THE EFFECTS OF TRANSFORMATIONAL AND TRANSACTIONAL LEADERSHIP ON INDIVIDUAL CREATIVE PERFORMANCE: ROLE OF FOLLOWER'S MOTIVATION, IDENTITY AND SELF-ESTEEM

By

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ABSTRACT

Leadership behaviors play an important role in followers' performance. In today's competitive world, organizations gain advantage from creativity of their employees. Yet, there has been little research done on the effects of transformational and transactional leadership on followers' creative performance. The present study investigates the relationships between the components of transformational leadership (charisma, intellectual stimulation, and individualized consideration), transactional leadership (e.g. contingent reward behavior) and followers' creative performance. The proposed model examines the role of followers' intrinsic motivation, self-esteem and identity (e.g. personal and collective) in these relationships. While the study's hypotheses were not supported, charisma ($\beta = .39$, $\rho < .01$) and transactional leadership ($\beta = .36$, $\rho < .05$) positively predicted creativity in the absence of any controls. The effect of charisma was not consistent with expectations, though that associated with transactional leadership was.

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Chapter 1. Introduction

1.1. Background

Creativity research, in general, is a relatively young and rapidly growing area with studies on workplace creativity dating back less than twenty years. Nevertheless, there has been sufficient theoretical thinking and empirical work to form distinct streams of creativity research. The three most prominent are the psychometric approach, the cognitive approach, and the social-personality approach.

The formal starting date of scientific creativity research is traditionally attributed to J.P. Guilford's 1950 APA Presidential Address (Plucker & Renzulli, 1999). Guilford declared that creativity can be studied in ordinary people – in contrast to famous artists and scientists -- by using the psychometric approach. First Guilford (1950) and, later, his colleagues C.W. Taylor (1964) and E. P. Torrance (1974) developed a series of paper-and-pencil tests that measured divergent thinking on a number of factors (i.e. fluency, flexibility, originality, elaboration). Since then, psychometric studies of creativity have been the foundation for contemporary understanding of creativity.

The cognitive approach to creativity focuses on mental representations and processes underlying creative thought (Sternberg & Lubart, 1999). The Geneplore model proposed by Finke and colleagues (1992) emphasizes two main steps in creative thought: a generative phase and an exploratory phase. In the generative phase, individuals develop mental representations, which have properties to promote creative discoveries. In the exploratory phase, these properties are used to develop creative ideas.

The social-personality approach examines personality variables (Amabile, 1983; Eysenck, 1993), motivational variables (Amabile, 1983; Hennessey & Amabile, 1988), and the socio-cultural environment as sources of creativity (Lubart, 1990; Simonton, 1994). Sternberg and Lubart (1999) contend that the cognitive approach downplays the personality and social context variables, whereas the social-personality approach has ignored cognitive processes underlying creativity.

Such narrow-focused perspectives created a number of conflicting areas in creativity research. The ongoing discussions on creativity have pertained to issues of definition and measurement. Drazin, Glynn, and Kazanjian (1999) note that a particular set of assumptions focusing on a definition of creativity as ***an outcome*** dominates the current literature on creativity. This perspective (Amabile, 1988; Oldham & Cummings, 1996; Ford, 1996, etc.) contrasts with the definition of creativity as ***a process*** (Mohr, 1982; Torrance, 1988; Kahn, 1990).

Likewise, there is confusion in distinguishing ***creativity*** and ***innovation***. Wehner Csikszentmihalay, and Magyari-Beck (1991) reviewed doctoral dissertations on creativity and reported that those done in business predominantly used the term "innovation" and focused on the organizational level. Those done in psychology more frequently used the term "creativity" and looked at the

individual level. Finally, in the area of employee creativity, most researchers use subjective measurements such as assessments from subject matter judges or ratings from supervisors (Shalley, 1991; 1995; Zhou, 1998; Shalley & Perry-Smith, 2001; Zhou & Oldham, 2001) rather than more objective measures of creative performance such as the number of patents, patent disclosures, or ideas submitted to employee suggestion programs (Scott & Bruce, 1994; Oldham & Cummings, 1996; Tierney, Farmer, & Graen, 1999).

Theory and research on employee creativity emphasize leadership and supervisory behavior as important contextual factors influencing creative performance (Zhou & Shalley, 2003). However, only a small number of empirical studies have addressed supervisory behavior (Oldham & Cummings, 1996; George & Zhou, 2001; Zhou, 2003), leadership behaviors (Redmond, Mumford, & Teach, 1993; O'Hara, 2001; Choi, 2004), and leader-member exchange (Basu, 1991; Scott & Bruce, 1994, 1998; Basu & Graen, 1997; Tierney et al., 1999) within a creativity context. While some studies have considered the influence of transformational and transactional leadership on creativity (Howell & Higgins, 1990a, 1990b; Keller, 1992; Waldman & Atwater, 1992; Sosik, 1997; Sosik, Avolio, & Kahai, 1997; Basu & Graen, 1997; Jung, 2000-2001; Ryan, 2001; Shin & Zhou, 2003; Kahai, Sosik, & Avolio, 2003; Jung, Chow, & Wu, 2003; Jaussi, Dionne, 2003) very few have examined charismatic leadership and creativity. Overall, there is a paucity of research linking leadership to creativity.

