributes to creativity theory by

exploring the mediating roles of creative process engagement and intrinsic motivation, and

the interactions between personal characteristic and organizational contexts. I present a key

definition summary in Table 1 in the following page.

Overview of Chapters

In Chapter 2, I integrate leadership theory, empowerment theory, and creativity

theories and present the theoretical basis for and develop the overall model for this study.

Empowering leadership and its relationships with both psychological empowerment and

job structural empowerment are discussed and developed first. Then, creativity as a major

construct is discussed, followed by the development of the mediating roles of creative

process engagement and intrinsic motivation between psychological empowerment, job

structural empowerment, and employee creativity. Different moderators are discussed in the

different stages as the overall model develops. Then, specific hypotheses are proposed.

In Chapter 3, I describe the methods used in this study, largely focusing on data

collection procedure, the measures and the analytical procedures. Chapter 4 provides the

results of the dissertation model and alternative models. Chapter 5 concludes this

dissertation with a discussion of the major findings of this study, its potential contributions,

managerial implications, limitations, and future research directions.

TABLE 1
Key definitions

Variable Name	Definitions
Empowering leadership	Derived from Ahearne , Mathieu, & Rapp's (2005) conceptualization of empowering leader behaviors, empowering leadership is defined as four components: (1) enhancing the meaningfulness of work, (2) fostering participation in decision making, (3) expressing confidence in high performance, and (4) providing autonomy from bureaucratic constraints.
Psychological empowerment	Based on Spreitzer (1995), psychological empowerment is defined as a process of psychological state as manifested in four cognitions: meaning, impact, competence, and self-determination. Meaning concerns a sense of feeling that the work is personally important. Impact represents the degree to which employees feel or perceive that their behaviors make a difference on work outcomes. Competence refers to self-efficacy or the belief in ability to successfully perform tasks. Self-determination indicates the freedom of employees to choose how they carry out their tasks
Job structural empowerment	Based on Hackman & Oldham (1976), job structural empowerment is characterized by five core job characteristics (task variety, task identity, task significance, autonomy, and feedback). Task variety entails the degree to which a job requires the use of a number of different skills and talents of the employee. Task identity indicates the degree to which the job requires completion of a whole piece of work by doing a task from beginning to end with a visible outcome. Task significance concerns the degree to which the job has a substantial impact on the lives of other people. Autonomy refers to the degree to which a job provides substantial freedom. Feedback involves the degree to which the job provides clear information about performance levels.
Intrinsic motivation	Based on Utman (1997), intrinsic motivation refers to the extent to which an individual is inner-directed, interested in or fascinated with the task, and engages in it for the sake of the task itself.
Creative process engagement	Based on Amabile (1983) and Reiter-Palmon and Illies (2004), creative process engagement is defined as employee involvement or engagement in creative-relevant cognitive processes, including (1) problem identification, (2) information searching and encoding, and (3) ideas and

	alternatives generation.
Leader encouragement of creativity	Defined as a leader's emphasis that an individual's output should be creative (both novel and useful) or that an individual should actively engage in certain activities (e.g., opportunity definition, information gathering, and alternative generation) that may lead to creative outcomes.
Creativity	Based on Amabile (1983), Shalley, Gilson, and Blum (2000), and Zhou and Shalley (2003), creativity involves production, conceptualization, or development of novel and useful/appropriate ideas, processes, or procedures by an individual or by a group of individuals working together in any job.
Domain-relevant skills	Based on Amabile (1983), domain-relevant skills refer to knowledge of the area in which an individual is working and the relevant skills with which individuals creatively process information in order to produce novel and useful responses.
Openness to experience	Based on Barrick and Mount (1991) and McCrae and Costa (1997), openness to experience refers to the extent to which individuals are imaginative, artistically sensitive, intellectual, analytical, independent thinkers, and amendable to new ideas and unconventional perspectives.
Proactivity	Based on Bateman & Crant (1993), proactivity, a dispositional construct, is defined as a person's relatively stable tendency to influence environmental change.

CHAPTER 2: THEORETICAL BACKGROUND AND

HYPOTHESES DEVELOPMENT

In this chapter, I draw from leadership theories (e.g., Arnold, Arad, Rhoades, & Drasgow, 2000; Sims and Manz, 1996; Yukl, 2002), empowerment theories (e.g., Conger & Kanungo, 1988; Spreitzer, 1995; Thomas & Velthouse, 1990), and creativity theories (e.g., Amabile, 1983, 1988; Shalley, 1991; Shalley et al., 2004) to develop an overall research framework for this dissertation. The Hypothesized Model is depicted in Figure 1.

Leadership Behaviors

Yukl (2002) treats leadership as an influence process. That is, leadership consists of patterns of behavior that influence other entities such as individuals and teams. It is common to conceptualize leadership as a typology, which defines patterns or clusters of leader behaviors (Yukl, 2002). Leadership typologies have changed and evolved over the past few decades. From origins in the Ohio State leadership behaviors (e.g., Consideration and Initiating Structure)--articulated by a group of Ohio State researchers (Fleishman, 1973; Judge, Piccolo, & Illies, 2004)--to the currently dominant transactional-transformational paradigm identified by Bass and his colleagues (Bass, 1981, 1998; Bass & Avolio, 1990), researchers have explored and articulated typologies that could clearly delineate classes or patterns of leader behavior. Although there is no "one best" typology, the more we can capture the conceptual representations of leadership, the more effectively real leaders can behave in practice (Pearce, Sims, Cox, Ball, Schnell, Smith, & Trevino, 2003).

Numerous empirical studies of the relationships between leader behaviors and outcomes at the individual, team, and organizational level (e.g., performance) have been

FIGURE 1
Hypothesized Model
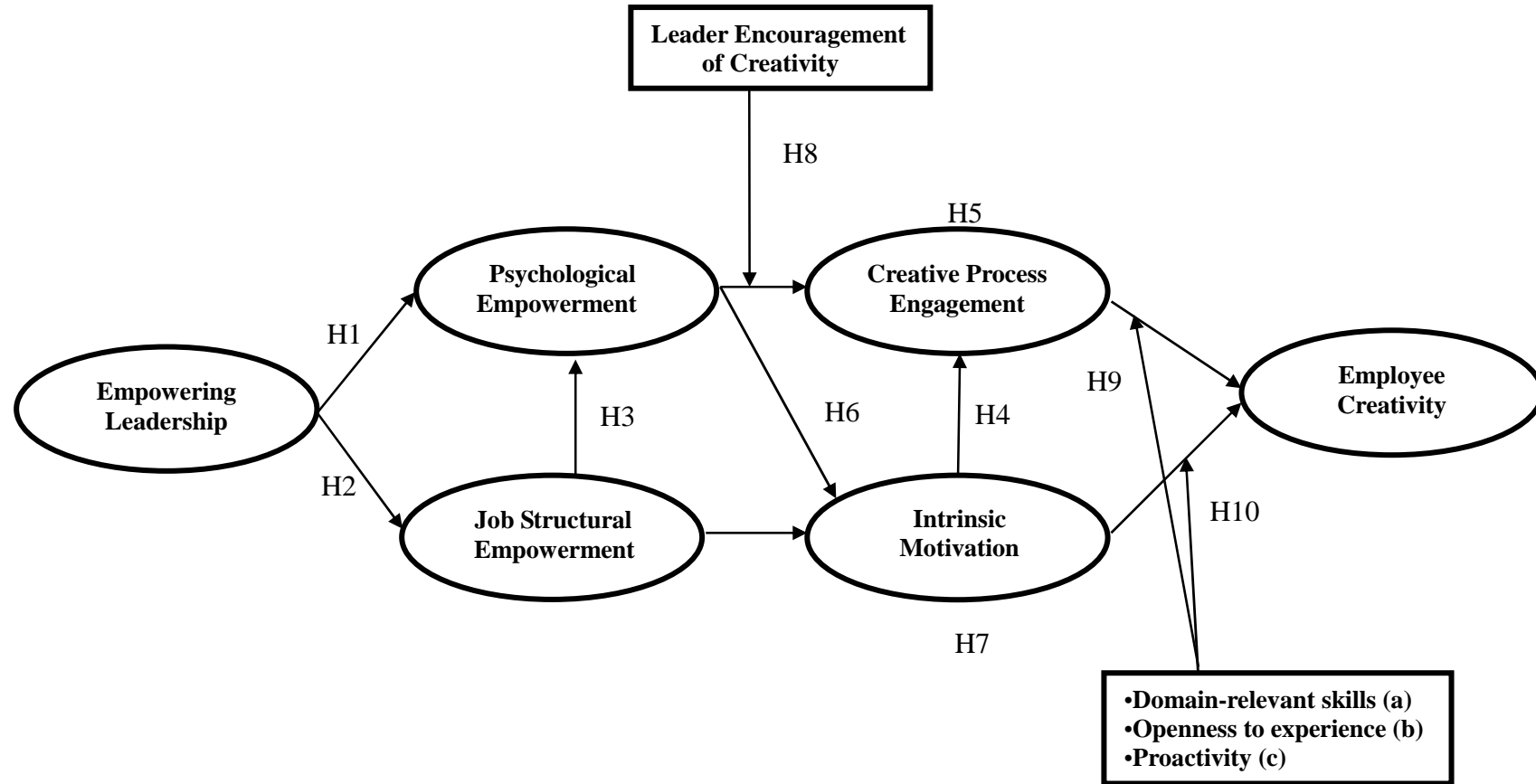
conducted based on the transactional-transformational paradigm. Clearly, this typology of leadership is the dominant paradigm today. However, despite its popularity, this two-factor theory of leadership has been criticized for oversimplifying a complicated phenomenon (Yukl, 1989) and cannot adequately account for many other aspects of the leadership phenomenon (Pearce et al., 2003; Sims & Manz, 1996; Yukl, 2002). For example, Judge and colleagues (2004) objected to the omission of earlier stages of leadership theory by deploring the fact that initiating structure (directiveness) had become a "forgotten" aspect of leadership theory. Moreover, Pearce and colleagues (2003) extended the transactional-transformational model of leadership by deductively developing four theoretical behavioral types of leadership based on their historical analysis of the leadership literature. These types are: directive leadership, transactional leadership, transformational leadership, and empowering leadership. In this dissertation, I especially focus on empowering leadership as a contextual organizational variable.

Empowering Leadership

Empowering leadership emphasizes the development of followers' self-management or self-leadership skills, encourages thought, self-rewards, participative goal setting, and teamwork (Manz & Sims, 1987). Consequently, empowering leadership supports subordinates in becoming effective self-leaders who are capable of creativity, initiative, and the ability to act on their own volitions (Pearce et al., 2003). From these characteristics, empowering leadership is closely related to both follower psychological empowerment and job structural empowerment. This is because empowering leaders provide followers autonomy and feedback, build their confidence, and help them perceive the importance and meaningfulness of their job. All of these are major characteristics of psychological empowerment and job structural empowerment. However, despite this theoretical justification, no study has investigated the relationship between empowering leadership and job structural

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empowerment. Further, only one theoretical study and one empirical study, to the author's knowledge, have ever conceptualized or empirically tested the link between empowering leadership and follower psychological empowerment. In Zhang and Sims's (2005) theoretical piece, they suggest that although both are positively related to empowerment, empowering leadership has a stronger influence than transformational leadership on follower psychological empowerment. This is because empowering leadership primarily emphasizes the energizing perspective of empowerment, while some important components of transformational leadership are not related to empowerment per se (e.g., sacrifice personal interests for the sake of the group needs). In a study of the pharmaceutical field, Ahearne, Mathieu, and Rapp (2005) found that there is a positive relationship between empowering leader behaviors and follower self efficacy, which is only one aspect of psychological empowerment according to the definition stated earlier. The very limited amount of research on relationships between empowering leadership and either psychological empowerment or job structural empowerment critically constrains our understanding of this important leadership behavior. Thus, in this dissertation, I especially focus on empowering leadership as an organizational context in order to empirically examine its effects on psychological empowerment and job structural empowerment.

Ahearne et al. (2005) demonstrate that empowering leadership involves the process of implementing conditions that increase employee perception of job meaning and enhance feelings of self-efficacy and control (e.g., participative decision making), removing conditions that foster a sense of powerlessness (e.g., bureaucracy), and allowing the freedom or autonomy to be as flexible as circumstances warrant. Derived from Ahearne et al.'s (2005) conceptualization of empowering leader behaviors, empowering leadership, in this dissertation, is defined by four components: (1) enhancing the meaningfulness of work, (2) fostering participation in decision making, (3) expressing confidence in high performance,

and (4) providing autonomy from bureaucratic constraints.

Major Approaches to Empowerment Research

There has been a growing interest in the study of empowerment among both management researchers and practitioners (Conger & Kanungo, 1988, Kirkman & Rosen, 1999; Liden, Wayne, & Sparrowe, 2000; Manz and Sims, 1993; Seibert, Silver, & Randolph, 2004; Spreitzer, 1995). Widespread interest in empowerment comes at a time when global competition and profound change require employee initiative and innovation (Drucker, 1988). In response to increasing global competition, many companies have undergone dramatic structural changes, transforming from traditional hierarchical management to empowered work team structure to improve the overall flexibility and efficiency of the organization (Arnold et al., 2000).

Essentially, academic literature on empowerment can be classified into two major conceptions based on the underlying emphases of the research: 1) the psychological or motivational approach; and 2) the job structural approach (Conger & Kanungo, 1988; Leach et al., 2003; Mathieu, Gilson, & Ruddy, 2006; Menon, 2001; Spreitzer, 1995).

The Psychological Approach

In the psychological approach, empowerment is conceptualized as experienced psychological states or cognitions. Conger and Kanungo (1988) defined psychological empowerment as "a process of enhancing feelings of self-efficacy among organizational members through the identification of conditions that foster powerlessness and through their removal by both formal organizational practices and informal techniques of providing efficacy information" (p.474). Thomas & Velthouse (1990) extended this approach by stating that empowerment is associated with "changes in cognitive variables (called task assessments), which determine motivation in workers" (p.667). Based on the approaches of Conger and Kanungo (1988) and Thomas & Velthouse (1990), Spreitzer (1995) defined

empowerment as a process of psychological state as manifested in four cognitions: meaning, impact, competence, and self-determination. Specifically, meaning concerns a sense of feeling that the work is personally important. Impact represents the degree to which employees feel or perceive that their behaviors make a difference on work outcomes. Competence refers to self-efficacy or the belief in ability to successfully perform tasks. Self-determination indicates the freedom of employees to choose how they carry out their tasks (Spreitzer, 1995).

Thus, psychological empowerment is seen as "an enabling, rather than a delegating process" that enhances employee task initiation and persistence (Conger & Kanungo, 1988, p.474), and it is often regarded as a consequence of job structural empowerment (e.g., Leach et al., 2003; Spreitzer, 1995). Psychological empowerment is essential because the potential value of empowerment will be realized only if the employees can actually experience or feel empowerment (e.g., they are in the psychological state of empowerment).

The Job Structural Approach

In the job structural approach, job structural empowerment focuses heavily on job redesign or job characteristics (Hackman & Oldham, 1976), which offer employees greater autonomy in, and control over, their jobs (Leach et al., 2003). Drawing on need hierarchy concepts and expectancy theory, job characteristics theory (Hackman & Oldman, 1980) proposes that five core job characteristics (task variety, task identity, task significance, autonomy, and feedback) lead to employee intrinsic motivation. Task variety entails the degree to which a job requires the use of a number of different skills and talents of the employee. Task identity indicates the degree to which the job requires completion of a whole piece of work by doing a task from beginning to end with a visible outcome. Task significance concerns the degree to which the job has a substantial impact on the lives of other people. Autonomy refers to the degree to which a job provides substantial freedom.

Feedback involves the degree to which the job provides clear information about performance levels.

Job structural empowerment is conceptually different from psychological empowerment. The former focuses on informational effects on people's perceptions of empowerment, while the later emphasizes motivational effects (Wagner, Leana, Locke, and Schweiger (1997). Wagner and his colleagues (1997) suggest that the significance of job structural empowerment "might lie not in its power to motivate employees but rather in its ability to facilitate cognitive growth and awareness through the transfer of knowledge among individuals who might not otherwise share information" (p.50). Herzberg (1966) indicates that "job design promotes psychological growth which involves knowing more, seeing more relationships in what we know, being creative, being effective in ambiguous situations" (p.70). And Spreitzer (1995) concludes that jobs that are high in core job characteristics of skill variety, task identity, task significance, autonomy, and feedback contribute directly to perceptions of psychological empowerment.

In essence job structural empowerment focuses on work arrangements or job characteristics that lead to changes in employee perception of the workplace and work roles. Note that both psychological empowerment and job structural empowerment have an "autonomy" dimension. In order to avoid redundancy, I removed the autonomy dimension from job structural empowerment because Spreitzer (1995) suggested that all four dimensions of psychological empowerment contribute to an overall construct of empowerment and each dimension provides important information contributing to this construct. Thus, in this dissertation, I focused on four core job characteristics (task variety, task identity, task significance, and feedback) derived from job characteristics theory as a reflection of job structural empowerment.

Links among Leader Behaviors and Different Empowerment Constructs

Overall, different empowerment constructs have their different emphases. Bartunek (1995) suggests that we should not treat the construct of empowerment as having a single definition since empowerment might have different meanings in different situations. Indeed, Menon (2001) concludes that leadership approach should be studied together with the different conceptions of empowerment because they are not mutually exclusive; rather they provide a more comprehensive picture of the empowerment phenomenon if studied together.

Empowering leadership and Psychological Empowerment

As discussed above, relatively little research has considered the relationship between empowering leadership and psychological empowerment. Currently, only one study has ever tested this relationship empirically (Ahearne et al., 2005) and it demonstrates that empowering leadership is positively associated with self-efficacy. However, examining only one aspect of psychological empowerment limited the contribution of this study. In fact, theoretically there are many reasons to expect that empowering leadership may influence all four dimensions (meaning, impact, competence/self-efficacy, and self-determination) of psychological empowerment.

First, as defined earlier, empowering leader behaviors encompass four major components: (1) enhancing the meaningfulness of work, (2) fostering participation in decision making, (3) expressing confidence in high performance, and (4) providing autonomy from bureaucratic constraints. Overall, empowering leadership emphasizes follower self-influence and self-management by encouraging employees to act on their own instead of following instructions. Such an emphasis increases follower feelings of self-determination because of the active role assumed in processes such as participative goal-setting and decision-making. These processes result in people feeling they have greater control or impact on their job and environment, thus promoting the sense of job meaning and impact. Further, the ultimate goal of empowering leadership is to help followers establish self-leadership

(Manz & Sims, 1990; Sims & Manz, 1996) by providing autonomy, expressing confidence, and fostering participation. These leader behaviors not only boost follower feelings of self-determination, but also enhance their self-efficacy, that is the belief in the ability to successfully perform tasks (Bandura, 1986). Therefore, empowering leadership influences follower self-control by increasing perceptions of job meaning, personal impact, self-efficacy, and self-determination. Thus, it is reasonable to say that the impact of empowering leadership on followers could be explained by psychological empowerment. Stately formally, I propose:

Hypothesis 1: Empowering leadership is positively related to employee perceptions of psychological empowerment.

Empowering Leadership and Job Structural Empowerment

Hackman and Oldham (1976) proposed job characteristic theory to explain conditions in which employees would be intrinsically motivated when performing a job. Although formal job descriptions may have direct affects on employees' perceptions of core job characteristics, leaders' influence on such perceptions through leadership behaviors can not be ignored. This is because job perceptions do not depend exclusively on objective job characteristics, but instead on information points from the social context available to workers when these judgments are made (Griffin, Bateman, Wayne, & Head, 1987; Salancik & Pfeffer, 1978). Leaders, as central characteristics of the social context, usually serve as relevant information points influencing how followers perceive their jobs (Piccolo & Colquitt, 2006). As a result, leader behaviors may cause employees to perceive their jobs differently without having any influence on objective job characteristics. Griffin (1981) was among the first to verify this argument. He found that followers in an experimental group reported higher ratings of core job characteristics three months after their managers reported the extent to which they exhibited behaviors intended to influence job perceptions, even when there were no tangible changes to their actual jobs. Thus, leader behaviors may have more important

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influences on followers' job perception than objective job descriptions.