There are a number of research issues in the leadership literature that should be considered when examining the impact of leadership on followers' creative performance: (1) There is confusion and significant overlap between models of transformational and charismatic leadership (Lowe, Kroeck, & Sivasubramaniam, 1996; Conger, 1999); (2) There is no clear description of how leaders behave to influence the cognitive processes or behaviors of subordinates (Yukl, 1999). Also, there has been little research done to test how the influence process of transformational and charismatic leadership works (Conger, 1999; Yukl, 1999; Bass, 1999); (3) There is little empirical work investigating the effects of charisma and intellectual stimulation on followers' creative performance (Yukl, 1999; Bass, 1999); (4) The role of followers' characteristics (identity and self-esteem), as they impact associations between charismatic, transformational leadership and followers performance, remain unclear (Shamir, House, & Arthur, 1993, Bass, 1999; Lord, Brown, & Freiberg, 1999; Yukl, 1999); (5) More research is required into the mediating linkages between transformational and charismatic leadership and followers' performance (Bass, 1999; Yukl, 1999).

These limitations of the leadership literature, complemented by research gaps in the employee creativity field, create a fertile basis for a "ground-breaking" study into the role of leadership in employee creative performance. Given scant research on leadership and creativity, the influence of transformational, charismatic and transactional leadership behaviors on followers' creative performance remains relatively unexplored. Further, few studies have investigated

the potential mediating role of intrinsic motivation in associations between contextual factors, particularly transformational leadership, and creativity (Shin & Zhou, 2003). Moreover, how followers' characteristics such as identity with a leader vs. group and self-esteem might moderate the influence of leadership on creative performance is virtually unexplored.

1.2. Purpose of the study

There are three major objectives of the study. Firstly, the influence of transactional leadership and transformational leadership (and its components) on followers' creative performance will be explored. Secondly, intrinsic motivation will be examined as potential mediators of these associations. Thirdly, the influence of followers' characteristics (identity, self-esteem) on associations between leadership behaviors and employees' creative performance will be explored (e.g. possible moderating effects).

1.3. Theoretical Background.

The foundation of this thesis draws from major theories on organizational creativity (Woodman, Sawer, & Griffin, 1993), transformational and transactional leadership (Bass, 1985; Bass & Avolio, 1994), and the intrinsic motivation perspective suggested by a componential theory of creativity (Amabile, 1988), self-concept based theory of leadership (Shamir et al., 1993), cognitive evaluation theory and self-determination theory (Deci, 1971; Amabile, DeJong, & Lepper, 1976; Deci & Ryan, 1985; Gagne & Deci, 2005), general behavior theory (Eisenberger, Armeli, & Pretz, 1998; Eisenbeger & Rhoades, 2001) and general interest theory (Eisenberger, Pierce, & Cameron, 1999(a)), identity theory (Stryker, 1968, 1980, 1987; R.H. Turner, 1978) and social identity theory (Tajfel & Turner 1979; J.C. Turner, 1982). These theories will be discussed in detail in the chapters that follow.

1.4. Contribution of the study

The present study will contribute to the literature on leadership and creativity in several ways, particularly in exploring associations between transformational and transactional leadership behaviors and employees' creative performance.

Firstly, this study responds to calls for research into contextual factors, such as leadership, that influence creative performance (Zhou & Shalley, 2003). This research will also enhance our understanding of the mechanisms by which leadership behaviors influence followers' creative performance. This will be achieved by directly assessing intrinsic motivation as a potential mediator between leadership behaviors and employee creative performance.

Secondly, this study responds to suggestions (Basu & Green, 1997; Shin & Zhou, 2003; Zhou & Shalley, 2003) to examine associations between the specific behavioral components of both transformational and transactional leadership and followers' creative performance. More specifically, we need to

better understand which of these leadership behaviors is most important for subordinates' creative performance in addition to the relative role of intrinsic motivation as potential mediator of leadership influence on creativity. The study also explores the incremental contribution of transformational leadership over transactional leadership in explaining differences in the expression of creativity.

Finally, this is the first study to examine a moderating effect of followers' identity and self-esteem on associations between transformational leadership behaviors and followers' creative performance, despite there being a strong theoretical basis for expecting such moderating effects.

1.5. Organization of the study

Chapter 1 contains an overview of the study. It includes the research background, purpose of the study, theories used, and contributions to be made. Chapter 2 reviews definitions of creativity, innovation, and creative performance as well as definitions and concept descriptions for transformational, charismatic and transactional leadership. Theoretical models and empirical research on transformational, transactional leadership and creativity are discussed. In chapter 3, a conceptual framework is provided along with the theoretical foundation for each of the study's hypotheses. Chapter 4 presents research methods to be used, including descriptions of sample characteristics, data collection, measurement instruments, and analyses. Chapter 5 discusses the results of individual hypothesis tests. Finally, in Chapter 5, I review the results of the study and discuss theoretical and practical implications.