Empirical work has tested and supported the positive links between leadership and core job characteristics. However, all previous studies focused on the impact of transformational leadership on job characteristics (e.g., Bono & Judge, 2003; Piccolo & Colquitt, 2006; Shamir, House, & Aurther, 1993). As I discussed in the previous section, transformational leadership is not the only leadership behavior that affects follower perception of empowerment. Empowering leadership has its impact on psychological empowerment as well (Zhang & Sims, 2005). Thus, there are reasons to expect that empowering leadership may influence core job characteristics. By definition, empowering leader behaviors are conceptualized in four aspects: (1) enhancing the meaningfulness of work, (2) fostering participation in decision making, (3) expressing confidence in high performance, and (4) providing autonomy from bureaucratic constraints. All of these dimensions have direct implications for core job characteristics (e.g., task identity, significance, autonomy, and feedback). Leaders who try to enhance the meaningfulness of work may enhance followers' perceptions of task significance. Leaders who foster participative decision-making provide more autonomy and opportunities for followers to perform the task from beginning to end (task identity). When leaders express confidence in high performance, followers may receive more feedback on their jobs and view their jobs as more significant. Stated formally, I propose:

Hypothesis 2: Empowering leadership is positively related to employee perceptions of job structural empowerment.

Job Structural Empowerment and Psychological Empowerment

The job characteristics model (Hackman & Oldman, 1976) represents a theory of intrinsic motivation and its motivating nature has been well established both theoretically and empirically (Griffin, 1987; Liden et al., 2000). The five core job characteristics (skill variety,

task identity, task significance, autonomy, and feedback) lead to intrinsic motivation and outcomes such as job satisfaction and work effectiveness through the mediation of three critical psychological states: experienced meaningfulness of the work, experienced responsibility for outcomes for the work, and knowledge of the actual results of the work activities (Hackman & Oldman, 1976). Thomas and Velthouse (1990) draw parallels between psychological empowerment (meaning, competence, self-determination, and impact) and the critical psychological states in the job characteristics model. More specifically, meaning can be identified with experienced meaningfulness; impact can be identified with knowledge of result; and self-determination can be identified with experienced responsibility. Thus, the connections between the critical psychological states and three of the four empowerment dimensions suggest that core job characteristics contribute directly to employee perception of psychological empowerment (Liden & Arad, 1996).

Empirical findings support this notion to a great extent Studies by Gagne, Senecal, and Koestner (1997) and Karimer, Seibert, and Liden (1999) provide initial empirical evidence that there is a positive relationship between core job characteristics and psychological empowerment. More recently, in a field investigation of 337 employees and their immediate supervisors, Liden et al. (2000) concluded that tasks that are high in core job characteristic of skill variety, task identity, task significance, and feedback are positively related to perception of psychological empowerment. In another study examining newcomers' role performance, Chen and Klimoski (2003) also found job characteristics with high motivating potential positively influence newcomer sense of psychological empowerment.

Derived from the theoretical and empirical arguments described above, jobs that require a variety of skills, are accomplished from beginning to end with a high degree of personal discretion, have significant impact on others, and provide performance feedback are more likely to be perceived by people as meaningful, to enhance individual's self efficacy, and to

give individuals a sense of self-determination and personal influence. All in all, I propose:

Hypothesis 3: Employees' perception of job structural empowerment is positively related to their perceptions of psychological empowerment.

Summary of Section 1

In this section, I explored the links among empowering leadership and two conceptions of empowerment. Simply put, empowerment as a psychological state represents employees' cognitions about themselves and their work environment, and empowerment as a delegation influences on employees' perceptions of their job characteristics. Leader behaviors describe the mechanisms or organizational contexts by which cognitions and job perceptions are affected. Therefore, for the sake of clarity it is important to systematically explore the interrelationships among leadership behaviors and different conceptions of empowerment (Menon, 2001).

Creativity

With increasingly turbulent environments, heightened levels of competition, and unpredictable technological change, more and more organizations are encouraging their employees to be creative. Considerable evidence indicates that employee creativity can substantially contribute to organizational innovation and effectiveness (Amabile, 1996; Shalley et al., 2004), and allow organizations to respond to opportunities and competitions quickly and efficiently (Oldham, 2002).

Definition of Creativity

Over the past two decades, many theories of creativity have been proposed. For example, Amabile et al. (1996) define creativity as "the production of novel and useful ideas in any domain" (p.1155). Oldham and Cummings (1996) define creative performance as "products, ideas, or procedures that satisfy two conditions: (1) they are novel or original and (2) they are potentially relevant for, or useful to, an organization" (p. 608). Shalley (1991)

defines individual creative behavior in terms of "developing solutions to job-related problems that are judged as novel and appropriate for the situation (p.179). Woodman et al. (1993) define organizational creativity as "the creation of a valuable, useful, new product, service, idea, procedure, or process by individuals working together in a complex social system" (p.293).

Taken together, the most generally accepted definition of creativity is that it involves production, conceptualization, or development of novel and useful/appropriate ideas, processes, or procedures by an individual or by a group of individuals working together in any job (Amabile, 1988; Madjar, Oldham, & Pratt, 2002; Shalley, Gilson, & Blum, 2000; Zhou & Shalley, 2003). Ideas are considered novel if they are unique and considered useful if they can contribute value to the organization (Shalley et al., 2004). It is not enough to be merely unique or original to be considered creative; usefulness is very critical because bizarre ideas may also be novel but are immoral or highly impractical for implementation in the organization (Shalley & Perry-Smith, 2001).

Note that creativity is different from innovation. Creativity is the production of novel and useful ideas at the individual level, whereas innovation refers to the implementation of creative ideas at the organizational or unit level (Amabile et al., 1996; Oldman & Cummings, 1996). Thus, creativity can be conceptualized as a first step or a subset of the broader domain of innovation (West & Farr, 1990; Woodman et al., 1993).

Necessary Conditions for Creativity

Researchers have identified a rich variety of conditions as important for creativity. Shalley and colleagues (2004) conducted a systematic review of and integrated existing empirical research that examines the personal and contextual characteristics that enhance or stifle employee creativity in the workplace. Overall, individuals tend to exhibit high levels of creativity when they have good personality, e.g, high ratings of Creative Personality Scale

(Zhou & Oldham, 2001), or openness to experience (Feist, 1998, 1999; Scratchley & Hakstian, 2000). Broadly, contextual characteristics also matter. Individuals tend to demonstrate high creativity levels when their job are complex (e.g., Tierney & Farmer, 2002, 2004), when their supervisors show supportive, non-controlling behaviors (e.g., Amabile, Schatzel, Moneta, & Kramer, 2004; Shalley & Gilson, 2004; George & Zhou, 2001), and when their work is evaluated in a developmental, but not a judgmental fashion (e.g., Shalley 1995; Zhou & Oldham, 2001). Although no consistent conclusions are drawn, other contextual factors, such as supportive coworkers, few time deadlines, absence of contingent financial reward, and the presence of production goals, also contribute to individual creativity (for a complete review, see Shalley et al., 2004).

Among these factors, based on Amabile's (1983) componential conceptualization of creativity, researchers conclude three intra-individual factors in particular as necessary for employee creativity at work: domain-relevant skills, intrinsic motivation, and creativity-relevant process (Amabile, 1983; 1988; Shalley, 1991, 1995; Simon, 1985). Domain-relevant skills refer to knowledge of the area within which an individual works and the relevant skills with which individuals creatively process information in order to produce novel and useful response. Knowledge and skills represent an individual's ability to recognize and deal with potential problems given a large amount of information (Shalley, 1991).

Intrinsic motivation refers to the extent to which an individual is inner-directed, interested in or fascinated with the task, and engages in it for the sake of the task itself (Utman, 1997). Amabile (1983) suggests that although an individual's personality, abilities, and knowledge are important, whether these factors can result in creativity depends on intrinsic motivation. This is because intrinsic motivation can increase a person's tendency to exert great effort, engage in risk-taking, and be persistent when facing difficulties, which may facilitate the development of creative ideas (Zhou and Shalley, 2003). According to cognitive

evaluation theory (Deci & Ryan, 1985), any social or contextual factor that diverts people's attention from the task itself (e.g., the presence of reward) may detrimentally influence creativity. Thus, intrinsic task motivation is widely believed to be critical to creativity in organizations and research has reported positive associations between intrinsic motivation and employee creativity on a task (e.g., Amabile, 1979, 1987, 1996; Taggar , 2002)

Finally, for a creative response to emerge, an individual must engage in certain activities such as problem identification, environmental scanning, data gathering, unconscious mental activity, solution generation and evaluation, and solution implementation (Simon, 1966; Shalley, 1991). Amabile (1983, 1988) called this a creativity-relevant process. Considerable theoretical work (e.g., Amabile, 1996; Mumford & Connelly, 1991; Reiter-Palmon & Illies, 2004; Stein, 1967) summarizes that the creativity-relevant process involves several important components such as opportunity/ problem identification, information or resources gathering, ideas and alternatives generation, and ideas evaluation and modification. This creativity-relevant process "determine(s) the flexibility with which cognitive pathways are explored, the attention given to particular aspects of the task, and the extent to which a particular pathway is followed in pursuit of a solution" (Amabile, 1996: 95). Taggar (2002) found that creative-relevant process is positively related to individual creativity. If cognitive processing is interrupted, then critical information will not have been accessed or used in problem-solving, which results in low creativity (Shalley, 1995). Amabile (1983, 1988) concludes that such factors as cognitive style are important for taking new perspectives on problem solving; knowledge of heuristics is important for generating novel ideas; and a working style conducive to persistence can influence individuals' engagement and application of the creativity-relevant process. Thus, based on Amabile (1983) and Reiter-Palmon and Illies (2004), I defined creative process engagement in this dissertation *as employee involvement or engagement in creative-relevant cognitive processes, including (1) problem*

identification, (2) information searching and encoding, and (3) ideas and alternatives generation.

Intrinsic motivation is believed to be critical to creative process engagement (e.g., Amabile, 1983). Such mechanism can be explained by task engagement (Kanfer, 1991). When individuals are intrinsically involved in their work, they are more likely to devote all of their attention, effort, and time to engage in their jobs. This engagement makes them more persistent and more likely to think about the problems encountered in their jobs carefully and thoroughly, collect a wide variety of relevant information, and consider different alternatives. Consequently, intrinsic motivation inspires individuals to engage in creative process, thus promoting a higher level of creativity (Shalley, 1995; Shalley et al., 2000). Stated formally,

Hypothesis 4: Intrinsic motivation is positively related to creative process engagement.

Empowerment and Creativity

Among factors that promote employee creativity at work, psychological empowerment, the autonomy dimension in particular, has been identified by many researchers as important (Amabile et al., 1996; Spreitzer, 1995). Autonomy is an important determinant of creativity because the increased control over tasks boosts individuals' intrinsic motivation, thus significantly inspiring creativity (Amabile et al., 1996; Jung & Sosik, 2002). In addition, autonomy provides employees with flexibility, which also contributes to creative behaviors (Thomas & Velthouse, 1990). Zhou (1998) found that individuals who work in a high task autonomy work environment generate the most creative ideas. Consistent with this view, Damanpour (1991) reported that centralization (lack of autonomy and empowerment) is negatively related to organizational innovation.

In sum, consistent findings exist for the positive relationship between psychological empowerment and creativity. However, it is important to notice that all previous studies, except Jung et al. (2003), tend to focus on the autonomy dimension of psychological

empowerment as an influence on employee creativity or organizational innovation. Although Jung et al. (2003) adopted Spreitzer's (1995) four-dimension psychological empowerment measure to examine the role of empowerment on organizational innovation; they unexpectedly found a significant but negative relationship between empowerment and innovation. They pointed out that their sample of Taiwanese subjects was relatively high in power control, which would weaken the empowerment effect on followers' innovation. Another plausible reason for the negative relationship is that the high correlation between empowerment and support for innovation simultaneously occurred in the model, confounding the positive relationship between empowerment and innovation. Thus, further empirical investigation is necessary. Indeed, Spreitzer (1995, 1996) concludes that the four dimensions (meaning, competence, self-determination, and impact) contribute to an overall construct of psychological empowerment and each element provides important information contributing to the construct. Consequently, using the integral measure of psychological empowerment is critical to further strengthen the positive link between psychological empowerment and employee creativity.

Similar to psychological empowerment, job structural empowerment has long been considered an important contributor to employee creativity (West & Farr, 1990). When employees work on complex jobs characterized by high levels of task variety, task identity, significance, autonomy, and feedback, they are more likely to experience high levels of intrinsic motivation, which in turn, can help them develop creative ideas. This is because enriched jobs increase employee enthusiasm in their work and this enthusiasm and excitement foster creativity (Shalley et al., 2004).

Results from previous studies largely support the argument above. For example, Hatcher, Ross, and Collins (1989) pointed out significant and positive relationships between employee self-report of job characteristics and the number of creative ideas they submitted to

an organizational suggestion program. Also, Oldham and Cummings (1996) found that employees (171 individuals from two manufacturing facilities) produced the most creative work when they worked on complex and challenging jobs. Consistently, Tierney and Farmer (2002, 2004) concluded there are positive and significant relationships between supervisory ratings of creativity and objective measures of employee job complexity.

Empowerment and Three Necessary Conditions for Creativity

The primary purpose of this dissertation is to explore the mechanisms through which different conceptions of empowerment influence employee creativity. To this point, it is clear that both psychological empowerment and job structural empowerment are positively related to creativity. In addition, according to creativity theories (Amabile, 1983, 1988; Shalley, 1991), domain-relevant skills, intrinsic task motivation, and creative process engagement represent the three most important conditions for individual creativity. Consequently, the question that arises is how psychological empowerment and job structural empowerment work through these major components to affect employee creativity.

Based on their review of creativity literature, Shalley and colleagues (2004) suggested that creativity is the function of the employee's personal characteristics, contextual characteristics, and also the interactions among these characteristics. In addition, they posit that each contextual characteristic influences creativity through its effect on certain personal characteristics, e.g., intrinsic motivation, to perform a work assignment. Although the results from many studies are consistent with this rationale, few studies actually measured intrinsic motivation and tested whether it empirically mediates the context-creativity relationship (Zhou & Shalley, 2003). Thus, as I mentioned at the beginning, exploring the mediating role of intrinsic motivation between psychological empowerment, job structural empowerment, and creativity is one of the aims of this dissertation.

At the same time, intrinsic motivation, despite its importance, is not a sufficient

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condition for individual creativity at work. Creative process engagement, another necessary condition for employee creativity, deserves more attention because more and more scholars have suggested its value in understanding the process by which individuals come to develop creative ideas (Drazin et al., 1999; Mumford, 2000). Until recently, very limited empirical research sets foot in this area and what exists only provides some preliminary direction (e.g., Gilson & Shalley, 2004; Kazanjian, Drazin, & Glynn, 2000). Thus, examining the mediating role of creative process engagement between psychological empowerment and creativity can infuse new blood into the creativity literature.

As a result, in the next two sections, I especially focus on the mediating role of creative process engagement and intrinsic motivation between psychological empowerment, job structural empowerment, and creativity. Note that since both conceptions of empowerment do not necessarily result in increased domain-relevant skills or abilities, I treat this intra-individual condition as a moderator, which will be discussed in the last section of Chapter 2.

Mediating Role of Creative Process Engagement

Derived from the problem-solving literature, creative process encompasses any problem-solving approach that individuals use to search their mind and surroundings to come up with different alternatives and generate potential responses (Amabile, 1983; Perry-Smith, 2006). Based on the work of Amabile (1983) and Reiter-Palmon and Illies (2004), creative process engagement is defined in this dissertation as employee involvement or engagement in creativity-relevant processes, including (1) problem identification, (2) information searching and encoding, and (3) ideas and alternatives generation.

High levels of engagement in problem identification require problem solvers to spend considerable time attempting to understand the nature of the problem from multiple perspectives and identifying the goals, procedures, or restrictions needed to solve the problem.

Guided by the construction of the problem, individuals search for a wide variety of information from multiple internal and external sources (e.g., personal memories, others' experiences, documentation, Internet, etc.) and encode and retain the information for future use. Then, individuals connect and synthesize the information gathered from different sources to generate several creative solutions to the problems identified in the first stage. It should be noted that the effortful creativity-relevant process does not operate in an isolated consecutive manner, but instead a more cyclical approach occurs (Mumford, Mobley, Uhlman, Reiter-Palnon, & Doares, 1991). This cognitive process associated with creative problem-solving is more divergent in nature. Searching for information may begin before the problem identification process is completed, and problem solvers may return to previous processes if they reach a dead-end when generating ideas and alternatives.

Currently, mainstream research in the creativity literature has deemed creativity as an outcome (e.g., novel and useful ideas). However, several scholars (e.g., Mainemelis, 2001; Mumford, 2000; Shalley et al., 2004) have suggested that a substantially promising direction for creativity research is to treat creativity as a process. That is, it is important to understand the factors that contribute to employee creativity. As a result, in this section of the dissertation, I primarily focus my attention on developing a process model of creativity by connecting psychological empowerment with creative process engagement, and subsequent creative outcomes. This is the first study, to the author's knowledge, to examine the mediating role of creative process engagement on employee creativity. Gilson and Shalley (2004) is the only research that attempts to offer an initial empirical look at what might influence team members' engagement in the creative process. However, they focused on examining antecedents of the creative process, not on how the creative process itself can consequently affect levels of employee creativity. As well, they defined team creative process as "members working together in such a manner that they link ideas from multiple sources, delve into

unknown areas to find better or unique approaches to a problem, or seek out novel ways of performing a task (p 454). Clearly, this definition of creative process focuses primarily on idea generation. However, as I discussed earlier, creative process is not limited to idea generation. Indeed, problem identification and information searching and encoding has also been identified as important components of a creativity-relevant process. These elements are captured by the "creative process engagement" variable defined in this study. Thus, this dissertation contributes to the creativity literature by investigating the creative process more comprehensively for the first time.

Note the reason that I examine the effect of psychological empowerment, but not job structural empowerment, on creative process engagement is that psychological empowerment reflects a series of mental operations that are based on *cognitions* about the self in relation to work role (Spreitzer, 1995). The four dimensions of psychological empowerment portray a proactive mind-set of an individual. Amabile (1983, 1988) suggests that creativity-relevant process involves cognitive styles and knowledge of heuristics for generating novel ideas, which determine how a particular pathway is followed and the flexibility with which cognitive pathways are explored in pursuit of a solution. Thus, an individual's psychological empowerment should have a direct impact on his or her cognitive process. But for job structural empowerment, core job characteristics lead to changes in employees' perceptions of their workplace and work roles, which are not necessarily related to their cognitive processes and knowledge of heuristics in generating creative ideas. Thus, in this dissertation, I only focus on the mediating effect of creative process engagement between psychological empowerment and employee creativity.

Psychological empowerment and Creative Process Engagement

Creativity is a choice that can be made by individuals to engage in producing creative or novel ideas (Drazin et al., 1999). Such engagement represents a process in which an

individual behaviorally, cognitively, and emotionally attempts to produce creative outcomes (Kahn, 1990). Individuals may choose different levels of creative engagement when performing a task. Simple solutions that may not be novel and useful can be proposed when people minimally engage in the process. On the other hand, when an individual chooses to engage in a full manner—that is, he or she tries to identify the problem to a greater extent, get as much information as possible, and generate more ideas and alternatives, good solutions that are both novel and useful are more likely to be produced. Consequently, individuals have the choice to decide whether or not to engage in a creative process, which has long been indicated as vital for performance and creativity (e.g., Hackman & Morris, 1975; Drazin et al., 1999). Taggar (2002) found that creativity-relevant process is positively related to individual creativity. If cognitive processing is interrupted, then critical information will not have been accessed or used in problem-solving, which results in low levels of creativity (Shalley, 1995). Thus, creative process engagement is important because it can be conceptualized as a necessary first step or prerequisite for creative outcome and subsequent innovation (Scott, 1995; Woodman et al., 1993).

Based on previous research, one conclusion related to creativity is that psychological empowerment is an important factor promoting employee creativity. This is because autonomy or self-determination, the central idea of psychological empowerment according to Deci and Ryan's (1991) self-determination theory, provides individuals with flexibility and boosts their intrinsic motivation, thus significantly inspiring creativity (Amabile et al., 1996; Jung & Sosik, 2002). Following the same logic, I assume that psychological empowerment also has an important influence on a person's willingness to engage in a creative process. Research suggests that for idea exploration, employees need to feel that they have some autonomy, which allows them to allocate their time and determine how their work is to be done. When employees feel that they have a certain degree of control over job execution, they

are free of extraneous concerns and are more likely to take risks, to explore new cognitive pathways, and to be playful with ideas (Amabile et al., 1996). They also like to focus on an idea or a problem longer and persistently. Studies have found that creative ideas tend to be identified later in the process of idea generation. The first ideas generated tend to be routine and less creative (Runco, 1986). As a result, effectively and persistently engaging in this exploration process will increase the likelihood of creative performance (Oldham & Cummings, 1996).

Most previous studies have focused on the effect of autonomy on idea exploration. Although short of empirical support, theoretically, other dimensions of psychological empowerment may also influence creative process engagement. For example, when employees perceive that the value of their jobs is consistent with their personal beliefs, attitudes, and values (meaningfulness), they may have greater interest in being involved in these work activities and changing these activities. In order to accomplish the task successfully, employees will spend more time understanding the problem encountered from multiple perspective, searching for a wide variety of information from multiple sources, and generating a significant number of alternatives by connecting diverse sources of information. Research indicates that individuals who spend more time engaging in creativity-relevant processes produce more original and higher quality solutions (Reiter-Palmon & Illlies, 2004). In addition, when employees believe that they have the ability to perform a task successfully (competence) and have control over desired outcomes through their behaviors (impact), they are highly motivated and are more likely to dig into their assignments, shift through information to generate more creative ideas, and devise potential solutions that move away from established ways of doing things. All these behaviors facilitate employee creativity. Accordingly, stated formally,

Hypothesis 5: Psychological empowerment is positively related to creative process

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engagement, which in turn is positively related to employee creativity. In sum, creative process engagement mediates the relationship between psychological empowerment and employee creativity.

Mediating Role of Intrinsic Motivation

Psychological Empowerment and Intrinsic Motivation

Psychological empowerment was defined as a process of psychological state as manifested in four cognitions: meaning, impact, competence, and self-determination; whereas intrinsic motivation was defined as an individual's experience of interest and enjoyment when performing a work task, without this performance being controlled by external contingencies, such as rewards and punishments (Conger & Kanungo, 1988; Spreitzer, 1995; Thomas & Velthouse, 1990). Based on this definition, Thomas and Velthouse (1990) argue that the four aspects of empowerment are "presumed to be a proximal cause of intrinsic task motivation and satisfaction" (p.668). Consistently, Deci and Ryan (1991) argue that feelings of competence and self-determination are central to intrinsic motivation, and they exist prior to the experience of intrinsic motivation. According to their self-determination theory (Deci & Ryan, 1987), these feelings must be fulfilled in order to experience intrinsic motivation (Gagne et al., 1997). In addition, Thomas and Velthouse (1990) also point out that intrinsic motivation at work is different from intrinsic motivation during leisure activity because intrinsic task motivation must encompass a sense of purpose, and these feelings of meaningfulness and impact provide such a sense of purpose that leads to intrinsic task motivation.

The available evidence demonstrates the links between psychological empowerment and intrinsic motivation. For example, Reeve and Deci (1996) found that feelings of competence directly and positively influence intrinsic motivation. Koestner, Ryan, Bernieri, and Holt (1984) indicate that feelings of autonomy also positively relate to intrinsic

motivation. Also, Gagne et al. (1997) demonstrate that there are positive and significant relationships between meaningfulness, impact and intrinsic task motivation. Thus, findings from previous studies suggest there is a positive relationship between psychological empowerment and intrinsic motivation.

As discussed above, intrinsic task motivation is widely believed to be critical to creativity in organizations and research exists on the positive association between intrinsic motivation and employee creativity on a task (e.g., Amabile, 1979; 1987, 1996; Shalley & Oldham, 1997; Taggar, 2002). For example, in an interview study, 120 scientists engaged in R & D projects indicated that intrinsic motivation is a more important determinant of creative performance than any other characteristic (Amabile & Gryskiewicz, 1987). This is because when individuals are intrinsically involved in their work, they are more likely to devote all of their attention and effort to their jobs, which make them more persistent and more likely to consider different alternatives, thus leading to higher levels of creativity (Shalley, 1995; Shalley et al., 2000). The key mechanisms for explaining the performance effects of intrinsic motivation can also be explained by task engagement (Kanfer, 1991). Task engagement not only increases work quality over time, but also facilitates people to acquire more task-related skills, which is one of the three most important conditions of individual creativity (Amabile, 1983; Shalley, 1991), thereby leading to higher levels of creativity. All in all, I propose:

Hypothesis 6: Psychological empowerment is positively related to intrinsic motivation, which in turn is positively related to employee creativity. In sum, intrinsic motivation mediates the relationship between psychological empowerment and employee creativity.

Job Structural Empowerment and Intrinsic Motivation

Job design has long been considered an important factor influencing employee intrinsic motivation and creative performance at work (Amabile, 1988; West & Farr, 1990). Job

characteristics theory (Hackman & Oldman, 1980) provides a framework that explains how job characteristics influence worker motivation. One of the central predictions of job characteristics theory is that more complex and challenging jobs (i.e., those characterized by high level of task identity, task significance, task variety, autonomy, and feedback) are expected to support and encourage higher levels of employee intrinsic motivation and creativity than simple and routine jobs.

A literature review on job characteristics theory provides ample support for the notion that jobs regarded as challenging, important, and autonomous are more intrinsically motivating (Piccolo & Colquitt, 2006). For example, using the Job Diagnostic Survey, Aldag, Barr, and Brief (1981) indicate that job characteristics are associated with enhanced intrinsic motivation, satisfaction, and involvement, as well as diminished absenteeism, and role conflict. In addition, Fried and Ferris' (1987) meta-analysis of over 200 studies reports positive correlations between the five core job characteristics and intrinsic motivation, ranging from .22 to .52. Johns, Xie, and Fang (1992) also indicate that intrinsic motivation effects in particular rely on characteristics that create perceived meaningfulness in one's job. In a more recent study, Piccolo and Colquitt (2006) demonstrate that employees' perceptions of core job characteristics are positively related to their intrinsic motivation, which in turn is positively related to task performance and organizational citizenship behaviors.

Many researchers posit that contextual factors (e.g., job characteristics) affect creativity through their effects on employee intrinsic motivation (e.g., Amabile, 1996; Shalley et al., 2004) that increases employee tendency to be curious and persistent in job tasks (Zhou & Shalley, 2003). Thus, individuals are likely to be most creative when they experience high levels of intrinsic motivation—that is, when they are excited about the job itself and interested in engaging in it. Cognitive Evaluation theory (Deci & Ryan, 1985) can be used to explain the expected effects of job characteristics on intrinsic motivation. The theory points

out that all contextual characteristics have informational and controlling aspects. The relative salience of the two determines whether a contextual factor has a positive or negative effect on people's intrinsic motivation. For job characteristics, when the informational aspect is salient, that is, the job is characterized by high level of task identity, task significance, task variety, autonomy, and feedback, employees perceive that the job per se provides relevant information about their personal competence and there is little external pressure to achieve things in prescribed ways. In this situation, employees feel supported and encouraged, resulting in enhanced intrinsic motivation and subsequent creativity. On the contrary, when jobs require few skills, do not provide any autonomy and feedback to employees who perform the task, and are not important at all, the controlling aspect of job characteristics is more salient. In this situation, individuals may not be motivated because their thoughts, feelings, and actions are being constrained by the job itself. Employees do not feel they are allowed the flexibility to try new ways of doing things and leewya for taking risks. As a result, they have low levels of intrinsic task motivation, and thereby exhibit low levels of creativity. Derived from previous research, I propose:

Hypothesis 7: Job structural empowerment is positively related to intrinsic motivation, which in turn is positively related to employee creativity. In sum, intrinsic motivation mediates the relationship between job structural empowerment and employee creativity.

Moderating Role of Leader Encouragement of Creativity

Psychological empowerment can motivate people to actively engage in creative process, which in turn leads to more creative outcomes. Leaders can play an active role in encouraging process by directing their followers as to what is needed for their job and what is valued by the organization. In a study of 400 project teams, Pinto and Prescott (1988) indicated that a clearly stated mission by the team leader enables team members to focus more on new idea development and subsequent successful innovation. The role of the leader in this process can

be explained by goal-setting theory (Locke & Latham, 1990), which is considered to be an extremely effective motivational technique. Goals provide clear objectives toward which people can direct their energies and increase their attention and effort. Goals can also direct people's attention by influencing what people pay attention to, how hard they work, and how long they persist on a task (Shalley & Gilson, 2004). Thus, if leaders clearly specify creativity as a goal or mission, followers will direct their attention, effort, and energies toward that goal by being actively involved in the creative process. Shalley (1991, 1995) also found that assigned creativity goals effectively enhance employees' creative performance, whereas assigned performance goals (e.g., production quantity) actually detract from, creative performance. Thus, a clear direction from leaders that emphasizes creativity will inspire employees to be creative in performing tasks.

From a theoretical perspective, goal-setting is an effective motivational technique; however, in real business settings few managers formally *assign* a creative goal to their followers, especially in an empowered environment; instead, most leaders are more likely to *reiterate* what is really important and desired by the organization, thus forming a leader climate. In addition, previous studies (e.g., Shalley 1991, 1995) examined the assigned creative goal only in experimental settings. Thus, in this dissertation, in order to test this important notion in a real business setting, I propose a new construct designated leader encouragement of creativity, defined *as a leader's emphasis that an individual's output should be creative (both novel and useful) or that an individual should actively engage in certain activities (e.g., opportunity definition, information gathering, and alternative generation) that may lead to creative outcomes.* The significance of the moderating role of a leader's encouragement of creativity lies in its ability to connect empowerment literature and creativity literature. This is because several studies suggest that when individuals know the importance of creativity in their jobs they are more likely to actually be creative (e.g, Speller

& Schumacher, 1975; Carson & Carson, 1993).

The notion of leader encouragement of creativity is derived from the organizational climate for innovation (Siegel & Kaemmerer, 1978). Studies have offered empirical support for the effect of a climate for innovation on individual creative behaviors (e.g., Amabile & Gryskiewicz, 1989; Scott & Bruce, 1994). While climate for innovation is a cognitive interpretation of an organizational situation (James, James, & Ashe, 1990), leader encouragement of creativity is a cognitive interpretation of a leader's orientation toward creativity. Thus, it represents the signals employees receive regarding a leader's expectation for behavior and for potential outcomes of behavior. Employees use this information to formulate and respond to expectations by regulating their behaviors (Scott & Bruce, 1994). Since employees interact directly and more often with their leaders, it is meaningful to have a climate construct at the leadership level. Indeed, supervisors usually act as agents of the organization. In this dissertation I seek to understand how empowering leader behaviors and leader support of empowerment operate as inputs to influence empowerment, employees' creative process, and subsequent creative outcomes, thus having this lower level "climate" construct is consistent with the main theme of this study.

In sum, when employees perceive that their leaders are oriented toward creativity and encourage engagement in activities leading to creative outcomes they are more likely to actively be involved in such activities. Hence, I predict that employees' perceptions of leader encouragement of creativity actually strengthen the affect of psychological empowerment on creative process engagement. Stated formally,

Hypothesis 8: Leader encouragement of creativity strengthens the relationship between psychological empowerment and creative process engagement.

Individual Differences

A great amount of literature has indicates that creativity is affected by a variety of

individual difference characteristics (e.g., personality, knowledge and skills) (e.g., Rodan & Galunic, 2004; Tierney & Farmer, 2002). This is because these factors influence the extent to which people apply different strategies that may facilitate creative idea production (Shalley et al., 2004). For example, employees with certain skills may be especially effective at recognizing problems, searching new information, or generating creative ideas, which may enable them to produce more creative outcomes. Thus, in this section, I will discuss three important individual difference characteristics—domain-relevant skills, openness to experience, and proactivity—that theory suggests influence employee creativity, but have not been empirically examined.

Domain-relevant skills

As discussed earlier, domain-relevant skill is one of the three most important intra-individual components that are necessary for individual creativity (Amabile, 1983, 1988; Shalley, 1991). Domain-relevant skills refer to knowledge of the area in which an individual is working and the relevant skills with which individuals creatively process information in order to produce novel and useful responses. Knowledge and skills represent an individual's ability to recognize and deal with a potential problem given a large amount of information and a person's knowledge and skills can be considered the basis from which any performance must proceed (Amabile, 1983; Shalley, 1991). Domain-relevant skills include familiarity with the factual knowledge of the domain in question such as facts, principles, or opinions and techniques required by a given domain. It is impossible to be creative in one area unless one knows something about this domain and possesses the techniques that are necessary for doing a specific task. In addition, specific domain-relevant talents also contribute greatly to creative performance. For example, a composer's talents to hear in imagination all the instruments playing together is critical for producing creative scores (Amabile, 1983). Domain-relevant skills can be considered as the set of cognitive pathways, which may be large or small, for

solving problems or performing given tasks. The larger the set of cognitive pathways, the more varied are the alternatives for generating something new and for developing a new combination using current information and knowledge (Amabile, 1983).

Hence, domain-relevant skills may strengthen the positive link between creative process engagement and employee creativity. This is because how much an individual knows about one area indicates a larger set of cognitive pathway he or she possesses. As a result, when an individual has more extensive, diverse, and well-organized knowledge structures, then it is easier to correctly and more deeply identify the problems existing in this domain, to have more efficient strategies for searching for relevant information and storing it in memory, and to link information in diverse area more creatively, thus leading to more creative outcomes that are both novel and useful. Just as with this influence on creative process engagement, domain-relevant skills may also strengthen the positive link between intrinsic motivation and employee creativity. The logic is that the necessary knowledge or skills of the job may give intrinsically motivated people the focus for their efforts, energies, and persistence when developing creative ideas, thus making this process more efficient. In sum, I propose:

Hypothesis 9a: Domain-relevant skills strengthen the relationship between creative process engagement and employee creativity.

Hypothesis 10a: Domain-relevant skills strengthen the relationship between intrinsic motivation and employee creativity.

Openness to Experience

A large body of literature indicates that an individual's personality is one of the most important factors that affect employee creativity (e.g., Feist, 1998, 1999; Shalley et al., 2004). The relatively robust Five-Factor Model of personality posits that personality traits consist of five broad dimensions: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness (Norman, 1963; Costa & McCrae, 1992). Prior research indicates that,

among the five categories, openness to experience has been most consistently associated with employee creativity (Feist, 1999; George & Zhou, 2001; McCrae & Costa, 1997; Shalley et al., 2004). For example, Feist (1998) found that openness to experience has the strongest relationship with creativity in samples of artists and scientists. Furthermore, Scratchley and Hakstian (2000) found a positive and significant relationship between openness to experience and creativity as rated by managers.

As a personality trait, openness to experience indicates the extent to which individuals are imaginative, artistically sensitive, intellectual, analytical, independent thinkers, and amendable to new ideas and unconventional perspectives (Barrick & Mount, 1991; Costa & McCrae, 1992). Thus, people high in openness to experience are those who are broad minded, untraditional, and curious. Conversely, those low on the openness dimension tend to be traditional, not analytical, and use less imagination. These characteristics provide sufficient reasons to believe that employee openness to experience as a personality dimension will positively influence the link between creative process engagement and creativity. People who are high on openness to experience usually have a broader range and depth of experience, which allows them to have greater access to a variety of information and ideas, and thus be more likely to develop and think about new ideas that challenge the status quo and lead to new ways of doing things. In addition, open individuals are more flexible and efficient in searching information and connecting new or unrelated information to find solutions given the wider range of experiences possessed (McCare & Costa, 1997). Therefore, openness to experience strengthens the positive influence of creative process engagement on employee creativity. Following the same logic, the curiosity characteristic inspires open individuals to seek out unfamiliar situations, allowing for greater access to new information, knowledge, and experience. Since this curiosity resides within people and is not triggered by external stimulus such as good evaluation or reward, it boosts an individual's intrinsic task motivation,

thus leading to greater creativity. Thus, openness to experience may also strengthen the positive influence of intrinsic motivation on employ creativity. In sum, I propose:

Hypothesis 9b: Openness to experience strengthens the relationship between creative process engagement and employee creativity.

Hypothesis 10b: Openness to experience strengthens the relationship between intrinsic motivation and employee creativity.

Proactivity

Another creativity-related personality factor that has engaged more attention from researchers and practitioners alike is proactivity. This is because as work becomes more dynamic and decentralized, companies increasingly rely on employees' personal initiative and proactive behaviors to identify and solve problems (Crant, 2000). Proactivity, a dispositional construct, is defined as a person's relatively stable tendency to influence environmental change (Bateman & Crant, 1993). This definition indicates that people are not always passive recipients of environmental constraints on their behaviors; rather, they can actively and directly initiate and create favorable conditions.

Bateman and Crant (1993) suggest that a proactive personality is positively related to problem-solving and coping. This is because more proactive individuals are more likely to take initiative, make changes, act to solve problems, and actively pursue possibilities that may advance their interests and careers. These active behaviors may make it easier for proactive persons to act on their intentions and accomplish their goals. In contrast, less proactive people do not like to manipulate the environment; instead they let things happen and then passively adapt to changes (Allen, Weeks, & Moffitt, 2005; Crant, 2000). Numerous studies have established the positive relationships between proactivity and individual job performance (Crant, 1995), career success in terms of salary increase and number of promotions, job satisfaction (Seibert, Crant, Kraimer, 1999), leadership effectiveness (Crant

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& Bateman, 2000; Deluga, 1998), team performance (Kirkman, & Rosen, 1999), and organizational innovation (Parker, 1998). Parker (1998) found that, at a glass manufacturing setting, proactive personality was significantly and positively related to the use of communication briefings to distribute strategic information and voluntary membership in continuous improvement groups. Consequently proactivity had a positive impact on an array of organizational practices and innovations.

As stated above, individual creativity is related to a process that begins with problem recognition, followed by information searching and encoding, and generation of ideas. Clearly, individual proactivity is closely related to these processes. People with high proactivity are inclined to take initiative in improving current circumstances or creating new ones. They usually like to challenge the status quo by actively identifying opportunities, seeking information, and acting on them. Thus, their active copying style in both positive and negative contexts affords them more opportunities to identify problems in their jobs and generate good solutions to those identified problems. On the contrary, people with low proactivity intend to passively adapt to present conditions and wait for opportunities to come to them, thus failing to identity problems and seize any opportunities. Consequently, proactivity helps individuals to engage in creative process more efficiently and productively and to produce more creative outcomes. In addition, proactive employees take an active role in their approach toward work. This orientation engenders a host of affective and cognitive processes that facilitate optimal task engagement and generate excitement about the task, thus fostering intrinsic motivation. Therefore, those with high proactivity take action and persevere until meaningful change occurs (Crant, 2000), which further strengthens the positive influence of intrinsic task motivation on creativity. In sum, I propose:

Hypothesis 9c: Proactivity strengthens the relationship between creative process engagement and employee creativity.

Hypothesis 10c: Proactivity strengthens the relationship between intrinsic motivation and employee creativity.

Chapter Summary

In this Chapter, drawn from leadership theories, empowerment theories, and creativity theories, I developed the overall research framework for this dissertation. Firstly, I integrated leadership behaviors with both psychological empowerment and job structural empowerment and proposed that empowering leadership influences employees' perception of job structural empowerment and psychological empowerment. Secondly, I reviewed the creativity literature and pointed out that intrinsic motivation and creative process engagement serve as two fundamental predictors of creativity. Thirdly, by connecting empowerment literature and creativity literature, I examined the relationship between psychological empowerment, job structural empowerment and employee creativity, and specifically focused on how creative process engagement and intrinsic motivation work as mediators between the two conceptions of empowerment and employee creativity. Lastly, I investigated three important individual differences variables, namely domain-relevant skills, openness to experience and proactivity and a contextual variable—leader encouragement of creativity that may moderate the relationships among creative process engagement, intrinsic motivation, and employee creativity. I present a summary of the study hypotheses in Table 2 in the next page.

The next Chapter (Chapter III) explicates the methods employed in this dissertation. It describes the research setting and participants, specifies the data collection procedures, and discusses the measures and analytical techniques employed to interpret the data collected for this study.

TABLE 2
Summary of Study Hypotheses

Hypothesis 1: Empowering leadership is positively related to employee perceptions of psychological empowerment.