Chapter 2. Definitions and Literature Review

2.1. Definitions of creativity, innovation, creative process and creative performance.

Creativity. As noted in Chapter 1, there has been an ongoing debate among creativity scholars on the very nature of creativity. The predominant view defines creativity as an outcome that can be improved by manipulating key independent variables (Drazin et al., 1999). This approach to defining creativity in terms of an outcome has been widely adopted (Amabile, 1996; Oldham & Cummings, 1996; Shalley, 1991; Zhou, 1998; Reiter-Palmon & Illies, 2004). Creativity has been defined as the production of new and useful ideas concerning products, services, processes and procedures. Also included under this definition is the generation of novel solutions to business problems, creative business strategies, and creative changes in job processes (Zhou & Shalley, 2003).

Research done in the laboratory has defined creativity as "the production of responses or works that are reliably assessed as creative by appropriate judges" (Amabile, 1996, p.83). Usually, creativity is evaluated on a continuum with a focus on how relatively creative something is, rather than dichotomously as creative and noncreative work (Amabile, 1996; Perry-Smith & Shalley, 2003; Shalley, 1995). Ford (1996) defines creativity as a domain-specific, subjective judgment of the novelty and value of an outcome of a particular action (p.1115). Woodman et al. (1993) described 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.

The product approach to creativity definitely has its merits as products can be easily quantified and judgments about products can be quite reliable (Hennessey, 1994; Lindauer, 1993; Runco, 1989). However, some researchers have identified serious limitations to this approach. For example, Runco, Plucker and Lim (2000-2001) argued that it does not apply well to children and non-professionals. Also, any claims about the mechanisms that underlie creative work seem entirely inferential (Runco, 1989; Runco, McCarthy & Svensen, 1994). Runco et al. (2000-2001) proposed treating ideas as the products of original, divergent, and creative thinking.

Drazin et al. (1999) contend that the product oriented definition of creativity focuses scholars on static models that seek to explain variance in creative outcomes and away from examining the dynamic processes underlying creativity and its changes over time. Drazin, et al. (1999) define creativity as the process of engaging in creative acts, regardless of whether the resultant outcomes are novel, useful or deemed as "creative". This process orientation focuses scientific inquiry on how individuals attempt to orient themselves to, and take creative action in, situations and events that are complex, ambiguous, and ill defined. Defining creativity as process Drazin et al. (1999) join other process oriented creativity scholars.

Amabile (1988) presented creativity as an individual-level multi-stage cognitive process. Kahn (1990) described creative engagement as a process during which an individual makes behavioral, cognitive and emotional attempts to produce creative outcomes. Drazin et al (1999) contend that creativity is an individual's choice to be engaged in production of creative ideas, and that the level of creative engagement may differ depending on individual or situational circumstances. This notion echoes Ford's (1996) description of habitual action. According to Ford (1996), people most likely choose familiar or habitual actions based on past success, relative ease and certainty, unless creative actions present more desirable personal circumstances.

Creativity has been traditionally considered as an individual-level process. However, some scholars have considered it at the group-level as well. For example, Amabile (1988, 1996) argues that group and individual processes of creativity have similar composition, because both involve cognitive processes of idea generation and idea testing. In support of this idea, Drazin et al. (1999) propose that individuals and groups participate in creative processes in an iterative fashion. First, individuals develop ideas and present them to the group. They then learn from the group feedback and work through issues in solitude, and, finally, return to the group to further modify and enhance their ideas. This interactive nature of group creativity requires individuals to initially choose to be creative.

Innovation. Definitions of "creativity" and "innovation" are usually used interchangeably in the literature despite the fact that they represent quite different concepts. Little has been done to disaggregate the construct of creativity from the broader construct of innovation (West & Farr, 1990; Woodman et al., 1993). Innovation has attracted research from sociology, economics, engineering, and organizational theory, whereas, creativity has been studied almost exclusively within psychology (Ford, 1996). There has been little cross-over between these two streams of research, resulting in a missed opportunity to capitalize on potential synergies.

Most organizational scholars define innovation as the successful implementation of creative ideas within an organization (Amabile, 1988; Amabile, Conti, Coon, Lazenby, & Herron, 1996; George & Zhou, 2001). Contrasting creativity and innovation, Rank, Pace and Frese (2004) argue that creativity is truly novel, whereas innovation can be based on ideas that are adopted from previous experiences or from different organizations. They view innovation as primarily an inter-individual social process and creativity as more of an intra-individual cognitive process. Woodman et al. (1993) define organizational creativity as a subset of the broader domain of innovation, which they describe as an outcome of four interacting systems – individual, leader, work group, and climate for innovation.