Hypothesis 2: Empowering leadership is positively related to employee perceptions of job structural empowerment.

Hypothesis 3: Employees' perception of job structural empowerment is positively related to their perceptions of psychological empowerment.

Hypothesis 4: Intrinsic motivation is positively related to creative process engagement.

Hypothesis 5: Psychological empowerment is positively related to creative process engagement, which in turn is positively related to employee creativity. In sum, creative process engagement mediates the relationship between psychological empowerment and employee creativity.

Hypothesis 6: Psychological empowerment is positively related to intrinsic motivation, which in turn is positively related to employee creativity. In sum, intrinsic motivation mediates the relationship between psychological empowerment and employee creativity.

Hypothesis 7: Job structural empowerment is positively related to intrinsic motivation, which in turn is positively related to employee creativity. In sum, intrinsic motivation mediates the relationship between job structural empowerment and employee creativity.

Hypothesis 8: Leader encouragement of creativity strengthens the relationship between psychological empowerment and creative process engagement.

Hypothesis 9a: Domain-relevant skills strengthen the relationship between creative process engagement and employee creativity.

Hypothesis 9b: Openness to experience strengthens the relationship between creative process engagement and employee creativity.

Hypothesis 9c: Proactivity strengthens the relationship between creative process engagement and employee creativity.

Hypothesis 10a: Domain-relevant skills strengthen the relationship between intrinsic motivation and employee creativity.

Hypothesis 10b: Openness to experience strengthens the relationship between intrinsic motivation and employee creativity.

Hypothesis 10c: Proactivity strengthens the relationship between intrinsic motivation and employee creativity.

CHAPTER 3: RESEARCH METHODS

In this Chapter, I describe the research setting in which this dissertation was conducted, the data collection procedures, the measures for the variables in the hypothesized conceptual model, and the analytic techniques that were used to test the hypotheses.

Research Setting and Data Collection Procedure

The hypothesized model was tested with data from the headquarters of a large-scale information technology company in the People's Republic of China (PRC). The Human Resource Department provided the contact information for the employees and their direct supervisors. Those included were professional levels employees from three types of jobs (described further below) in which creativity was important. It has been suggested by many scholars (e.g., Dillman, 2000; Roth & BeVier, 1998) that top management support is important for gaining the attention of participants and, therefore, increasing the response rate.

Data were collected from web-based surveys. In order to minimize the possibility of social desirability biases and encourage honest responses, confidentiality of the completed surveys was guaranteed. All respondents were informed that the company would not have access to their individual responses. A consulting report would be based on the overall results from the survey. Therefore, participants provided data directly from their computers. All data were then directly downloaded into an Excel database, thereby eliminating data entry errors that may occur with paper and pencil surveys. Studies have suggested that, compared to traditional paper and pencil methods, web-based surveys not only provide measurement equivalence, but also decrease social desirability tendencies (Donovan, Drawsgow, Probst, 2000; Stanton, 1998).

Participants and Response Rate

Since our data were collect from China, the entire survey was translated from English into Chinese and then back translated into English to ensure equivalency of meaning (Brislin,

1980). The unit of analysis for this dissertation was the individual employee. Data were collected from two sources. Ratings on employee creativity and leader encouragement of creativity were collected from the direct supervisors of participants. Data on the other variables were collected from participants themselves.

Based on the contact information obtained from the HR department, I sent an email along with an URL survey link to 670 professional level employees in jobs that allow for significant creativity, such as software developers or engineers. I received 498 usable responses, for a 74.3% response rate. Upon receipt of employee responses, I sent another email with a new URL survey link to 219 direct supervisors of those who responded. I received useful responses from 164 direct supervisors, for a 74.9% response rate. Finally, I was able to match 367 usable responses from both direct supervisor and employee. The number of employees evaluated by each supervisor varied from one to six, with most supervisors rating two or three employees.

The average age of the participants was 30.47 years with a standard deviation of 4.75 years. The average organizational tenure was 3.62 years with a standard deviation of 2.88 years. For those 367 respondents, 63.2% were male and 36.8% were female. A total of 68% of these employees had obtained a bachelors degree, 31% of the participants had a masters-level degree, and 1% of the participants had a Ph.D. degree. Participants comprising the final sample worked across three types of jobs: R & D (48%) such as software engineers or new product developers, strategic marketing (43%) such as new market analyzers, employees who are in charge of advertising, or employees who are in charge of sales promotions, and functional divisions (9%). The jobs of all participants required a considerable degree of creativity.

Measures

All the variables were measured by subject responses to the questions on a 5-point

Likert-type scale: "To what extent do you agree with the following statement? (1=strongly disagree; 2=somewhat disagree; 3=neutral; 4=somewhat degree; 5=strongly agree)". The specific measures are described below and listed also in Appendix I. Cronbach's alpha was calculated for all scale measures in order to demonstrate acceptable levels of scale reliability and are summarized in Table 3, as well as provided here.

Empowering Leadership

On the basis of Ahearne et al. (2005), empowering leader behaviors were measured by a 12-item scale, with three items each for the following four components: (1) enhancing the meaningfulness of work, (2) fostering participation in decision making, (3) expressing confidence in high performance, and (4) providing autonomy from bureaucratic constraints. Representative items are "My manager helps me understand how my objectives and goals relate to that of the company," "My manager makes many decisions together with me," "My manager believes that I can handle demanding tasks," "My managers allows me to do my job in my way," corresponding to each component respectively. The Cronbach's alphas for the four dimensions are 0.89, 0.86, 0.85, and 0.79, respectively. The Cronbach's alpha for this scale as a whole is 0.92.

Psychological Empowerment

Psychological empowerment was measured by Spreitzer's (1995) 12-item scale, with three items for each of the following four aspects: meaning, impact, competence, and self-determination. Representative items include: "The work I do is very important to me," "I am confident about my ability to do my job," "I have significant autonomy in determining how I do my job," "My impact on what happens in my department is large," corresponding to each aspect respectively. The Cronbach's alphas for the four dimensions are 0.86, 0.77, 0.81, and 0.87, respectively. The Cronbach's alpha for this overall scale is 0.82.

Job Structural Empowerment

The 15-item Job Diagnostic Survey with five dimensions (skill variety, task identity, task significant, autonomy, and feedback) was developed by Hackman and Oldham (1974) and revised by Idaszak and Drasgow (1987). Piccolo and Colquitt (2006) used the 10 items from the revised Job Diagnostic Survey to measure core job characteristics in their study and validated this measure. In order to avoid the redundancy between the two autonomy dimensions that appear in both the psychological empowerment and job characteristics conceptualizations and measures, I adapted the measure from Piccolo and Colquitt (2006) by removing both items in the autonomy dimension, thus using the 8-item scale to measure core job characteristics in this dissertation. Representative items are "The job requires me to use a number of complex or high-level skills" (task variety), "The job provides me the chance to completely finish the pieces of work I begin" (task identity), "The job is one where a lot of other people can be affected by how well the work gets done" (task significance), and "Just doing the work required by the job provides many chances for me to figure out how well I am doing" (feedback). A single composite score for core job characteristic was obtained by averaging the scores from all four dimensions. The Cronbach's alphas for the four dimension subscales are 0.68, 0.53, 0.55, and 0.84, respectively. The Cronbach's alpha for the composite scale is 0.71.

Creative Process Engagement

Creative process engagement is defined in this dissertation as employee involvement or engagement in creativity-relevant processes, including (1) problem identification, (2) information searching and encoding, and (3) ideas and alternatives generation. An 11-item scale was developed for this dissertation on the basis of the conceptual work of Amabile (1983) and Reiter-Palmon and Illies (2004). Representative items are "I spend considerable time trying to understand the nature of the problem" (problem identification), "I search for information from multiple sources" (information seeking), and "I generate a significant

number of alternatives to the same problem before I choose the final solution" (idea generation). In order to makes sure that developed items can appropriately capture the three dimensions of creative process engagement, before data collection I asked 10 people to conduct a measurement experiment by sorting the 11 items into three categories. As a result, all people correctly accomplished the sorting task. Exploratory factor analysis indicated that all items loaded on their predicted factors. Items and factors loadings are provided in Appendix II. The Cronbach's alpha for each of the three dimensions is 0.77, 0.77, and 0.81, respectively. The Cronbach's alpha for this scale is 0.88.

Intrinsic Motivation

Employees' intrinsic motivation at work was measured with 3 items adapted from the work of Amabile (1985) and Tierney et al. (1999). A representative item is "I enjoy creating new procedures for work tasks." The Cronbach's alpha for this scale is 0.82.

Creativity

Creativity is defined as ideas, products, or procedures that are both novel and useful. In this dissertation, employee creativity was measured by a 13-item creativity scale developed by George and Zhou (2001). Representative items are "This employee comes up with new and practical ideas to improve performance", "This employee suggests new ways of performing work tasks". The Cronbach's alpha for this scale was 0.91.

Leader Encouragement of Creativity

Leader encouragement of creativity is defined as a leader's emphasis that an individual's output should be creative or that an individual should actively engage in certain activities that may lead to creative outcomes. A 6-item scale was developed based on Scott and Bruce's (1994) organizational climate for innovation. Because the emphasis was on individual leader emphasis, rather than organizational level climate, I focused on items that could be adapted to reflect a leader's perspective. Representative items are "I encourage and

emphasize or reinforce creativity", "I will publicly recognize my employees who are creative". The Cronbach's alpha for the entire scale is 0.90.

Individual Differences

Domain-Relevant Skills. It is largely recognized that the abilities, intelligence, and skills of employees acquired from formal education (e.g., knowledge) and job experience constitute an organization's human capital (Becker, 1964) and are important to employee creativity (Amabile, 1983, 1988). Based on Smith, Collins, and Clark (2005), domain-relevant skills were measured by averaging the years of working experience in their present company and the years of formal education (years of post high school education).

Openness to Experience. As one of the Big Five Personality Factors, openness to experience was measured by 10 items from the personality inventory developed by Goldberg (1992). Representative items are "I have a vivid imagination" and "I am full of ideas." The Cronbach's alpha for this scale is 0.86.

Proactivity. Proactivity was measured by 10 items from Bateman and Crant (1993). This 10-item scale reflects an employee's relatively stable tendency to influence their environment. Representative items are "I am constantly on the lookout for new ways to improve my life" and "I am always looking for better ways to do things." The Cronbach's alpha for this scale is 0.81.

Control variables

Based on previous literature (e.g., George & Zhou, 1999; Shalley et al., 2004), I controlled three variables in this study that have been found to be significantly related to creativity. Age was measured as years. Gender was measured as a dichotomous variable coded as 1 for male and 0 for female. Job type was measured as a dichotomous dummy variable coded as 1 for IT participants (e.g., employees from R & D division) and 0 for non-IT participants (e.g., employees from strategic marketing division and functional

division).

Analytical Procedures

In order to test the hypothesized model, data were analyzed using a combination of two analytic procedures. The direct and mediating effects were examined using structural equation modeling with the EQS program (EQS 6.1, Bentler, 2005). The interaction effects of several variables (e.g., leader encouragement of creativity, and individual differences) were investigated by moderated hierarchical regression using SPSS.

Given that a majority of supervisors (79%) in our sample evaluated creativity of *multiple* employees, I examined supervisory ratings for non-independence impacts that might preclude analyzing the data at the individual level and require multilevel analysis. One-way ANOVA with creativity as the dependent variable indicated that supervisors did not differ significantly in how they rated their employees on creativity ($F = 0.975$, $p = 0.564$; ICC (1) = .078). In addition, one-way ANOVA with empowering leadership as the dependent variable indicated the within group variance is greater than between group variance ($F = 0.954$, $p = 0.621$; ICC (1) = -.021). This confirmed that our data reflect individual level phenomena; thus modeling supervisory ratings of creativity as being independent was appropriate. Hence, I proceeded to analyze our regression models using SEM instead of HLM.

Structural Equation Modeling

Structural equation modeling with EQS 6.1 was used to fully examine the influence of empowerment, creative process, and intrinsic motivation on employee creativity. This is because structural equation modeling can be used to conduct a simultaneous test of the entire system of variables in the hypothesized model to determine the extent to which it is consistent with the data (Byrne, 1994).

In this dissertation, I adopted Anderson and Gerbing's (1988) comprehensive, two-step analytical strategy to test the structural model depicted in Figure 1. According to this strategy, the measurement model was first confirmed using confirmatory factor analysis, and then

structural equation modeling was conducted, based on the measurement model, to estimate

the fit of the hypothesized model to the data. To gauge the model fit, chi-square (χ^2) values

were reported as the index of absolute fit, which reveals the extent to which the covariances

estimated in the model match the covariances in the measured variables. Low and

nonsignificant values of χ^2 are desired (Kline, 1998). In addition, I also reported the

Comparative Fix Index (CFI; Bentler, 1990), Joreskog-Sorbom Goodness of Fit Index (GFI),

the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean

Square Residual (SRMR) (Steiger, 1990) as incremental fit indices to gauge model fit. These

incremental fit indices indicate the extent to which the research model provides an improved

overall fit relative to a null model or an independence model, where the correlations among

observed variables are assumed to be zero. The CFI and GFI have been considered as the best

approximations of the population value for a single model with values ≥.90 considered

indicative of good fit (Medsker, Williams, & Holahan, 1994). RMSEA is a measure of the

average standardized residual per degree of freedom. A favorable value of the RMSEA is

≤ .08, and values ≤ .10 are considered "fair" (Browne & Cudeck, 1989). SRMR is a

standardized summary of the average covariance residuals. A favorable value of the SRMR is

less than .10 (Kline, 1998).

Assessment of Interaction Effects

To examine the moderating effects of leader encouragement of creativity and several

individual difference variables, a moderated multiple regression analysis (Cohen & Cohen,

1983) was used. Hierarchical regression analysis is one of the most useful tools for testing

interaction effects because it allows the researcher to arrange the order of variable entry based

on causal priority and enables the partitioning of the unique variance explained by the

interaction terms above and beyond those accounted for by the main effects (Cohen & Cohen,

1983). Separate regression analyses were conducted. All interaction variables were

mean-centered in order to reduce the multicollinearity (Aiken & West, 1991).

Chapter Summary

This Chapter described the methodology that was used in this dissertation. First, the research setting and data collection procedures were detailed. Second, participants in this research were described. Third, measures for the variables in the hypothesized conceptual model were described. Finally, the analysis procedures used for examining the model described in Chapter 2 were explained. The results of this dissertation are presented in the following chapter.

CHAPTER 4: RESULTS

In this chapter, I present the results of my data analyses used to examine the theoretical model developed in Chapter 2. I begin with a presentation of the correlations among study variables, followed by the results from measurement model, structural model, and moderated regression models.

Descriptive Statistics

Table 3 provides the descriptive statistics, correlations, and inter-item reliability for the variables of the study. The scale reliabilities (shown in parentheses) for all variables are above 0.70. Thus, the instruments provide reliable measures of the variables in this study (Nummally & Bernstain, 1994).

Measurement Model

Prior to testing the measurement model and structural model, I averaged items into different dimensions, which were used as observed variables to construct latent variables for empowering leadership, psychological empowerment, job structural empowerment, and creative process engagement. For intrinsic motivation and creativity, I averaged items into single dimensions, respectively. In order to adjust for measurement error when using a single indicator for a latent variable, I fixed the loading of the variable on its respective factor at 1 and fixed the measurement error term by the variance * (1-reliability).

The confirmatory factor analysis results provided a very good fit to the data: $\chi^2(34) =$ 96.056; CFI = 1.000; GFI=.975; SRMR=.041; RMSEA=.071. In the measurement model, all indicators loaded significantly ($p<.05$) onto the corresponding hypothesized latent factors. These results indicate that the measurement model fits quite well and further examination of the structural model is justified. The fit indices are summarized in Table 4.

Note that among the variables that were collected from employees, empowering leadership was highly correlated with both psychological empowerment ($r=.587$) and job structural empowerment ($r=.484$). To ensure that these scales measured distinct concepts, I

compared the results of a one-factor to a three-factor confirmatory factor analysis. The results indicated that the three-factor model provided a significantly better fit than the one-factor model ($\Delta\chi^2$ (3) =76.35, $p<0.001$); model fit statistics for the three-factor model were χ^2 (51) =212.191; CFI =0.884; GFI=.912; SRMR=.059; RMSEA= .093.

In addition, psychological empowerment was highly correlated with job structural empowerment (r=.605). To ensure that these scales measured distinct concepts, I compared the results of a one-factor to a two-factor confirmatory factor analysis. The results indicated that the two-factor model provided a significantly better fit than the one-factor model ($\Delta\chi^2$ (1) =7.412, $p<0.001$); model fit statistics for the two-factor model were χ^2 (19) =63.530; CFI =0.907; GFI=.959; SRMR=.051; RMSEA= .080.

Finally, creative process engagement was highly correlated with intrinsic motivation (r=.645). To ensure that these scales measured distinct concepts, I compared the results of a one-factor to a two-factor confirmatory factor analysis. The results indicated that the two-factor model provided a significantly better fit than the one-factor model ($\Delta\chi^2$ (1) =83.416, $p<0.001$); model fit statistics for the two-factor model were χ^2 (2) =6.116; CFI =0.997; GFI=.991; SRMR=.018; RMSEA= .075.

Structural Model

As indicated above, a favorable value of the CFI or GFI values is greater or equal to .90 (Medsker, Williams, & Holahan, 1994). A favorable value of the SRMR is less than .10 (Kline, 1998). A favorable value of the RMSEA is ≤ .08, and values ≤ .10 are considered "fair" (Browne & Cudeck, 1989). Structural equation modeling results suggested that the hypothesized model fit the data well (see Table 4): χ^2 (154) = 513.716; CFI = 1.000; GFI=.880; SRMR=.075; RMSEA= .080. Most of the hypotheses were supported based on the structural modeling results. The results are presented in Figure 2.

TABLE 3
Descriptive Statistics, Correlations, and Reliability

	Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Age	30.47	4.754	--												
2	Gender	0.63	0.483	.088	--											
3	Job type	0.46	0.499	-.049	.138**	--										
4	Empowering leadership	3.67	0.584	-.069	.081	.146**	(0.92)									
5	Psychological empowerment	3.74	0.415	.054	.142**	.142**	.587**	(0.82)								
6	Job structural empowerment	3.58	0.438	.085	.170**	.044	.484**	.605**	(0.71)							
7	Creative Process engagement	3.92	0.434	.028	.181**	.024	.242**	.374**	.350**	(0.88)						
8	Intrinsic motivation	3.94	0.554	.052	.110*	-.005	.195**	.286**	.260**	.645**	(0.82)					
9	Creativity (Mgr rating)	3.54	0.555	.022	.199**	.079	.244**	.370**	.345**	.700**	.661**	(0.91)				
10	Encouragement (Mgr rating)	3.68	0.630	-.140**	.058	.125*	.694**	.438**	.396**	.175**	.195**	.251**	(0.90)			
11	Skills	7.89	3.177	.596**	.008	-.213**	-.049	.052	.035	-.045	.047	-.007	-.121*	--		
12	Openness	3.82	0.432	-.021	.152**	.124*	.213**	.335**	.291**	.598**	.539**	.641**	.176**	-.067	(0.86)	
13	Proactivity	3.93	0.385	-.061	.123*	.120*	.254**	.411**	.350**	.537**	.459**	.550**	.244**	-.111*	.612**	(0.81)

Note: N=367. Internal reliabilities (coefficient alphas) are given in parentheses on the diagonal. **$p < .01$; * $p < .05$

TABLE 4
Summary of Model Fit Indices

	Model Test	χ^2	df	CFI	GFI	SRMR	RMSEA
1	Measurement model	96.056	34	1.000	0.975	0.041	0.071
2	Independence model	8447597	195	--	--	--	--
3	Hypothesized model with manager rating of creativity	513.716	154	1.000	0.880	0.075	0.080
	Mediation Tests						
4	Direct path model (only add direct path from psy. emp.→creativity)	1028.787	159	1.000	0.772	0.159	0.122
5	Mediation model for psychological empowerment (add direct path from psy. emp to creativity based on hypothesized model)	511.261	153	1.000	0.880	0.073	0.080
6	Direct path model (only add direct path from job structural emp.→creativity)	1024.566	159	1.000	0.775	0.159	0.122
7	Mediation model for job structural empowerment (add direct path from job emp to creativity based on hypothesized model)	511.476	153	1.000	0.880	0.074	0.080
	Alternative Tests						
8	Add empowering leadership→creative process engagement	510.471	153	1.000	0.881	0.074	0.080
9	Add empowering leadership→intrinsic motivation	513.710	153	1.000	0.080	0.075	0.080
10	Add empowering leadership→employee creativity	512.585	153	1.000	0.880	0.075	0.080

Hypothesis 1 argued that empowering leadership is positively related to employees' perceptions of psychological empowerment. The results strongly supported this argument (β=0.254, p<.05). Consistent with Hypothesis 2, the result indicated that empowering leadership was also positively related to employees' perceptions of job structural empowerment (β=0.704, p<.05). Hypothesis 3, which proposed that job structural empowerment is positively related to psychological empowerment, was supported (β=0.788, p<.05). Consistent with Hypothesis 4, intrinsic motivation was also found to have a significant positive relationship with creative process engagement (β= 0.711, p <.05).