Creative performance. Definitions of creative performance have been scarce in the literature. Choi (2004) views creative performance from a process perspective and defines it as the behavioral manifestations of creativity potential

(i.e. presenting novel ideas, reframing a given problem). In contrast, Oldham and Cummings (1996) define creative performance in terms of outcomes and describe them 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.

For the purpose of this research, I adopt the definitions of creativity proposed by Drazin et al. (1999) and Amabile (1988). These authors, in my view, provide a more comprehensive conceptualization of creativity and innovation, which is often-cited in the literature. *Creativity* is an individual-level multi-stage cognitive process of engaging in creative acts, regardless of whether the resultant outcomes are novel, useful or creative. I join other scholars in defining *innovation* as the successful implementation of creative ideas within an organization (Amabile, 1988; Amabile et al., 1996; George & Zhou, 2001). Finally, *creative performance* is conceptualized as the behavioral manifestations of engagement in creative actions (i.e. presenting novel ideas, reframing a given problem) (Choi, 2004; Drazin et al., 1999; Ford, 1996).

2.2. Concepts of transformational, transactional and charismatic leadership.

Transformational and transactional leadership. Leadership has been defined in the literature as a social influence process that can occur at the individual, dyadic, group, or strategic level (Avolio & Yammarino, 2002). Chemers (2000) argued that leadership exists primarily as an attribution rather than a testable construct, which makes it impossible to measure leadership apart from social perceptions. The leadership literature is dominated by several versions of transformational leadership (Burns, 1978; Bass, 1985, 1996; Bennis & Nanus, 1985; Sashkin, 1988; Tichy & Divanna, 1986) and charismatic leadership (Conger, 1989; Conger & Kanungo, 1987, 1998; House, 1977; Shamir et al., 1993) theories.

Transformational leadership theory was first articulated by James McGregor Burns (1978), who wrote a bestselling book on political leadership contrasting transforming leadership with transactional leadership. Bass and colleagues (Bass, 1985, 1996) further developed a theory defining the two types of leadership in terms of the component behaviors used by a leader to influence followers.

According to Bass (1985, 1999), the leader transforms and motivates followers by moving them beyond their own self-interests for the sake of the organization and making them more aware of the importance of task outcomes. The original formulation of the transformational leadership theory describes three types of behavior: idealized influence, intellectual stimulation and individualized consideration (Bass, 1985). In a revised version of the theory a behavioral dimension of inspirational motivation was added (Bass & Avolio, 1990).

Idealized influence and inspirational motivation are present when the leader envisions and describes a desirable future, communicates an appealing mission, demonstrates an exemplar behavior, sets high standards of performance,

displays confidence and determination, and uses symbols to focus subordinate effort. The leader demonstrates individualized consideration when he/she pays attention to the followers' developmental needs, supports and coaches followers in their personal growth. A leader stimulates followers intellectually when motivating them to challenge the status quo, show initiative, create new ideas, and be more innovative (Bass & Avolio, 1990, Bass, 1999). With transformational leadership, followers feel trust, admiration, loyalty, and respect toward the leader, and they are motivated to do more than originally is expected of them.

Transactional leadership refers to an exchange process between leader and followers that motivates followers' compliance with leader requests and organizational rules but fails to generate enthusiasm and commitment to a task (Bass, 1999; Yukl, 1999). Yukl (1999) argues that the transactional leadership theory is not convincing in presenting a strong link between the exchange process and each of the transactional behaviors. In Yukl's opinion, "transactional leadership includes a diverse collection of (mostly ineffective) leader behaviors that lack any clear common denominator" (Yukl, 1999, p.289). Originally, transactional leadership theory included two dimensions: contingent reward and passive management by exception (Bass, 1985). Later, active management by exception was added (Bass & Avolio, 1990).

Contingent reward behavior includes leader's clarifying the work to be done in order to receive rewards, using incentives to motivate followers to perform the required tasks. Passive management by exception involves using corrective actions and contingent punishment when problems arise. Active management by exception is practiced when a leader monitors followers' performance for mistakes and enforces rules and corrective actions to avoid mistakes (Bass & Avolio, 1990, Bass, 1999).

Yukl (1999) has noted ambiguities with respect to the influence processes underlying transformational and transactional behaviours. He argues that more needs to be done to explain how transactional and transformational behaviours affect each type of mediating variable and outcome (Yulk, 1999). He provides some propositions as to the underlying influence processes. For example, he argues that the transformational leadership influence process involves internalization. Internalization occurs when attaining task objectives becomes a way for followers to express their values and social identities (Yukl, 2002). Yukl (2006) hypothesizes that inspirational motivation can link tasks to followers' values and ideals through articulating an inspiring vision. Transformational leadership influence processes may also entail personal identification with the leader, because idealized influence results in follower attributions of leader charisma (Yukl, 2006). For transactional leadership, Yukl (2006) sees the primary influence process in instrumental compliance, which refers to a person carrying out a requested action for the purpose of receiving tangible rewards or avoiding a punishment (Yukl, 2006).

Burns (1978) had defined transformational and transactional leadership as two ends of a spectrum. In Bass' conceptualization they are distinct but not

mutually exclusive processes. Transformational leadership increases followers' motivation and performance more than transactional leadership, but effective leaders use a combination of both types of leadership (Bass, 1985; Conger, 1999; Yukl, 2006).

House and Shamir (1993) and Shamir et al. (1993) proposed that transactional leaders focus on pragmatic paths to goals, whereas transformational leaders cultivate in followers a higher level of self-esteem, a greater sense of self-worth, collective identity and collective efficacy, congruence between their self-concept and their perception of the leader.

Most factor analytic studies assessing the construct validity of the Multifactor Leadership Questionnaire (MLQ) support the proposed distinction between transformational and transactional leadership (Antonakis, Avolio, & Sivasubramaniam, 2003; Avolio, Bass, & Jung, 1999; Bycio, Hackett, & Allen, 1995; Carless, 1998; Den Hartog, Van Muijen, & Koopman, 1997; Tejeda, Scandura, & Pillai, 2001; Yammarino, Spangler, & Dubinsky, 1998). However, some studies reveal inconsistent results for behavioral dimensions. For example, passive management by exception forms a separate factor rather than loading on a transactional leadership factor (Den Hartog, et al., 1997; Lievens, Van Geit, & Coetsier, 1997; Yammarino & Bass, 1990). Yukl (2006) comments that behavioral dimensions for transformational leadership were developed mostly by an inductive process (based on factor analysis) and that a theoretical rationale for differentiating among the behaviors has not been provided.

Charismatic leadership. The origins of charismatic leadership theory stems from work of sociologist Max Weber, who used the term "charisma" to describe a form of influence based on follower perceptions that the leader is endowed with exceptional qualities (Weber, 1947). "Charisma" is a Greek word for "divinely" inspired gift, such as ability to perform miracles or predict future events. In the past two decades, two distinct theories of charismatic leadership in organizations were developed: attribution theory of charismatic leadership (Conger & Kanungo, 1987, 1998) and self-concept theory of charismatic leadership (House, 1977; Shamir et al., 1993). These "neocharismatic" theories follow some of Weber's ideas, but, in general, propose their own conception of charismatic leadership (Conger, 1989, Yukl, 2006).

Attribution theory of charismatic leadership proposed by Conger and Kanungo (1987) and revised later (Conger, 1989; Conger & Kanungo, 1998) is based on the assumption that charisma is an attributed phenomenon, and that such attribution of charismatic qualities to a leader is jointly determined by the leader's behavior, expertise, and aspects of the situation. Followers are more likely to attribute charisma to leaders who advocate a vision that challenges the status quo; who display unconventional behavior, make self-sacrifices, take personal risks, and incur high costs to achieve the vision; who appear confident and inspire followers with emotional appeals, and see opportunities that others fail to recognize.

House's (1977) original theory of charismatic leadership has been revised and extended by Shamir et al. (1993) to include new thinking about human motivation and a more detailed description of the underlying influence processes. They called it self-concept theory of charismatic leadership. Shamir et al. (1993) proposed that 1) a person's behavior is expressive of a person's feelings, values and self-concept; 2) person's self-concept is composed of a hierarchy of social identities and values; and 3) people are intrinsically motivated to enhance and defend their self-esteem and self-worth, to maintain consistency among the various components of their self-concept, and between their self-concept and behavior. According to Shamir et al. (1993), leaders link subordinates' self-concept to organizational goals and collective experiences; such that they become valued parts of followers' self-concept. The key leader behaviors in the House (1977) and Shamir et al. (1993) theories include articulating an appealing vision, using strong, expressive forms of communication, communicating high performance expectations, expressing confidence in followers and self, modeling exemplary behavior, and building collective identity, taking personal risks and making self-sacrifices to attain the vision; managing follower impressions of the leader; empowering followers.

The primary underlying influence process described in attribution theory is personal identification (Yukl, 2002, 2006). Such influence is based on a follower's desire to please and imitate the leader. Followers idolize their leaders and measure their own self-worth based on leader approval. The approval builds a deeper sense of obligation to live up to the leader's expectations in the future. Desire for leader approval or fear of disappointing the leader becomes their primary source of motivation.

Self-concept theory (Shamir et al., 1993) recognizes personal identification as one of the influence processes of charismatic leadership. However, unlike in attribution theory, personal identification is not assigned a priority. Other influence mechanisms such as social identification, internalization and augmentation of individual and collective self-efficacy are emphasized as more important (Yukl, 1999). Strong social identification is exhibited when followers take pride in being part of the group or organization and membership becomes one of their most important social identities (Ashforth & Mael, 1989). Charismatic leaders enhance social identification by articulating a vision that relates a follower's self-concept to shared values and role identities associated with the group (Conger, Kanungo, & Menon, 2000). Strong social identification leads followers to put group needs above individual needs and to make personal sacrifices for the group. Internalization occurs when followers express their values and social identities through achievement of task objectives and view their work role as inseparably linked to their self-concept and self-worth (Yukl, 1999). Emphasizing the symbolic and ideological aspects of the work, charismatic leaders present tasks as meaningful, noble, and even heroic.