Hypothesis 6 argued that intrinsic motivation is a mediator between psychological empowerment and employee creativity. However, the hypothesized path from psychological empowerment to intrinsic motivation was not significant (β= -0.364, p >.05). As a result, a further mediation test could not be examined. Thus, Hypothesis 6 was not supported.

In order to test hypotheses 5 and 7 for mediation effects of creative process engagement and intrinsic motivation, I further examined two mediation models. Following Baron and Kenny (1986) and Mathieu et al (2006), there were two steps for each mediation test. First, I tested a direct path model by adding a direct path from the predictor to the outcome variable, and in the meanwhile eliminating all paths leading directly to and stemming directly from the mediator variables, but leaving the mediating latent variable in the model. A significant relationship between the predictor variable and the outcome variable fulfills the first step of mediation effect (Baron & Kenny, 1986; Mathieu et al., 2006). Second, I tested a mediation model by adding a direct path from the predictor variable to the outcome variable based on the hypothesized model. A significant direct path indicates a partial mediation, whereas an insignificant direct path suggests a full mediation (Baron & Kenny, 1986).

FIGURE 2
Structural Result Model
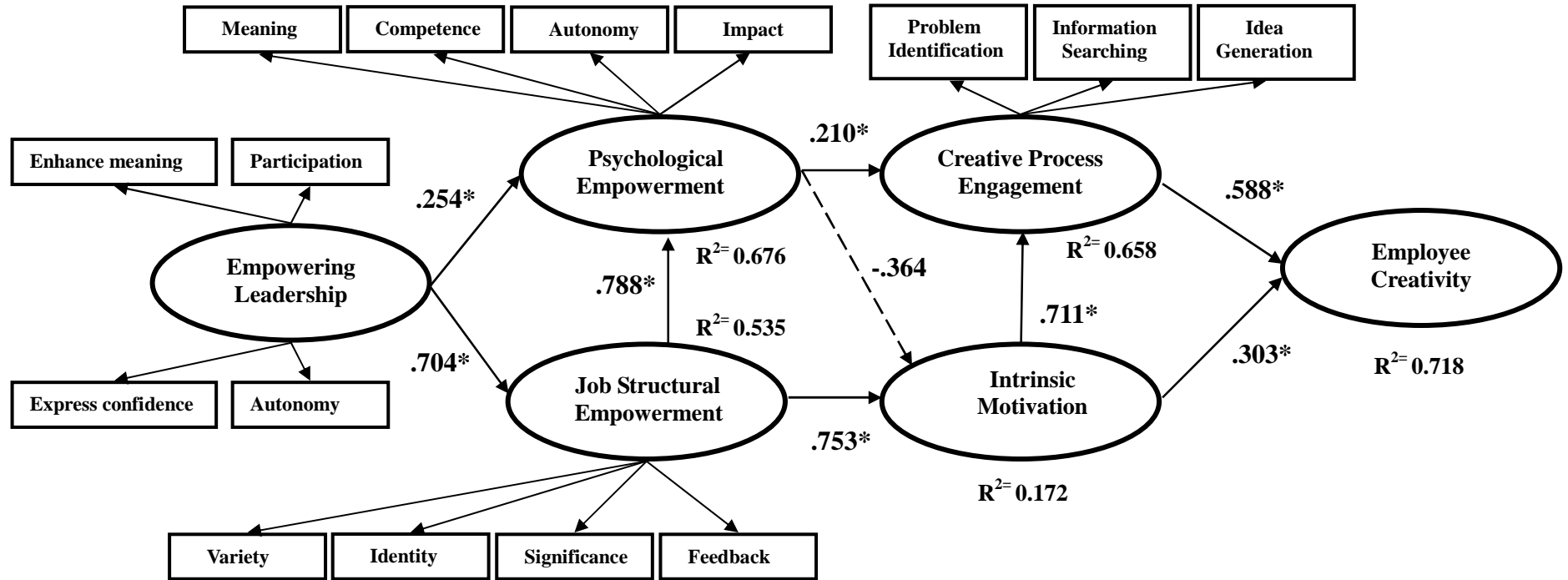
Note: N=367, *p<.05

Hypothesis 5 argued that creative process engagement is a mediator between psychological empowerment and employee creativity. To test the mediation effect of creative process engagement, I first examined an alternative to the hypothesized model that included only a direct path from psychological empowerment to creativity and had the paths directly in and out of creative process engagement removed. This model provided very a poor fit (χ^2 (159) =1028.787; CFI =1.000; GFI=.772; SRMR=.158; RMSEA=.122) and was significantly worse than the hypothesized model ($\Delta\chi^2$ (5) = 515.071, $p <$ .001). In this model, psychological empowerment was significantly related to employee creativity (β = 0.420, $p <$.05), thus fulfilling the first step for a mediation test—i.e, demonstrating a significant direct relationship between the predictor and the outcome variable.

Then, based on the hypothesized model, I added a direct path from psychological empowerment to creativity. This model provided an adequate fit to the data (χ^2 (153) =511.261; CFI =1.000; GFI=.880; SRMR=.074; RMSEA=.080), but was not significantly better than the hypothesized model ($\Delta\chi^2$ (1) = 2.455, n.s.). In this model, the direct path from psychological empowerment to creativity was not significant (β = 0.073, $p >$.05). However, psychological empowerment was significantly related to creative process engagement (β = 0.200, $p<$.05), which in turn was significantly related to employee creativity (β =0.538, p <.05). Therefore, creative process engagement was a full mediator between psychological empowerment and employee creativity; thereby supporting Hypothesis 5.

Mediation Effect for Job Structural Empowerment

Hypothesis 7 indicated that intrinsic motivation mediates the relationship between job structural empowerment and employee creativity. Following the same steps discussed above. I first examined an alternative to the hypothesized model that included a direct path from job structural empowerment to creativity and dropped paths leading into and out of intrinsic

motivation. This model provided very poor fit (χ^2 (159) =1024.566; CFI =1.000; GFI=.775; SRMR=.159; RMSEA=.122) and was significantly worse than the hypothesized model ($\Delta\chi^2$ (5) = 510.850, $p<$ .001). In this model, job structural empowerment was significantly related to employee creativity (β = 0.453, $p <$.05), thus fulfilling the first step for a mediation test.

Next, based on the hypothesized model, I added a direct path from job structural empowerment to creativity. This model provided an adequate fit to the data (χ^2 (153) =511.476; CFI =1.000; GFI=.880; SRMR=.074; RMSEA=.080), but was not significantly better than the hypothesized model ($\Delta\chi^2$ (1) = 2.240, n.s.). In this model, the direct path from job structural empowerment to creativity was not significant (β = 0.074, $p >$.05). However, job structural empowerment was significantly related to intrinsic motivation (β = 0.771, p <.05), which in turn was significantly related to employee creativity (β = 0.314, p <.05). Therefore, intrinsic motivation is a full mediator between job structural empowerment and employee creativity; thereby supporting Hypothesis 7. At the same time, intrinsic motivation was significantly related to creative process engagement (β = 0.716, $p<$.05), which in turn was significantly related to employee creativity (β = 0.538, p <.05).Thus, the relationship between job structural empowerment and creativity was fully mediated by intrinsic motivation directly and through an indirect influence on creative process engagement.

Alternative Model Testing for Structural Model

Based on Anderson and Gerbing's (1988) suggestions, I also examined a few alternative models that are plausible based on theoretical arguments. Numerous studies have demonstrated the importance of leader behaviors for employee creativity (e.g., Amabile, Schatzel, Moneta, & Kramer, 2004; Tierney & Farmer, 2002, 2004, Zhou & George, 2003). For example, supportive leadership style was found to significantly facilitate creativity (Amabile, Conto, Coon, Lazenby, & Herron, 1996; Oldham & Cummings, 1996). In contrast, controlling leadership style was negatively related to employee creativity (George & Zhou,

2001; Zhou, 2003). Furthermore, several studies have found a positive relationship between transformational leadership and employee creativity or innovation (e.g., Jung et al., 2003; Shin & Zhou, 2003; Sosik, Kahai, & Avolio, 1998).

Empowering leadership is defined as leader behaviors that (1) enhance the meaningfulness of work, (2) foster participation in decision making, (3) express confidence in high performance, and (4) provide autonomy from bureaucratic constraints. For the first alternative model, I tested the direct effect of empowering leadership on employee creativity, as empowering leaders consistently providing autonomy to employees and enhancing their self-efficacy and intrinsic motivation (Ahearne, Mathieu, & Rapp, 2006; Srivastava, Bartol, Locke, 2006; Zhang & Sims, 2005). This model provided a similar fit to the data as the hypothesized model (χ^2 (153) =512.585; CFI =1.000; GFI=.880; SRMR=.075; RMSEA=.080) but was not significantly better than the hypothesized model ($\Delta\chi^2$ (1) = 1.141, n.s.). Moreover, the relationship between empowering leadership and creativity was not significant (β = 0.044, p >.05), suggesting that empowering leadership is not directly related to employee creativity.

In addition, supportive leadership style and transformational leadership have been found to increase followers' intrinsic motivation and higher level needs (Oldham & Cummings, 1996; Tierney et al., 1999). As an exploration, I tested the second alternative model based on previous evidence and the definition of empowering leadership by adding a direct path from empowering leadership to intrinsic motivation. This model also provided a similar fit to the data as the hypothesized model (χ^2 (153) =513.710; CFI =1.000; GFI=.880; SRMR=.075; RMSEA=.080) but was not significantly better than the hypothesized model ($\Delta\chi^2$ (1) = 0.006, n.s.). In addition, the relationship between empowering leadership and intrinsic motivation creativity was not significant, (β =0.011, p>.05), suggesting that empowering leadership is indirectly related to intrinsic motivation through job structural empowerment.

Following the same logic, empowering leaders may also directly influence employees' tendencies to engage in creative process. This is because empowering leaders tend to help followers gain confidence, cultivate the internal interest to their work, and provide followers freedom to carry out their jobs. As a result, employees are becoming more involved in their jobs by creating more alternative solutions to the problems they have. Therefore, in the third alternative model, I added a direct path from empowering leadership to creative process engagement. Similar to alternative models 1 and 2, this model provided a similar fit to the data as the hypothesized model (χ^2 (153) =510.471; CFI =1.000; GFI=.881; SRMR=.074; RMSEA=.080) but was not significantly better than the hypothesized model ($\Delta\chi^2$ (1) = 3.245, n.s.). Structural analysis results indicated that empowering leadership was not directly related to creative process engagement (β =0.204, p>.05), but was indirectly through the effect of psychological empowerment. Overall, these alternative tests (see Table 4) suggest that the hypothesized model is more consistent with the data.

Moderated Multiple Regression

The moderated hierarchical regression results were summarized in Table 5. I first discuss the interaction effects, followed by the discussion of the plots that can help our understanding of the interaction meaning (Aiken & West, 1991). All interaction variables were mean-centered in order to reduce the multicollinearity (Aiken & West, 1991). Interaction results are presented in Figure 3.

Consistent with Hypotheses 8, psychological empowerment interacted significantly with leader encouragement of creativity (β =0.245, p<.001) to influence creative process engagement. The plot of the interaction effect (see Figure 4) showed that the positive relationship between psychological empowerment and creative process engagement was stronger when the leader highly encouraged creativity. However, if employees don't perceive psychological empowerment, then a leader's encouragement of creativity has a weaker effect

to motivate employees to engage in creative process.

Hypothesis 9 proposed that the relationship between creative process engagement and creativity is contingent on the moderating influence of domain-relevant skills (H9a), openness to experience (H9b), and proactivity (H9c). The results (see Table 6) indicated that skills did not significantly interact with creative process engagement to influence employee creativity (β=-0.009, p>.05); thus Hypothesis 9a was not supported. In addition, hypothesis 9b, the moderating effect of openness to experience, was marginally supported (β=0.067, p <.10). Finally, proactivity was found to be a significant moderator for the relationship between creative process engagement and employee creativity (β=0.105, p<.01). Thus Hypothesis 9c was supported. The plot of this interaction effect (see Figure 5) showed that the positive relationship between creative process engagement and creativity was stronger for employees who are high in proactivity than for employees who are low in proactivity.

Hypothesis 10 predicted that the relationship between intrinsic motivation and creativity is also dependent on the moderating influence of domain-relevant skills (H10a), openness to experience (H10b), and proactivity (H10c). The results (see Table 7) indicated that skills did not significantly interact with intrinsic motivation to influence employee creativity (β=-0.001, p>.05); thus Hypothesis 10a was not supported. In addition, Hypothesis 10b was marginally supported (β=0.070, p<.10) as openness to experience marginally interacted with intrinsic motivation to influence creativity. Finally, the interaction between and intrinsic motivation and proactivity was significantly (β=0.112, p<.01), thus Hypothesis 10c was supported. The plot of this interaction effect (see Figure 6) showed that the positive relationship between intrinsic motivation and creativity was stronger for employees who are high in proactivity than for employees who are low in proactivity.

FIGURE 3
Moderated Multiple Regression Result

Chapter Summary

This Chapter provided the results for the hypothesized model in this dissertation. First, I began with the table of descriptives and correlation of the variables used in this study. Second, I discussed the measurement model and structural models used in structural equation modeling, followed by the discussion of mediation tests and alternative tests. Last, I summarized the moderated hierarchical regression results by discussing interaction effects and plots. Further discussion of the major findings, contributions, limitations, practical implications, and future research direction are provided in the next chapter.

TABLE 5
Results of Moderated Multiple Regression

Moderating Effects of Leader Encouragement of Creativity on Psychological Empowerment-Creative Process Engagement Relationship

Variables	Model 1		Model 2		Model 3	
	β	S.E.	β	S.E.	β	S.E.
Age	0.012	(.005)	-0.003	(.005)	-0.013	(.004)
Gender	0.180***	(.047)	0.137**	(.044)	0.139**	(.043)
Job type	0.000	(.045)	-0.047	(.043)	-0.060	(.041)
Psychological empowerment			0.354***	(.057)	0.346***	(.055)
Leadership encouragement			0.017	(.038)	-0.006	(.036)
Psy emp * encouragement					0.245***	(.064)
ΔR^2			0.126		0.059	
F for ΔR^2			27.032***		27.090***	
R^2	0.033		0.159		0.218	
F	4.129**		13.646***		16.708***	

DV: Creative Process Engagement

Note: N=367. ***p< .001; **p< .01; * p< .05; +p<.10

FIGURE 4

Moderating Effects of Leader Encouragement of Creativity on Psychological Empowerment-Creative Proces Engagement Relationship

TABLE 6a
Moderating Effects of Domain-relevant Skills on Creative Process Engagement-Employee Creativity Relationship

Variables	Model 1		Model 2		Model 3	
	β	S.E.	β	S.E.	β	S.E.
Age	0.007	(.005)	-0.035	(.004)	-0.035	(.004)
Gender	0.191***	(.049)	0.068[+]	(.036)	0.069[+]	(.036)
Job type	0.053	(.047)	0.064	(.035)	0.064[+]	(.035)
Creative Process engagement			0.690***	(.040)	0.690***	(.040)
Domain-relevant Skills			0.058	(.007)	0.059	(.007)
Process * Skills					-0.009	(.012)
ΔR^2			0.459		0.000	
F for ΔR^2			165.802***		0.056	
R^2	0.042		0.501		0.501	
F	5.367***		72.46***		60.239***	

DV: Employee Creativity

Note: N=367. ***p< .001; **p< .01; * p< .05; +p<.10

TABLE 6b
Moderating Effects of Openness on Creative Process Engagement-Employee Creativity Relationship

Variables	Model 1		Model 2		Model 3	
	β	S.E.	β	S.E.	β	S.E.
Age	0.007	(.005)	0.011	(.003)	0.009	(.003)
Gender	0.191***	(.049)	0.056	(.034)	0.062[+]	(.034)
Job type	0.053	(.047)	0.018	(.032)	0.013	(.032)
Creative Process engagement			0.487***	(.046)	0.476***	(.046)
Openness			0.339***	(.046)	0.326***	(.046)
Process * Openness					0.067[+]	(.063)
ΔR^2			0.529		0.004	
F for ΔR^2			222.524***		3.391*	
R^2	0.042		0.571		0.575	
F	5.367***		96.160***		81.229***	

DV: Employee Creativity

Note: N=367. ***p< .001; **p< .01; * p< .05; +p<.10

TABLE 6c
Moderating Effects of Proactivity on Creative Process Engagement-Employee
Creativity Relationship

Variables	Model 1		Model 2		Model 3	
	β	S.E.	β	S.E.	β	S.E.
Age	0.007	(.005)	0.017	(.003)	0.008	(.003)
Gender	0.191***	(.049)	0.063+	(.035)	0.068+	(.035)
Job type	0.053	(.047)	0.0129	(.033)	0.021	(.033)
Creative Process engagement			0.559***	(.045)	0.549***	(.045)
Proactivity			0.239***	(.051)	0.217***	(.051)
Process * Proactivity					0.105**	(.075)
ΔR^2			0.497		0.010	
F for ΔR^2			194.128***		7.982**	
R^2	0.042		0.539		0.549	
F	5.367***		84.298***		72.937***	

DV: Employee Creativity

Note: N=367. ***p< .001; **p< .01; * p< .05; +p<.10

FIGURE 5

Moderating Effects of Proactivity on Creative Process
Engagement-Creativity Relationship

TABLE 7a
Moderating Effects of Domain-relevant Skills on Intrinsic Motivation-Employee Creativity Relationship

Variables	Model 1		Model 2		Model 3	
	β	S.E.	β	S.E.	β	S.E.
Age	0.007	(.005)	-0.008	(.005)	-0.008	(.005)
Gender	0.191***	(.049)	0.120**	(.037)	0.120**	(.037)
Job type	0.053	(.047)	0.061	(.037)	0.061	(.037)
Intrinsic Motivation			0.649***	(.032)	0.649***	(.032)
Domain-relevant Skills			-0.020	(.007)	-0.020	(.007)
Intrinsic Motivation * Skills					-0.001	(.010)
ΔR^2			0.416		0.000	
ΔF for ΔR^2			138.207***		0.000	
R^2	0.042		0.458		0.458	
F	5.367***		60.937***		50.641***	

DV: Employee Creativity

Note: N=367. ***p< .001; **p< .01; * p< .05; +p<.10

TABLE 7b
Moderating Effects of Openness on Intrinsic Motivation-Employee Creativity Relationship

Variables	Model 1		Model 2		Model 3	
	β	S.E.	β	S.E.	β	S.E.
Age	0.007	(.005)	0.000	(.003)	-0.009	(.003)
Gender	0.191***	(.049)	0.089*	(.034)	0.092**	(.034)
Job type	0.053	(.047)	0.021	(.033)	0.018	(.032)
Intrinsic Motivation			0.443***	(.034)	0.443***	(.034)
Openness			0.386***	(.045)	0.366***	(.046)
Intrinsic * Openness					0.070+	(.056)
ΔR^2			0.517		0.005	
ΔF			211.768***		0.004*	
R^2	0.042		0.559		0.564	
F	5.367***		91.667***		77.582***	

DV: Employee Creativity

Note: N=367. ***p< .001; **p< .01; * p< .05; +p<.10

Moderating Effects of Proactivity on Intrinsic Motivation-Employee Creativity Relationship

Variables	Model 1		Model 2		Model 3	
	β	S.E.	β	S.E.	β	S.E.
Age	0.007	(.005)	0.006	(.004)	-0.007	(.003)
Gender	0.191***	(.049)	0.101**	(.035)	0.100**	(.034)
Job type	0.053	(.047)	0.032	(.034)	0.030	(.032)
Intrinsic Motivation			0.512***	(.034)	0.502***	(.046)
Proactivity			0.299***	(.049)	0.284***	(.046)
Intrinsic * Proactivity					0.112**	(.063)
ΔR^2			0.484		0.012	
ΔF			183.937***		9.299**	
R^2	0.042		0.526		0.538	
F	5.367***		80.041***		69.784***	

DV: Employee Creativity

Note: N=367. ***p< .001; **p< .01; * p< .05; +p<.10

FIGURE 6

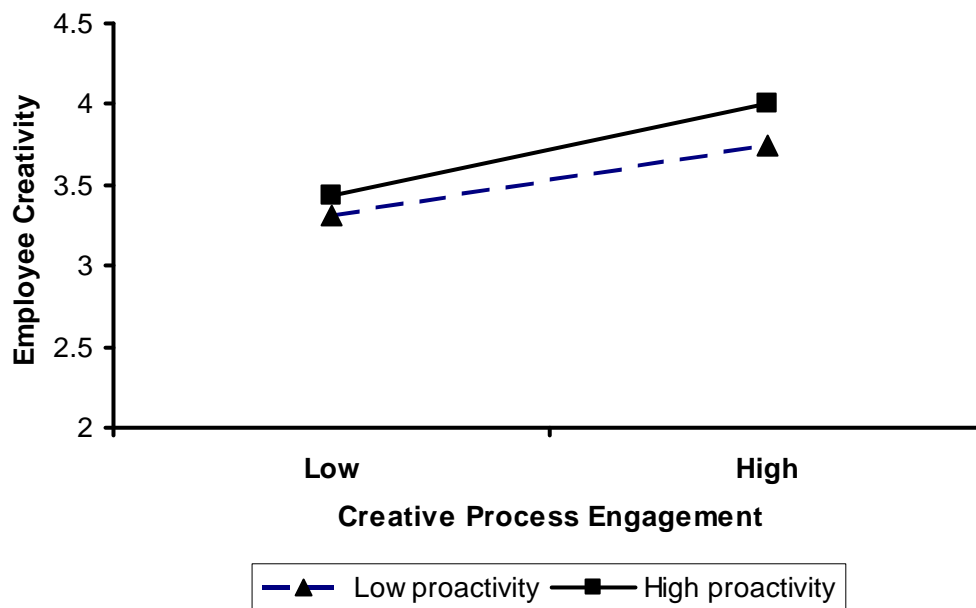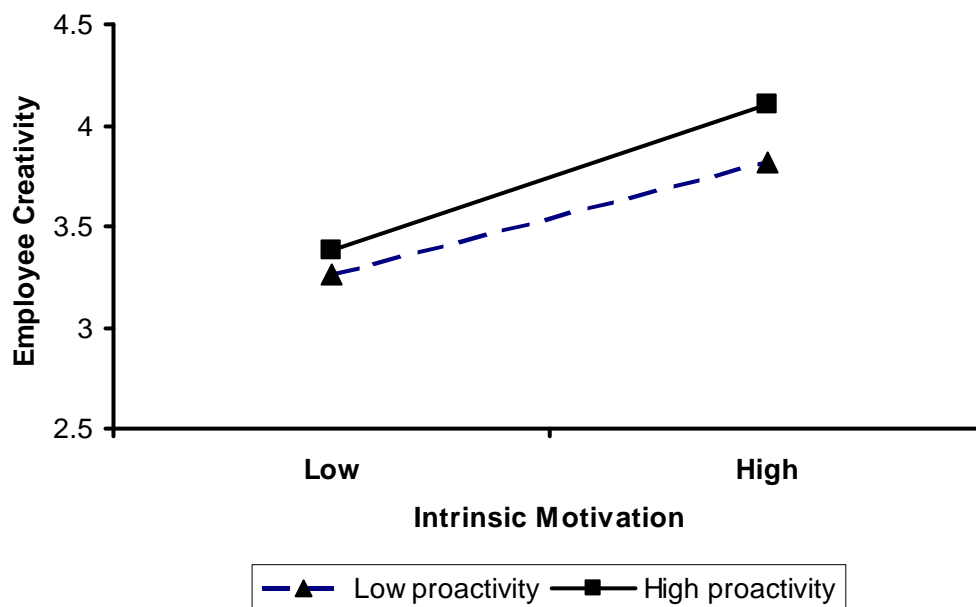**Moderating Effects of Proactivity on Intrinsic Motivation-Creativity Relationship**

CHAPTER 5: DISCUSSION

This dissertation combined leadership theories (e.g., Arnold et al., 2000; Sims and Manz, 1996; Yukl, 2002), empowerment theories (e.g., Conger & Kanungo, 1988; Spreitzer, 1995; Thomas & Velthouse, 1990), and creativity theories (e.g., Amabile, 1983, 1988; Shalley, 1991; Shalley et al., 2004) to examine how different conceptualizations of empowerment (namely, the leadership approach, the psychological approach, and the job structural approach) influence employee creativity through the mediating effects of creative process engagement and intrinsic motivation. The theoretical model was tested using data that were collected from 367 employees and 219 corresponding direct supervisors in one of the biggest IT companies in China. Hypotheses were tested through structural equation modeling and hierarchical regression analyses. Overall, this dissertation contributes to the literature in five major ways.

First of all, this is the first research, to the author's knowledge, to connect empowering leadership with both psychological empowerment and job structural empowerment in one study. Empowerment has often been studied through two approaches: a psychological approach (e.g, Conger & Kanungo, 1988; Spreitzer, 1995) and a job structural approach (e.g., Kanter, 1977; Leach et al., 2003). More often than not, these two approaches are not contained within a single study, especially with respect to influences on employee creativity. In addition, Menon (2001) in his recent study suggested that a leadership approach should not be ignored when it comes to the study of empowerment. Indeed, there is a need to connect leader behaviors with both psychological empowerment and job structural empowerment because all three approaches are not mutually exclusive; rather, they provide a comprehensive understanding of the empowerment phenomenon. In this dissertation, I argued that leaders' empowering behaviors positively influence employees' perceptions of psychological empowerment. In addition, empowering leadership is also positively related to employees' perceptions of job structural empowerment, which in turn, positively influence their

perceptions of psychological empowerment. The results strongly supported these arguments.

This is the first study that empirically demonstrated a positive relationship between empowering leadership and psychological empowerment and job structural empowerment. By definition, empowering leaders emphasize (1) enhancing the meaningfulness of work, (2) fostering participation in decision making, (3) expressing confidence in high performance, and (4) providing autonomy from bureaucratic constraints. This study builds on work by Ahearne et al (2005) who found that empowering leadership is positively related to self-efficacy/competence, which is only one dimension of psychological empowerment. Thus, further investigation was needed because Spreitzer (1995) suggested that four dimensions make up an integrated conceptualization of psychological empowerment. In addition, prior empirical work has extensively supported the positive link between transformational leadership and core job characteristics (e.g., Bono & Judge, 2003; Piccolo & Colquitt, 2006); however, we have not had empirical evidence for the influence of empowering leadership on job characteristics despite its theoretical promise (Zhang & Sims, 2005). Therefore, this dissertation addresses this gap. These results suggest that leaders have different channels to influence employees' perceptions of empowerment. Leaders can directly strengthen employees' perceptions of their psychological state by expressing confidence, providing autonomy, and fostering participation in decision-making. Leaders can also indirectly influence such perceptions through their influence on job design by making tasks complex and challenge to employees and providing timely feedback.

Interestingly, the influence of empowering leadership is almost three times stronger on job structural empowerment (β=0.704) than on psychological empowerment (β=0.254). This is likely related to the job characteristics of the participants in this study. Recall that the jobs of all participants allow for significant creativity. As a result, these jobs were fairly enriched. Relatively speaking, empowering leadership might not have such a strong effect on

job structural empowerment if the jobs were more routine.

Second, the most important contribution of this dissertation is the investigation of mediation mechanisms (e.g., creative process engagement and intrinsic motivation) through which psychological empowerment and job structural empowerment influence employee creativity. We have known that psychological empowerment has a positive influence on employee creativity (e.g., Amabile et al., 1996; Jung & Sosik, 2002; Zhou, 1998). We also have known that job structural empowerment is positively related to employee creativity (e.g., Tierney & Farmer, 2002; 2004). However what we have not known is *how* psychological empowerment and job structural empowerment positively influence employee creativity at work. Based on Amabile's (1983) componential conceptualization of creativity, several researchers (Amabile, 1983, 1988; Shalley, 1991; 1995; Simon, 1985) have suggested that intrinsic motivation and a creativity-relevant process (e.g., taking new perspectives on problems, exploring new cognitive pathways, being persistent with ones' work) are necessary conditions for employee creativity at work. Therefore, it is logical to ask whether psychological empowerment and job structural empowerment work through these necessary conditions to influence employee creativity. Do both empowerment concepts work similarly with intrinsic motivation and engagement of creative activities or do they have unique influencing paths?

Recently, several scholars (e.g., Perry-Smith, 2006; Mumford, 2000; Shalley et al., 2004) have suggested that a promising direction for creativity research is to understand the creative process wherein individuals come to develop creative outcomes. However, to date there has been no consistent definition and measure of creative process. Empirically, Gilson and Shalley (2004) is the only study that has attempted to examine employees' engagement in creative process. They exclusively focused on creative process from an idea generation perspective. However, a creative process includes any problem-solving approach that people

use to search their memories and environments to generate different alternatives and potential responses (Amabile, 2000; Perry-Smith, 2006). Apparently, creative process should be not limited to idea generation. Indeed, problem identification and information searching are also indispensable components of creative process engagement.

The exploratory factor analysis supported the argument that creative process engagement includes three components: problem identification, information searching and encoding, and idea generation. In addition, the evidence from the mediation test in structural equation modeling was strongly supportive of the full mediation role of creative process engagement between psychological empowerment and employee creativity. Therefore, this dissertation has established some initial evidence of the predictive validity of creative process engagement.

In contrast to creative process engagement for which there has been a lack of both theoretical and empirical support, there are abundant arguments in the literature supporting empowerment as a construct deemed critical to employee creativity through its effects on intrinsic motivation. Previous studies have found that psychological empowerment positively influences intrinsic motivation (e.g., Deci & Ryan, 1987; Gagne et al., 1997) and have demonstrated that employees' perceptions of core job characteristics are positively related to their intrinsic motivation (e.g., Piccolo & Colquitt, 2006; Johns et al., 1992). In addition, intrinsic motivation is widely believed to be critical to creativity in organizations (e.g., Amabile, 1996; Shalley et al., 2000; Taggar, 2002). However, no study has empirically tested the mediating role of intrinsic motivation on creativity. As a result, we have not known whether the relationship between different conceptualizations of empowerment and creativity is mediated or linked indirectly through intrinsic motivation. Therefore, in this dissertation, I proposed that intrinsic motivation is a mediator between both psychological empowerment and creativity and between job structural empowerment and creativity.

The results from mediation tests in structural equation modeling showed that intrinsic motivation is a mediator between job structural empowerment and employee creativity. However, inconsistent with my expectation, psychological empowerment did not significantly influence employees' intrinsic motivation. One possible explanation is the high correlation between psychological empowerment and job structural empowerment ($r=.605$) and the high correlation between creative process engagement and intrinsic motivation ($r=.645$) make it difficult to detect a direct path from psychological empowerment to intrinsic motivation. On the other hand, when these constructs simultaneously appear in the model, which is the case in real business situations, different constructs may actually have different influence paths. More specifically, job structural empowerment is the one that influences employee creativity through intrinsic motivation, whereas psychological empowerment is the one that influences employee creativity through creative process engagement.

Third, Shalley and Gilson (2004) and Shalley et al. (2004) suggest that employee creativity is a function of contextual characteristics. In this dissertation, I argued that leader encouragement of creativity interacts with psychological empowerment to influence creative process engagement. The notion of leader encouragement of creativity is derived from the literature on climate for innovation (Scott & Bruce, 1994). While climate for innovation is a cognitive interpretation of an organizational situation, leader encouragement of creativity reflects a leader's expectation about employees' creative behaviors. Several studies have found that a clearly stated mission in creativity enables employees to focus on new idea generation and subsequent successful innovation (Shalley 1991, 1995; Shalley & Gilson, 2004). The logic is based on goal-setting theory (Locke & Latham, 1990). That is, when individuals perceive that their leaders expect creative outcome, they are more likely to actively involve themselves in the creative process by directing their attention, effort, and energies toward creative outcomes. The results from hierarchical regression analyses

supported this argument. The positive relationship between psychological empowerment and creative process engagement is strengthened when a leader highly reinforces creative outcomes. That is, employees are most likely to engage in a creative process when they have a high level of psychological empowerment and are supervised by managers who strongly encourage creativity. Future research may further examine the tension between simultaneously empowering employees and also encouraging them to expend efforts in the direction of needed outcomes, particularly when, as is the case with creativity, the exact outcomes cannot be specified.

Fourth, previous studies have examined main effects of individual difference variables on creativity (e.g., Amabile, 1983; Bateman & Crant, 1993; Shalley et al., 2004). However, we are short of evidence regarding whether these individual difference variables can interact with creative process engagement and intrinsic motivation to influence employee creativity. Rodan and Galunic, (2004) and Tierney and Farmer (2002) has indicated that creativity is contingent on a variety of individual characteristics, which help identify the boundary condition of creative performance. Thus, I also examined the moderating effects of three individual difference variables—domain relevant skills, openness to experience, and proactivity—on employee creativity.

As one of the three most important conditions for individual creativity, domain-relevant skills represent an individual's ability to recognize and deal with potential problems. As a result, when employees have more extensive and well-organized knowledge, they become more efficient at identifying problems, searching for relevant information, and generating different linkage among pieces of information. Such expertise may internally motivate employees to be persistent in their jobs. Thus, I proposed that domain-relevant skills strengthen the positive relationship between creative process engagement or intrinsic motivation and creativity. Unexpectedly, I did not find significantly interaction effects of

domain-relevant skills with either creative process engagement or intrinsic motivation. Therefore, having high education status and long years' working experience may not make employees become more intrinsically motivated or more likely to actively engage in a creative process.

Besides domain-relevant skills, the literature also suggests that personality has important influence on employee creativity (e.g., Feist, 1999; Shalley et al., 2004). Within the five-factor personality model, openness to experience has been most consistently related to creativity (George & Zhou, 2001). People who are high in openness to experience are broad minded, imaginative, and curious. They like to challenge the status quo and use different ways to find solutions. Thus, I proposed openness to experience strengthens the positive relationships between creative process engagement and creativity, and between intrinsic motivation and creativity. Hierarchical regression analyses found marginal support for these arguments. That is, the positive relationship between creative process engagement or intrinsic motivation and employee creativity was slightly stronger for people who are high in openness to experience. Despite the slight difference, the marginally significant effects suggest that individuals' personality in openness to experience is not decisive in the creativity-relevant process. That is, individuals who are traditional do not necessarily have low level of creativity. As long as they actively engage in a creative process and develop their internal interests in their jobs, they can also generate creative and useful ideas.

As the environment has become more dynamic and uncertain, more and more companies have begun to rely on employees' proactive characteristics and initiative behaviors to achieve competitive advantage (Crant, 2000). The second personality moderator I tested in the model was proactivity, which indicates that instead of being a passive recipient of environmental constraints, people can actively change environments and create favorable conditions (Bateman & Crant, 1993). Such initiative characteristics positively interact with

creative process engagement and intrinsic motivation to influence employee creativity. The results from hierarchical regression strongly supported these arguments. More specifically, the positive relationship between creative process engagement and creativity was stronger for employees who are high in proactivity characteristics than those who are low in proactivity. Similarly, the positive relationship between intrinsic motivation and employee creativity was stronger for employees who are high in proactivity. In other words, highly proactive employees who actively engage in a creative process or are intrinsic motivated are most likely to have creative performance. Although proactivity is a relatively stable tendency and it is hard for employees to change their personality, these significant effects are still meaningful for organizations, leaders, and teams in allocating work assignments. That is, it may be useful to assign employees who are high in proactivity to more demanding jobs that require creative outcomes; whereas employees who are low in proactivity should be responsible for more routine types of jobs.

Fifth and finally, the model, derived from western theories, was tested in a Chinese organization. Although previous studies have shown consistent results for the relationship between leadership and performance across cultures (e.g., Chen & Farh, 1999; Hackett, Farh, Song, & Lapierre 2003), there has been no evidence for the application of empowerment and creativity theories in a Chinese culture. Thus, this study provides initial support that the Western empowerment and creativity theories can be applied to other cultural contexts (e.g., China).

Practical Implications

In addition to the contributions to theory and literature, the findings from this dissertation have a number of practical implications for organizations seeking to promote employee creativity. First of all, leadership does matter because leader behaviors influence employees' perception of themselves in relation to their jobs. The appropriate perceptions are

important for employees to produce creative outcomes. In this dissertation, I found that psychological empowerment is mediated by creative process engagement; and job structural empowerment is mediated by intrinsic motivation and indirectly influenced by creative process engagement to impact employee creativity. Since both creative process engagement and intrinsic motivation are necessary conditions for creative outcomes, organizations and leaders should try to improve employees' perceptions of both psychological empowerment and job structural empowerment at the same time. Such simultaneous perceptions may encourage employees to engage in a creative process and boost their intrinsic motivation, which, in turn, may result in more creative outcome.

Second, it is important to let employees understand the process that results in creative outcomes. Higher levels of creativity can be achieved if employees are willing to spend quality time and effort to thoroughly identity the problem, search for more information, and generate more ideas from different perspectives. In order to encourage such process engagement, leaders should help employees positively and correctly perceive themselves relative to their work. For example, it is important for employees to know that they are capable of accomplishing their job successfully, their behaviors make a difference on work outcomes, and they have a certain degree of discretion in deciding how they want to carry out tasks. This is because employees' perceptions of psychological empowerment positively influence creative process engagement. In addition, leaders can also play an active role in encouraging such process engagement by directing their followers as to what is needed and valued by the organization. Letting employees know the importance of creative outcomes can also efficiently direct and motivate employees to engage in creative processes, and eventually generate creative outcomes.

Third, individual personality (e.g., proactivity) has an impact on the creativity-relevant process. Organizations and leaders should understand how employee personality makes a

difference, thereby efficiently and logically allocating appropriate work assignments to individuals with different personalities. Due to the dynamics of the environment, more and more organizations have begun to rely on work teams to generate creative and innovative outcomes, thereby potentially capitalizing on different employee strengths in synergistic ways.

Limitations and Future Directions

As with all research, this study had to balance various considerations and thus is not without limitations. First, this study was a cross-sectional design. Although the use of structural equation modeling can conduct a simultaneous test of the entire system of variables in the hypothesized model, the explanation of results should still be made with caution. In order to further explore the causality, I tested a reverse model by using psychological empowerment and job structural empowerment as antecedents of empowering leadership. Theoretically, it is reasonable to argue that employees' high perceptions of psychological empowerment and job structural empowerment will also lead to positive perceptions of leader behaviors. However, the poor fit of the model (χ^2 (154) =780.112; CFI =1.000; GFI=.724; SRMR=.125; RMSEA=.183) indicated that the path should point from empowering leadership to psychological and job structural empowerment rather than the other way. These results suggest that the hypothesized direction is more consistent with the data.

Future studies using a longitudinal design are needed to further verify the hypothesized relationships proposed in this dissertation. In this dissertation, I proposed that creative process engagement and intrinsic motivation significantly predict creativity. An interesting question is at what point or points employees evidence the production of creative outcomes. Collecting data using a longitudinal design will be helpful in addressing these issues.

Second, there is a possibility of common method bias because all of the major construct except employee creativity and leader encouragement of creativity, which were collected

from direct supervisors, were evaluated with self-report data. In order to minimize the potential of common source bias, I followed the more recent suggestions of Podaskoff, MacKenzie, Lee, and Podsakoff (2003). More specifically, I put the measure of every construct on a separate page of the online questionnaire. In addition, all participants were assured that their responses would be kept confidential and the company would have not access to the responses. Since the four major constructs of this dissertation (psychological empowerment, job structural empowerment, creative process engagement, and intrinsic motivation) rely by definition on people's perception of themselves and their work environment, it is logical to collect the data from the participants themselves. However, future research will ideally use multiple sources to evaluate leader behaviors (e.g., peer evaluation and supervisor evaluation) in order to alleviate common source bias. In addition, I also compared a three-factor model (empowering leadership, psychological empowerment, and job structural empowerment) vs. a one-factor model; a two-factor model (psychological empowerment, and job structural empowerment) vs. a one-factor model; a two-factor model (creative process engagement and intrinsic motivation) vs. a one-factor model. The results indicated all one-factor models were significantly worse than the corresponding three- or two-factor models (for details, see Result section). These results suggest that same source bias does not account for the findings of this study.