There is a great deal of confusion between the transformational leadership model and two models of charismatic leadership (Conger, 1999; Yukl, 1999,

2006). At the definitional level, conceptual overlap is apparent in descriptions of charisma and individualized consideration (Lowe et al., 1996), and in descriptions of charisma and transformational leadership (Shamir & Howell, 1999). Many scholars broadly define the term "transformational" to include any type of effective leadership, regardless of the underlying processes. Lowe et al. (1996) describe Bass's conceptualization of transformational leadership as an extension of House's (1977) idea of the charismatic leader, which incorporates individualized consideration and intellectual stimulation. Across the three dominant models (Conger-Kanungo, Bass-Avolio, House-Shamir et al.) many of the same behaviors appear relevant: visioning, inspiring, role modeling, providing intellectual stimulation, "meaning-making", appealing to higher-order needs, empowering, setting high expectations and fostering collective identity (Conger, 1999; Yukl, 1999). However, there are some apparent differences. Transformational leaders seem more likely to empower followers and make them partners in achieving important goals, whereas charismatic leaders are more likely to emphasize that radical change can only be accomplished if followers have trust in their leader's unique abilities (Yukl, 1999; Lowe et al., 1996). Another apparent difference stems from the emphasis on attributed charisma and personal identification that is more apparent in Conger and Kanungo's (1998) conceptualization than in Shamir et al.'s (1993) theory.

Ambiguity and inconsistency in the terminology used to define the leadership concepts and underlying influence processes make it difficult to compare charismatic and transformational leadership and meaningless to differentiate between them, especially, when the available empirical research does not provide a definitive answer about their compatibility (Yukl, 1999).

For the purpose of the present research, I adopt Lowe et al.'s (1996) view of transformational leadership as an extension of charismatic leadership that incorporates individualized consideration and intellectual stimulation. This conceptualization better serves the purpose of the present study because it provides a more integrated approach to charismatic and transformational leadership. Further, transformational leadership is considered here to be conceptually distinct from transactional leadership. The current study examines followers' intrinsic motivation for its mediating effect, and followers' self-esteem and self-concept for their moderating effects on the relationships between transformational leader's behavior, transactional leader's behavior and followers' creative performance.

2.3. Transformational leadership, transactional leadership and creativity: A literature review.

Most research on the effects of transformational and transactional leadership on followers' creative performance draws from Bass' (1985) theoretical formulations. As previously noted, Bass (1985) defines transformational leadership in terms of charisma or idealized influence, inspirational motivation, intellectual stimulation, and individualized

consideration. Typically, charismatic behaviors and attributes position a leader as a role model for followers. Inspirationally motivating behaviors include communicating a compelling vision and articulating long-term goals. Intellectual stimulation involves encouraging intellectual curiosity and new approaches to solving problems and challenging the status quo. Individualized consideration focuses on developing followers and includes being empathetic, showing appreciation and support, and paying attention to followers' needs. A transactional leader influences followers by clarifying goals, emphasizing desirable outcomes, providing performance feedback and rewards and recognizing followers' contributions (Bass & Avolio, 1994). It has been proposed that role modeling, inspiration, intellectual stimulation and consideration enhance followers' creative performance (Keller, 1992; Shin & Zhou, 2003; Kahai et al., 2003; Jung et al., 2003; Wang, Cheng, & Farh, 2005).

On the other hand, the creativity literature also connects specific leadership behaviors with followers' creative performance. For example, Elkins and Keller (2003) described transformational leadership behaviors associated with R&D project success. Mumford et al. (2002) proposed that particular transformational leadership behaviors enhance creativity: maximizing challenge, risk taking, providing individual support and feedback, encouraging individual initiative, intellectual stimulation, and being charismatic.

Based on the interactionist model of creative behavior developed by Woodman and Schoenfeld (1989), Woodman et al. (1993) proposed a theory of organizational creativity. They emphasize the importance of the interaction between an individual and the situation. According to them, the "creative situation" is the sum total of the social and environmental (contextual) influences on creative behavior. Woodman et al. (1993) stress the essential role of cross-level effects, among which leadership is considered a group characteristic and a situational factor that impacts creative behavior. I now provide a review of empirical studies reporting the effects of transformational and transactional leadership on followers' creativity.