Third, all data were collected within a single organization, which limits the observed variability and decreases external validity. Of course, conducting this study in a single organization did have the advantage of controlling for potential organizational level confounding variables. Future research in multiple organizational settings may increase the generalizability of the findings to other types of employees and organizations.

Fourth, this dissertation, for the first time, measured creative process engagement and showed the mediating effect of creative process engagement between psychological

empowerment and employee creativity. The replication of the results in other national cultures is a necessity for future research (Perry-Smith, 2006; Mumford, 2000; Shalley et al., 2004). A promising direction for future research is to more deeply examine the three creative processes. There remain many interesting and important questions for this new construct. For instance, do the three creative processes work in a consecutive manner in which people start with problem identification, followed by informational searching and then idea generation? How do different contextual and personal variables interact with different stages to influence creative outcomes? Which personal variables are most important to which stages of the creative process? Besides psychological empowerment, are there other antecedents of creative process engagement? Is creativity the only outcome of creative process engagement? Since people may spend a fair amount of time identifying problem, searching information and generating alternative ideas, will this process actually negatively influence overall employee performance? All these questions will provide fruitful paths for future research seeking to develop a more comprehensive understanding of creativity-relevant processes.

Conclusion

As a conclusion, this dissertation synthesizes leadership theories, empowerment theories and creativity theories to explore how to promote employee creativity. The findings of this study indicate that empowering leadership positively influences psychological empowerment, which in turn is full mediated by creative process engagement to influence creativity. At the same time, empowering leadership also positively influences job structural empowerment, which in turn is full mediated by intrinsic motivation and is indirectly influenced by creative process engagement to influence creativity. Leader's encouragement of creativity and individual personality are also important factors that influence creativity-relevant processes. Overall, this dissertation provides important foundations that will hopefully inspire more future research on different conceptualizations of empowerment

and creative processes.

APPENDIX I
Survey Measures

Unless otherwise specified, all the variables are measured by subjects' responses to the following questions on a 5-point Likert-type scale: "To what extent do you agree with the following statement? (1=*strongly disagree*, 2=*disagree*, 3=*neutral (neither agree or disagree)*, 4=*agree*, 5=*strongly agree*)"

Empowering Leadership (From Ahearne, Mathieu, & Rapp, 2005)
Enhancing the meaningfulness of work:
1. My manager helps me understand how my objectives and goals relate to that of the company
2. My manager helps me understand the importance of my work to the overall effectiveness of the company
3. My manager helps me understand how my job fits into the bigger picture

Fostering participation in decision-making:
4. My manager makes many decision together with me
5. My manager often consults me on strategic decisions
6. My manager solicits my opinion on decisions that may affect me

Expressing confidence in high performance:
7. My manager believes that I can handle demanding tasks
8. My manager believes in my ability to improve even when I make mistakes
9. My manager expresses confidence in my ability to perform at a high level

Providing autonomy from bureaucratic constraints:
10. My manager allows me to do my job my way
11. My manager makes it more efficient for me to do my job by keeping the rules and regulations simple
12. My manager allows me to make important decisions quickly to satisfy customer needs

Psychological Empowerment (From Speritzer, 1995)
Meaning items:
1. The work I do is very important to me
2. My work activities are personally meaningful to me
3. The work I do is meaningful to me

Competence items:
4. I am confident about my ability to do my jobs
5. I am self-assured about my capabilities to perform my work activities
6. I have mastered the skills necessary for my job

Self-determination items:
7. I have significant autonomy in determining how I do my job
8. I can decide on my own how to go about doing my work
9. I have considerable opportunity for independence and freedom in how I do my job

Impact items:
10. My impact on what happens in my department is large
11. I have a great deal of control over what happens in my department
12. I have significant influence over what happens in my department

Job Structural Empowerment (Adapted from Hackman & Oldham, 1974; Idaszak & Drasgow, 1987)

Respondents answer the following question on a 5-point Likert-type scale: "To what extent do you think the following statement is accurate? (1=*very inaccurate, 5=very accurate.*)"

Skill variety items:
1. The job requires me to use a number of complex or high-level skills
2. The job is quite complex and not repetitive

Task identity items:
3. The job provides me the chance to completely finish the pieces of work I begin
4. The job is arranged so that I can do an entire piece of work from beginning to end.

Task significant items:
5. This job is one where a lot of other people can be affected by how well the work gets done.
6. The job itself is very significant and important in the broader scheme of things.

Feedback items:
7. Just doing the work required by the job provides many chances for me to figure out how well I am doing.
8. After I finish a job, I know whether I performed well.

Creative Process Engagement (Developed for the dissertation based on Amabile, 1983; Perry-Smith, 2006; Reiter-Palmon & Illes, 2004)

Respondents answer the following question on a 5-point Likert-type scale: "In your job, to what extent do you engage in the follow actions when seeking to accomplish an assignment or solve a problem? (1=*never, 2=rarely, 3=occasionally, 4=frequently, 5=very frequently.*)"

Problem Identification
1. I spend considerable time trying to understand the nature of the problem
2. I think about the problem from multiple perspectives
3. I decompose a difficult problem/assignment into parts to obtain greater understanding

Information Searching and Encoding
4. I consult a wide variety of information
5. I search for information from multiple sources (e.g., personal memories, others' experience, documentation, Internet, etc.)
6. I retain large amounts of detailed information in my area of expertise for future use

Idea generation
7. I consider diverse sources of information in generating new ideas.
8. I look for connections with solutions used in seeming diverse areas.
9. I generate a significant number of alternatives to the same problem before I choose the final solution
10. I try to devise potential solutions that move away from established ways of doing things
11. I spend considerable time shifting through information that helps to generate new ideas

Intrinsic Motivation (From Amabile, 1985; Tierney, Farmer, & Grane, 1999)
1. I enjoy finding solutions to complex problems
2. I enjoy creating new procedures for work tasks
3. I enjoy improving existing processes or products

Leader Encouragement of Creativity (Developed for this dissertation based on Scott & Bruce, 1994)
1. I encourage and emphasize or reinforce creativity to my employees
2. I respect my employees' ability to function creativity
3. I allow my employees to try to solve the same problems in different ways
4. I expect my employees to deal with problems in different ways
5. I will reward my employees to be creative in doing my job
6. I will publicly recognize those who are creative

Creativity (From George & Zhou, 2001)
Respondents answer the following question on a 5-point Likert-type scale: "To what extent do you think the following statement is characteristic? (1=*not at all characteristic,* 2=*a little bit,* 3=*neutral,* 4= *characteristic,* 5=*very characteristic.*)"
"This employees":
1. Suggests new ways to achieve goals or objectives
2. Comes up with new and practical ideas to improve performance
3. Searches out new technologies, processes, techniques, and/or product ideas
4. Suggest new ways to increase quality
5. Is a good source of creative ideas
6. Not afraid to take risks
7. Promotes and champions ideas to others
8. Exhibits creativity on the job when given the opportunity to
9. Develops adequate plans and schedules for the implementation of new ideas
10. Often has new and innovative ideas
11. Comes up with creative solutions to problems
12. Often has a fresh approach to problems
13. Suggests new ways of performing work tasks.

Individual Differences

Openness to Experience (From Goldberg, 1992)
1. I have a rich vocabulary
2. I have difficulty understanding abstract ideas
3. I have a vivid imagination
4. I am not interested in abstract ideas
5. I have excellent ideas
6. I do not have a good imagination
7. I am quick to understand things
8. I use difficult words
9. I spend time reflecting on things
10. I am full of ideas

Proactivity (From Bateman & Crant, 1993)
1. I am constantly on the lookout for new ways to improve my life.
2. Wherever I have been, I have been a powerful force for constructive change.
3. Nothing is more exciting than seeing my ideas turn into reality.
4. If I see something I don't like, I fix it.
5. No matter what the odds, if I believe in something I will make it happen.
6. I love being a champion for my ideas, even against others' opposition.
7. I excel at identifying opportunities.
8. I am always looking for better ways to do things.
9. If I believe in an idea, no obstacle will prevent me from making it happen.
10. I can spot a good opportunity long before others can.

Creative Process Engagement Factor Loadings

	Factor Loadings		
Factor Name/Items	I	II	III
I. Idea generation			
I try to devise potential solutions that move away from established ways of doing things	**.818**	.147	.050
I spend considerable time shifting through information that helps to generate new ideas	**.719**	.115	.302
I look for connections with solutions used in seeming diverse areas	**.634**	.288	.208
I consider diverse source of information in generating new ideas	**.627**	.235	.393
I generate a significant number of alternatives to the same problem before I choose the final solution	**.619**	.425	.064
II. Problem identification			
I spend considerable time trying to understand the nature of the problem	.171	**.771**	.195
I think about the problem from multiple perspectives	.234	**.770**	.301
I decompose a difficult problem/assignment into parts to obtain greater understanding	.368	**.672**	.218
III. Information searching and encoding			
I retain large amounts of detailed information in my area of expertise for future use	.333	.060	**.781**
I search for information from multiple sources (e.g., personal memories, others' experience, documentation, Internet, etc.)	.108	.301	**.779**
I consult a wide variety of information	.147	.369	**.710**
Eigenvalues	2.729	2.223	2.194
Variance (%)	24.807	20.207	19.942
Cronbach's α	.814	.768	.772

TABLE 1
Key definitions

Variable Name	Definitions
Empowering leadership	Derived from Ahearne , Mathieu, & Rapp's (2005) conceptualization of empowering leader behaviors, empowering leadership is defined as four components: (1) enhancing the meaningfulness of work, (2) fostering participation in decision making, (3) expressing confidence in high performance, and (4) providing autonomy from bureaucratic constraints.
Psychological empowerment	Based on Spreitzer (1995), psychological empowerment is defined as a process of psychological state as manifested in four cognitions: meaning, impact, competence, and self-determination. Meaning concerns a sense of feeling that the work is personally important. Impact represents the degree to which employees feel or perceive that their behaviors make a difference on work outcomes. Competence refers to self-efficacy or the belief in ability to successfully perform tasks. Self-determination indicates the freedom of employees to choose how they carry out their tasks
Job structural empowerment	Based on Hackman & Oldham (1976), job structural empowerment is characterized by five core job characteristics (task variety, task identity, task significance, autonomy, and feedback). Task variety entails the degree to which a job requires the use of a number of different skills and talents of the employee. Task identity indicates the degree to which the job requires completion of a whole piece of work by doing a task from beginning to end with a visible outcome. Task significance concerns the degree to which the job has a substantial impact on the lives of other people. Autonomy refers to the degree to which a job provides substantial freedom. Feedback involves the degree to which the job provides clear information about performance levels.
Intrinsic motivation	Based on Utman (1997), intrinsic motivation refers to the extent to which an individual is inner-directed, interested in or fascinated with the task, and engages in it for the sake of the task itself.
Creative process engagement	Based on Amabile (1983) and Reiter-Palmon and Illies (2004), creative process engagement is defined as employee involvement or engagement in creative-relevant cognitive processes, including (1) problem identification, (2) information searching and encoding, and (3) ideas and alternatives generation.
Leader encouragement of creativity	Defined as a leader's emphasis that an individual's output should be creative (both novel and useful) or that an individual should actively engage in certain activities (e.g., opportunity definition, information gathering, and alternative generation) that may lead to creative outcomes.
Creativity	Based on Amabile (1983), Shalley, Gilson, and Blum (2000), and Zhou and Shalley (2003), creativity involves production, conceptualization, or development of novel and useful/appropriate ideas, processes, or procedures by an individual or by a group of individuals working together in any job.
Domain-relevant skills	Based on Amabile (1983), domain-relevant skills refer to knowledge of the area in which an individual is working and the relevant skills with which individuals creatively process information in order to produce

	novel and useful responses.
Openness to experience	Based on Barrick and Mount (1991) and McCrae and Costa (1997), openness to experience refers to the extent to which individuals are imaginative, artistically sensitive, intellectual, analytical, independent thinkers, and amendable to new ideas and unconventional perspectives.
Proactivity	Based on Bateman & Crant (1993), proactivity, a dispositional construct, is defined as a person's relatively stable tendency to influence environmental change.

TABLE 2
Summary of Study Hypotheses

Hypothesis 1: Empowering leadership is positively related to employee perceptions of psychological empowerment.

Hypothesis 2: Empowering leadership is positively related to employee perceptions of job structural empowerment.

Hypothesis 3: Employees' perception of job structural empowerment is positively related to their perceptions of psychological empowerment.

Hypothesis 4: Intrinsic motivation is positively related to creative process engagement.

Hypothesis 5: Psychological empowerment is positively related to creative process engagement, which in turn is positively related to employee creativity. In sum, creative process engagement partially mediates the relationship between psychological empowerment and employee creativity.

Hypothesis 6: Psychological empowerment is positively related to intrinsic motivation, which in turn is positively related to employee creativity. In sum, intrinsic motivation mediates the relationship between psychological empowerment and employee creativity.

Hypothesis 7: Job structural empowerment is positively related to intrinsic motivation, which in turn is positively related to employee creativity. In sum, intrinsic motivation mediates the relationship between job structural empowerment and employee creativity.

Hypothesis 8: Leader encouragement of creativity strengthens the relationship between psychological empowerment and creative process engagement.

Hypothesis 9a: Domain-relevant skills strengthen the relationship between creative process engagement and employee creativity.

Hypothesis 9b: Openness to experience strengthens the relationship between creative process engagement and employee creativity.

Hypothesis 9c: Proactivity strengthens the relationship between creative process engagement and employee creativity.

Hypothesis 10a: Domain-relevant skills strengthen the relationship between intrinsic motivation and employee creativity.

Hypothesis 10b: Openness to experience strengthens the relationship between intrinsic motivation and employee creativity.

Hypothesis 10c: Proactivity strengthens the relationship between intrinsic motivation and employee creativity.

TABLE 3
Descriptive Statistics, Correlations, and Reliability

	Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Age	30.47	4.754	--												
2	Gender	0.63	0.483	.088	--											
3	Job type	0.46	0.499	-.049	.138**	--										
4	Empowering leadership	3.67	0.584	-.069	.081	.146**	(0.92)									
5	Psychological empowerment	3.74	0.415	.054	.142**	.142**	.587**	(0.82)								
6	Job structural empowerment	3.58	0.438	.085	.170**	.044	.484**	.605**	(0.71)							
7	Creative Process engagement	3.92	0.434	.028	.181**	.024	.242**	.374**	.350**	(0.88)						
8	Intrinsic motivation	3.94	0.554	.052	.110*	-.005	.195**	.286**	.260**	.645**	(0.82)					
9	Creativity (Mgr rating)	3.54	0.555	.022	.199**	.079	.244**	.370**	.345**	.700**	.661**	(0.91)				
10	Encouragement (Mgr rating)	3.68	0.630	-.140**	.058	.125*	.694**	.438**	.396**	.175**	.195**	.251**	(0.90)			
11	Skills	7.89	3.177	.596**	.008	-.213**	-.049	.052	.035	-.045	.047	-.007	-.121*	--		
12	Openness	3.82	0.432	-.021	.152**	.124*	.213**	.335**	.291**	.598**	.539**	.641**	.176**	-.067	(0.86)	
13	Proactivity	3.93	0.385	-.061	.123*	.120*	.254**	.411**	.350**	.537**	.459**	.550**	.244**	-.111*	.612**	(0.81)

Note: N=367. Internal reliabilities (coefficient alphas) are given in parentheses on the diagonal. **p< .01; * *p*< .05

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TABLE 4
Summary of Model Fit Indices

	Model Test	χ^2	df	CFI	GFI	SRMR	RMSEA
1	Measurement model	96.056	34	1.000	0.975	0.041	0.071
2	Independence model	8447597	195	--	--	--	--
3	Hypothesized model with manager rating of creativity	513.716	154	1.000	0.880	0.075	0.080

Mediation Tests

	Model Test	χ^2	df	CFI	GFI	SRMR	RMSEA
4	Direct path model (only add direct path from psy. emp.→creativity)	1028.787	159	1.000	0.772	0.159	0.122
5	Mediation model for psychological empowerment (add direct path from psy. emp to creativity based on hypothesized model)	511.261	153	1.000	0.880	0.073	0.080
6	Direct path model (only add direct path from job structural emp.→creativity)	1024.566	159	1.000	0.775	0.159	0.122
7	Mediation model for job structural empowerment (add direct path from job emp to creativity based on hypothesized model)	511.476	153	1.000	0.880	0.074	0.080

Alternative Tests

	Model Test	χ^2	df	CFI	GFI	SRMR	RMSEA
8	Add empowering leadership→creative process engagement	510.471	153	1.000	0.881	0.074	0.080
9	Add empowering leadership→intrinsic motivation	513.710	153	1.000	0.080	0.075	0.080
10	Add empowering leadership→employee creativity	512.585	153	1.000	0.880	0.075	0.080

FIGURE 1
Hypothesized Model
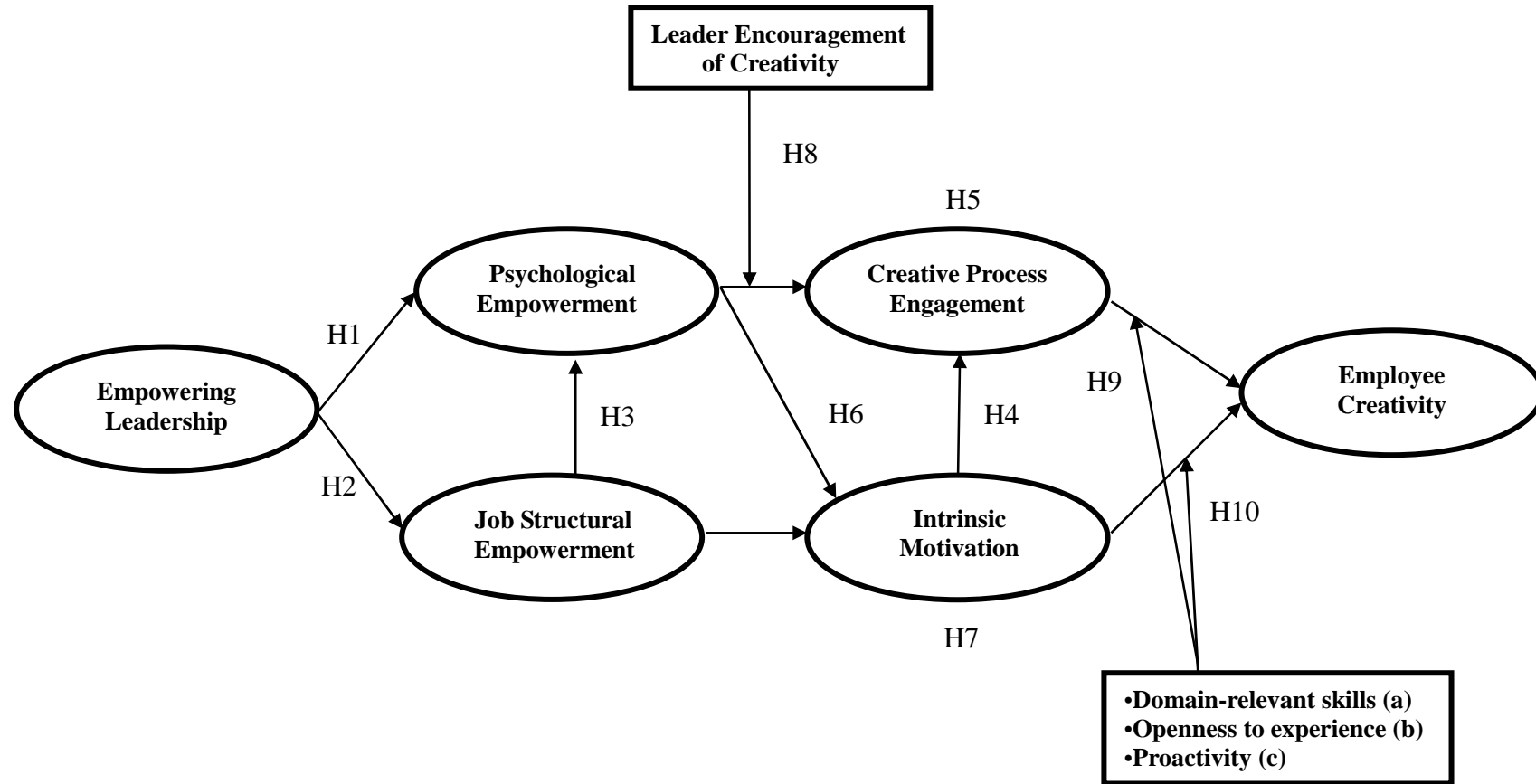
FIGURE 2
Structural Result Model
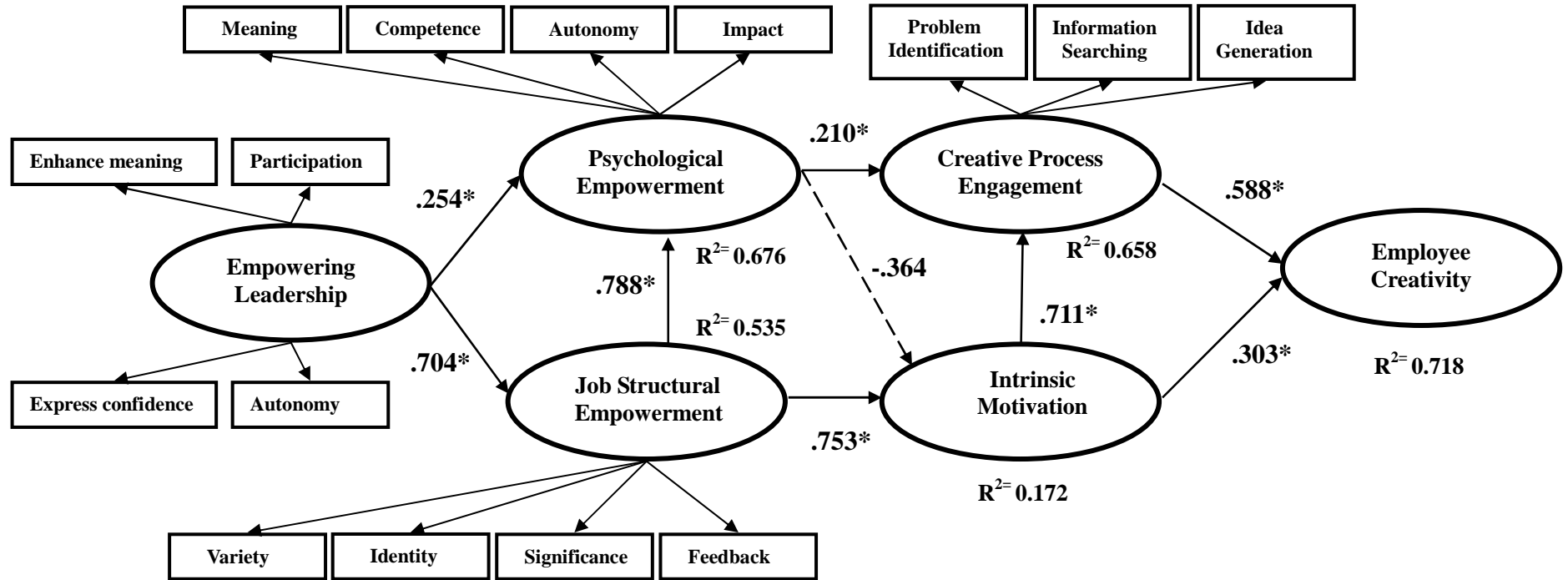
Note: N=367, *p*<.05

FIGURE 3
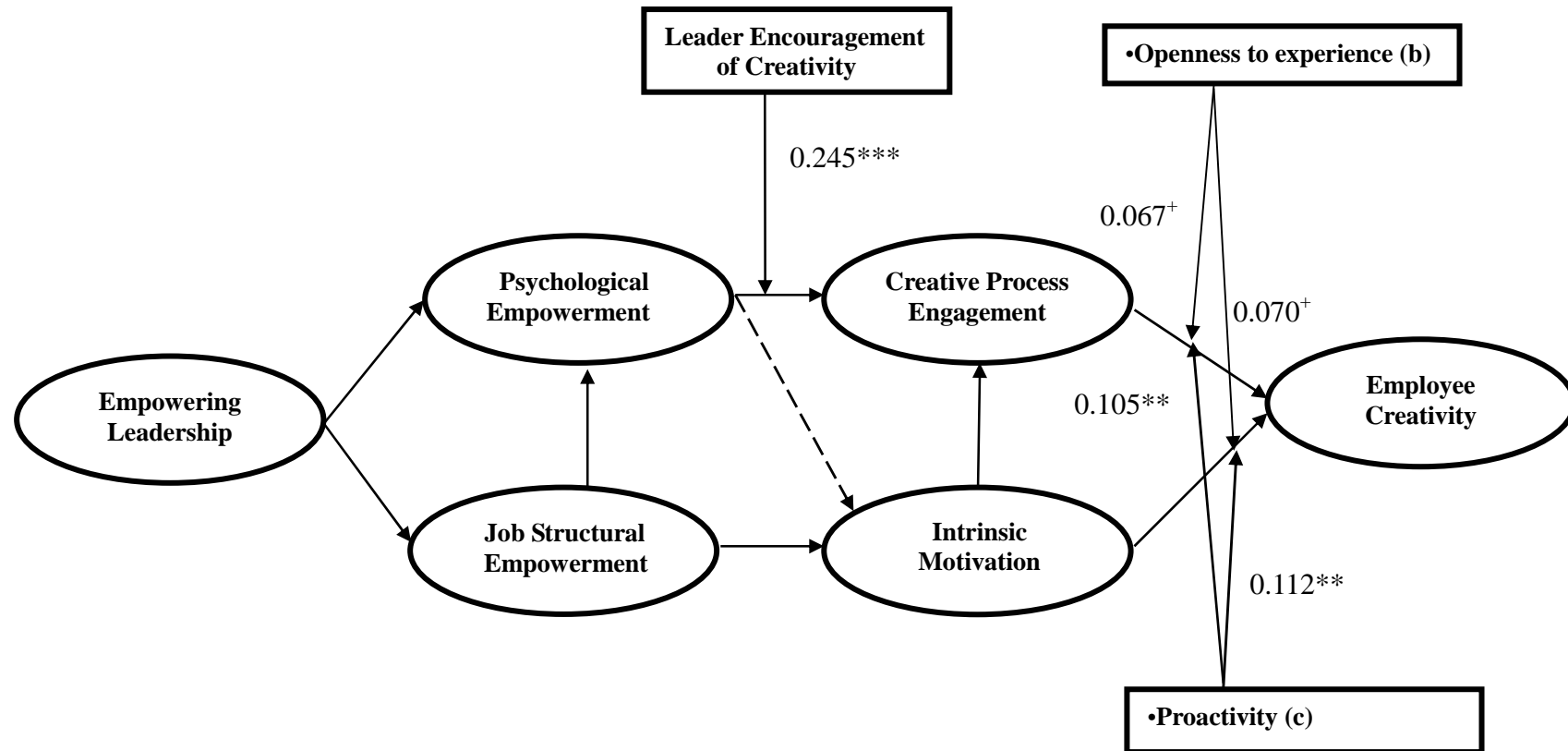**Moderated Multiple Regression Result**

TABLE 5
Results of Moderated Multiple Regression

Moderating Effects of Leader Encouragement of Creativity on Psychological Empowerment-Creative Process Engagement Relationship

Variables	Model 1		Model 2		Model 3	
	β	S.E.	β	S.E.	β	S.E.
Age	0.012	(.005)	-0.003	(.005)	-0.013	(.004)
Gender	0.180***	(.047)	0.137**	(.044)	0.139**	(.043)
Job type	0.000	(.045)	-0.047	(.043)	-0.060	(.041)
Psychological empowerment			0.354***	(.057)	0.346***	(.055)
Leadership encouragement			0.017	(.038)	-0.006	(.036)
Psy emp * encouragement					0.245***	(.064)
ΔR^2			0.126		0.059	
F forΔR^2			27.032***		27.090***	
R^2	0.033		0.159		0.218	
F	4.129**		13.646***		16.708***	

DV: Creative Process Engagement

Note: N=367. ***p< .001; **p< .01; * p< .05; +p<.10

FIGURE 4

Moderating Effects of Leader Encouragement of Creativity on Psychological Empowerment-Creative Proces Engagement Relationship
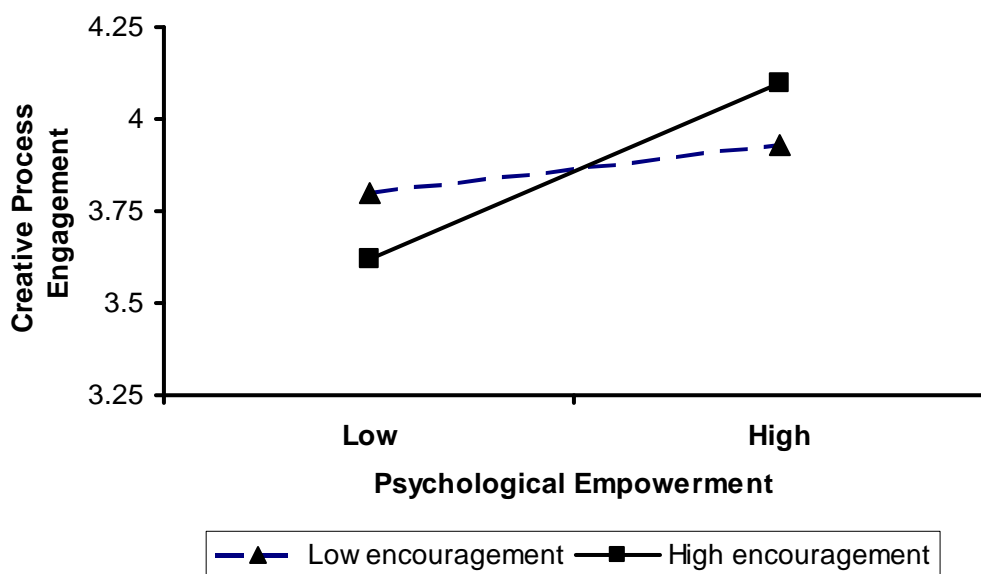
TABLE 6a
Moderating Effects of Domain-relevant Skills on Creative Process Engagement-Employee Creativity Relationship

Variables	Model 1		Model 2		Model 3	
	β	S.E.	β	S.E.	β	S.E.
Age	0.007	(.005)	-0.035	(.004)	-0.035	(.004)
Gender	0.191***	(.049)	0.068+	(.036)	0.069+	(.036)
Job type	0.053	(.047)	0.064	(.035)	0.064+	(.035)
Creative Process engagement			0.690***	(.040)	0.690***	(.040)
Domain-relevant Skills			0.058	(.007)	0.059	(.007)
Process * Skills					-0.009	(.012)
ΔR^2			0.459		0.000	
F forΔR^2			165.802***		0.056	
R^2	0.042		0.501		0.501	
F	5.367***		72.46***		60.239***	

DV: Employee Creativity

Note: N=367. ***p< .001; **p< .01; * p< .05; +p<.10

TABLE 6b
Moderating Effects of Openness on Creative Process Engagement-Employee Creativity Relationship

Variables	Model 1		Model 2		Model 3	
	β	S.E.	β	S.E.	β	S.E.
Age	0.007	(.005)	0.011	(.003)	0.009	(.003)
Gender	0.191***	(.049)	0.056	(.034)	0.062+	(.034)
Job type	0.053	(.047)	0.018	(.032)	0.013	(.032)
Creative Process engagement			0.487***	(.046)	0.476***	(.046)
Openness			0.339***	(.046)	0.326***	(.046)
Process * Openness					0.067+	(.063)
ΔR^2			0.529		0.004	
F forΔR^2			222.524***		3.391*	
R^2	0.042		0.571		0.575	
F	5.367***		96.160***		81.229***	

DV: Employee Creativity

Note: N=367. ***p< .001; **p< .01; * p< .05; +p<.10

TABLE 6c
Moderating Effects of Proactivity on Creative Process Engagement-Employee
Creativity Relationship

Variables	Model 1		Model 2		Model 3	
	β	S.E.	β	S.E.	β	S.E.
Age	0.007	(.005)	0.017	(.003)	0.008	(.003)
Gender	0.191***	(.049)	0.063+	(.035)	0.068+	(.035)
Job type	0.053	(.047)	0.0129	(.033)	0.021	(.033)
Creative Process engagement			0.559***	(.045)	0.549***	(.045)
Proactivity			0.239***	(.051)	0.217***	(.051)
Process * Proactivity					0.105**	(.075)
ΔR^2			0.497		0.010	
F forΔR^2			194.128***		7.982**	
R^2	0.042		0.539		0.549	
F	5.367***		84.298***		72.937***	

DV: Employee Creativity

Note: N=367. ***p< .001; **p< .01; * p< .05; +p<.10

FIGURE 5

Moderating Effects of Proactivity on Creative Process
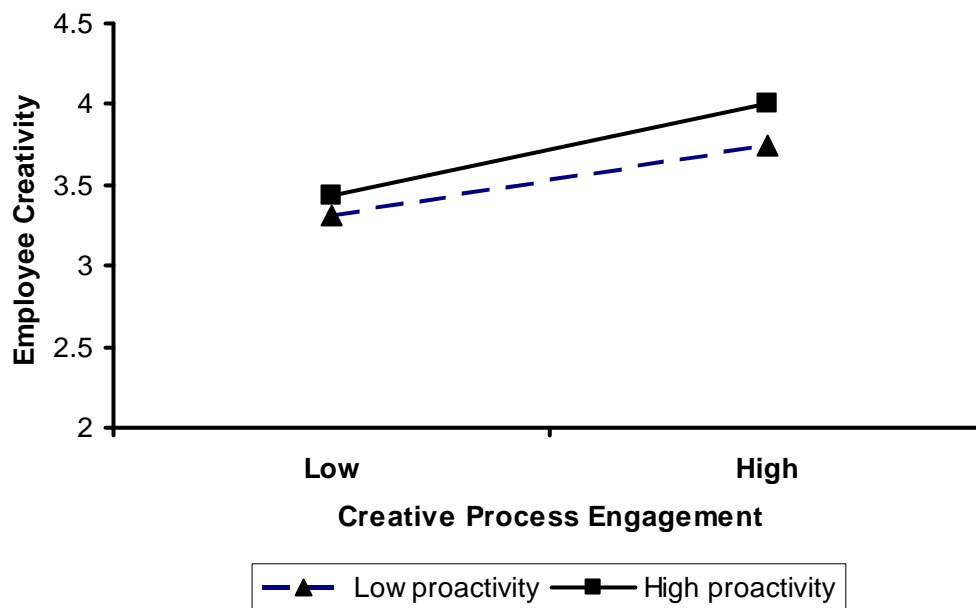**Engagement-Creativity Relationship**

TABLE 7a
Moderating Effects of Domain-relevant Skills on Intrinsic Motivation-Employee Creativity Relationship

Variables	Model 1		Model 2		Model 3	
	β	S.E.	β	S.E.	β	S.E.
Age	0.007	(.005)	-0.008	(.005)	-0.008	(.005)
Gender	0.191***	(.049)	0.120**	(.037)	0.120**	(.037)
Job type	0.053	(.047)	0.061	(.037)	0.061	(.037)
Intrinsic Motivation			0.649***	(.032)	0.649***	(.032)
Domain-relevant Skills			-0.020	(.007)	-0.020	(.007)
Intrinsic Motivation * Skills					-0.001	(.010)
ΔR^2			0.416		0.000	
ΔF for ΔR^2			138.207***		0.000	
R^2	0.042		0.458		0.458	
F	5.367***		60.937***		50.641***	

DV: Employee Creativity

Note: N=367. ***p< .001; **p< .01; * p< .05; +p<.10

TABLE 7b
Moderating Effects of Openness on Intrinsic Motivation-Employee Creativity Relationship

Variables	Model 1		Model 2		Model 3	
	β	S.E.	β	S.E.	β	S.E.
Age	0.007	(.005)	0.000	(.003)	-0.009	(.003)
Gender	0.191***	(.049)	0.089*	(.034)	0.092**	(.034)
Job type	0.053	(.047)	0.021	(.033)	0.018	(.032)
Intrinsic Motivation			0.443***	(.034)	0.443***	(.034)
Openness			0.386***	(.045)	0.366***	(.046)
Intrinsic * Openness					0.070+	(.056)
ΔR^2			0.517		0.005	
ΔF			211.768***		0.004*	
R^2	0.042		0.559		0.564	
F	5.367***		91.667***		77.582***	

DV: Employee Creativity

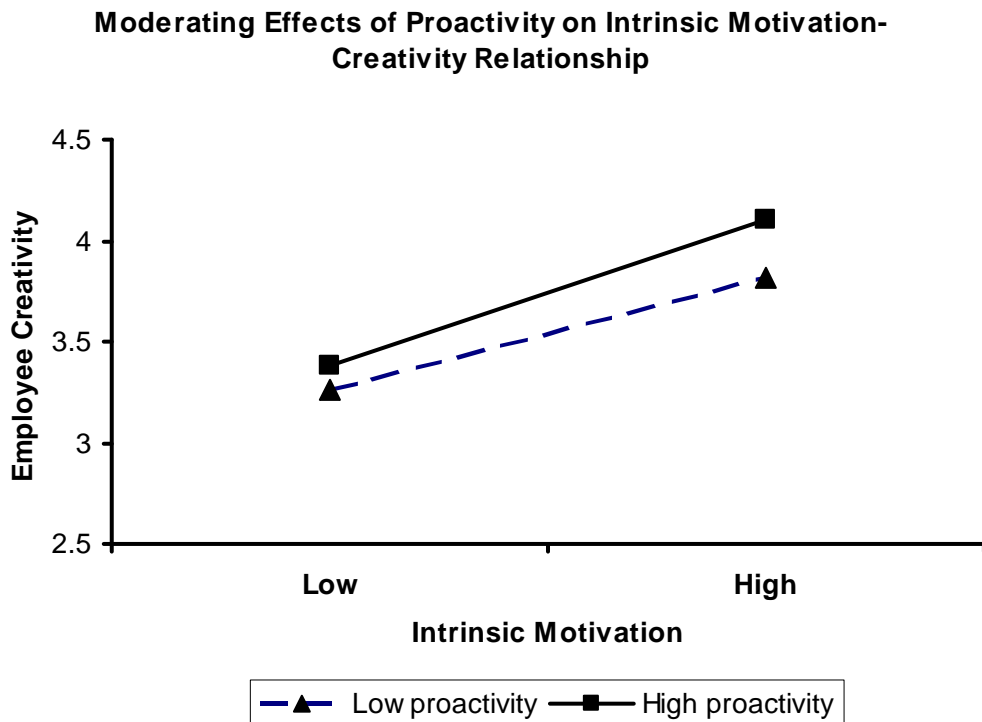Note: N=367. ***p< .001; **p< .01; * p< .05; +p<.10

TABLE 7c
Moderating Effects of Proactivity on Intrinsic Motivation-Employee Creativity Relationship

Variables	Model 1		Model 2		Model 3	
	β	S.E.	β	S.E.	β	S.E.
Age	0.007	(.005)	0.006	(.004)	-0.007	(.003)
Gender	0.191***	(.049)	0.101**	(.035)	0.100**	(.034)
Job type	0.053	(.047)	0.032	(.034)	0.030	(.032)
Intrinsic Motivation			0.512***	(.034)	0.502***	(.046)
Proactivity			0.299***	(.049)	0.284***	(.046)
Intrinsic * Proactivity					0.112**	(.063)
ΔR^2			0.484		0.012	
ΔF			183.937***		9.299**	
R^2	0.042		0.526		0.538	
F	5.367***		80.041***		69.784***	

DV: Employee Creativity

Note: N=367. ***p< .001; **p< .01; * p< .05; +p<.10

FIGURE 6

Moderating Effects of Proactivity on Intrinsic Motivation-Creativity Relationship

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