Howell and Higgins (1990a, 1990b) were among the first to study the relationship between transformational leadership and creativity. Specifically, they examined the personality characteristics, leadership behaviors and influence tactics of champions of technological innovations in Canada. Their sample was drawn from 88 organizations that had recently implemented a technological innovation. Questionnaires and interview transcripts of 25 matched pairs of innovation champions and non-champions were analyzed. The champions used transformational leader behaviors to a greater extent than did their "non-champion" counterparts. Champions also exhibited higher risk-taking and innovativeness, initiated more influence attempts, and employed a greater variety of influence tactics than did the non-champions.

Waldman and Bass (1991) argued that transformational leadership behaviors are necessary in the early stages of the innovation process to create a vision and provide intellectual stimulation as well as during later stages, when

development of projects occurs. Waldman and Bass (1991) argue that project success is related to the charismatic leadership of powerful organizational members who serve as "champions" (Elkins & Keller, 2003; Waldman & Bass, 1991). In support, Waldman and Atwater (1992) showed that intellectual stimulation, charisma, and individualized consideration related positively with project development success for higher level R& D managers but not for project leaders. Keller (1992) studied these associations in a longitudinal study of over 400 professional employees of R&D organizations, paying particular attention to the possible moderating role of type of R&D work (i.e. spanning pure science projects, applied research projects, product development and service projects). Transformational leadership behaviors in an R&D context related positively to project quality, budgeting and scheduling performance at both time1 and a year later (Keller, 1992). The relationship was stronger for research projects than for development projects. The relationship between transactional leadership behaviors and project quality was more prominent in development projects than in research projects. Elkins and Keller (2003) argued that project effectiveness is highest when transformational leadership is displayed by leaders of research (rather than development) projects. In development projects, transformational leaders provide contextual support by nourishing a facilitating organizational climate.

Sosik (1997) evaluated the effects of high and low levels of transformational leadership and anonymity on 36 undergraduate student work groups using a Group Decision Support System (GDSS) to perform an idea generation task. Specifically, anonymity was defined in terms of identified vs. anonymous GDSS input from group members in an electronic brainstorming task. GDSS is a computer-based system aimed at overcoming problems of face-to-face group meetings such as evaluation apprehension, social inhibition, and dominance of a few group members. Groups working under high levels of transformational leadership generated more original solutions, supportive remarks, solution clarifications, and questions about solutions than did groups working under low levels of transformational leadership. They also reported higher levels of performance, extra effort, and satisfaction with the leader. However, there was no difference between the student groups working under the two different conditions with respect to the number of solution units generated (i.e. fluency). Sosik (1997) concluded that high transformational leadership groups attended more to process-oriented comments (i.e. questions about solutions, solution clarifications), whereas the low transformational leadership groups attended more to outcome-oriented comments (i.e. solution units).

Drawing on the same data as Sosik (1997), Sosik et al. (1997) reported that anonymity increased the effect of transformational leadership relative to transactional leadership on group effectiveness in performing a creativity task. They theorized that anonymity reduces group member inhibitions, thereby empowering them to challenge others' assumptions without being directly confrontational. Anonymity also deemphasizes individuals' "attachment" (or rigid

adherence) to the comments they contribute, facilitating an open expression of ideas that may otherwise be held-back. An increase in the number and quality of creative contributions follows.

Sosik, Kahai and Avolio (1998) noted that the groups working under higher levels of transformational leadership generated more idea elaborations and original solutions than groups working under lower levels of transformational leadership. Anonymous groups were more flexible in generating ideas than were their non-anonymous counterparts. There was also a significant interaction effect of leadership style and anonymity on flexibility. Specifically, the effect of transformational leadership on group idea generation effectiveness was stronger in the anonymity condition than was the case for transactional leadership (Sosik et al., 1997). Flexibility is one of the basic elements of divergent thinking introduced by Guilford (1950). Flexibility represents a capacity to "get out of ruts" by switching approaches. Other elements of divergent thinking include fluency (ability to generate a greater number of ideas in a given period of time) and originality (ability to pursue uncommon lines of thought on problems where there is no right answer; Guilford, 1950).

A laboratory experiment conducted by Kahai et al. (2003) evaluated the effects of transformational vs. transactional leadership, anonymity, and rewards (group vs. individual) on the effectiveness of three creativity-relevant group processes and outcomes. Transactional leadership was associated with greater group efficacy and solution originality than was transformational leadership. However, Kahai et al. (2003) did not include in their measure of transformational leadership idealized influence or charisma (its core component).

In a cross-cultural study Jung and Avolio (1999) manipulated transformational and transactional leadership in individual and group task conditions to compare their effects on individualists and collectivists performing a brainstorming task. Collectivists generated more ideas with a transformational leader, whereas individualists generated more ideas with a transactional leader. However, individualists generated more ideas that were long-term-oriented under transformational leadership than did collectivists under transactional leadership.

Jung (2000-2001) experimentally examined the effects of transformational vs. transactional leadership on two aspects of divergent thinking (fluency and flexibility) of 194 undergraduate students. Participants in the transformational leadership condition generated more unique ideas than did participants in the transactional leadership condition. This effect was consistent for both fluency and flexibility measures.

L.C. Ryan (2001), using a sample of 247 design managers in the U.S. and Canada, showed that transformational leadership related positively to work team creativity, productivity, and efficiency. These positive effects were partially mediated by employees' beliefs about their working conditions (i.e. work challenge, managerial support and inspiration, work autonomy). Regrettably, all measures were self-reports resulting in single-source, common method bias.

Similarly, Shin and Zhou (2003) found that transformational leadership related positively to followers' creativity in a sample of 290 employees and their supervisors from 46 Korean companies. They also explored the roles of intrinsic motivation and conservation in this relationship. Conservation was defined as a value favoring propriety and harmony in interpersonal and person-to-group relations. Intrinsic motivation partially mediated the relationship between transformational leadership and creativity. Follower's "conservation" value moderated the relationship between transformational leadership and creativity such that it was stronger for individuals high, compared to those low, in this value. This moderation was explained in terms of the fundamental role values play in shaping individuals' goals and behaviors, thus, substantially influencing the way individuals may respond to transformational leadership. Specifically, individuals with higher levels of conservation generally respond more favorably to leaders' influence because they are more likely to respect subordinate-superior hierarchical relationships and more likely to act according to their subordinate role. Therefore, the relationship between transformational leadership and followers' creativity may vary as a function of followers' value of conservation (Shin & Zhou, 2003).

In an experimental study involving 162 undergraduate students, Bono and Judge (2003) examined the effects of transformational leadership and self-concordance on followers' creative and extra-role performance. Self-concordance refers to the extent to which activities such as job-related tasks or goals express individuals' authentic interests and values (Sheldon & Elliot, 1999; cf. Bono & Judge, 2003). Self-concordance is presented as a continuum, forming a composite of the controlled (extrinsic) and autonomously motivated (intrinsic) reasons for acting (Bono & Judge, 2003). Creative performance was operationalized in this study as an average number of ideas developed during two experimental tasks. Bono and Judge (2003) reported that transformational leadership positively predicted followers' creative and extra-role performance. This effect was partially mediated by self-concordance. Transformational leadership had a positive effect on self-concordance, but different effects on the two self-concordance dimensions. Specifically, transformational leadership had a negative effect on controlled motivation and no effect on autonomous motivation. These findings are inconsistent with those reported by Shin and Zhou (2003) on the relationship between transformational leadership and followers' intrinsic motivation.

Jung et al. (2003) reported direct positive relationships of transformational leadership with organizational innovation and empowerment across 32 (N=32) Taiwanese companies in the electronics and telecommunication industries. Surprisingly, the relationship between empowerment and organizational innovation was negative. Support for innovation partially mediated the positive relationship between transformational leadership and organizational innovation.

Similarly, Garcia-Morales, Llorens-Montes and Verdu-Jover (2006) reported positive associations between transformational leadership and organizational innovation in a sample of 408 CEOs of Spanish companies.

Boerner, Eisenbeiss and Griesser (2007) found positive effect of transformational leadership on followers' innovation using a sample of 91 leaders of German companies. This effect was partially mediated by followers' debate (communication behavior). Transactional leadership, on the contrary, had no effect on followers' innovation.

Wang et al. (2005), drawing on 190 dyads from 10 high-technology companies in Taiwan, found that the positive associations of transformational leadership and core self-evaluations on employee creativity were fully mediated by employees' self-efficacy beliefs regarding their own creativity. Additionally, job complexity moderated the relationships between creative self-efficacy and employee creativity such that it was more positive when task complexity was high than when it was low.

Most recently, Shin and Zhou (2007) reported positive associations between transformational leadership and team creativity ($r = .28$, $p < .05$) in a sample of 75 R& D teams. In this study, transformational leadership moderated a positive relationship between educational specialization heterogeneity and team creativity so that when transformational leadership was high, teams with greater educational specialization heterogeneity exhibited greater team creativity. Educational specialization heterogeneity refers to the extent to which a team consists of members with different educational specializations (the major field or discipline in which one's highest degree was earned) (Shin & Zhou, 2007).

Eder and Sawyer (2007) conducted a meta-analysis of antecedents of employee creativity. They reported an average sample size weighted mean correlation between transformational leadership and employee creativity of .21, $p < .01$ (with no outlier, $r = .17$, $p < .01$.).

Basu (1991), Basu and Green (1997), Strickland and Towler (2005), Rode and Wang (2008) and Jaussi and Dionne (2003) reported findings inconsistent with those reported above. Basu (1991) developed and tested a model linking quality of leader-member exchange, transformational leadership, attitudes toward innovation, and innovative behavior. His sample comprised 223 leader-member dyads in a manufacturing setting. Leader charisma related negatively to innovative behaviors of employees as measured by their supervisors' and self reports. Basu and Green (1997) examined how the quality of leader-member exchange and transformational leadership affected innovative behavior in leader-member dyads. Drawing from the same sample of 225 leader-member dyads within a manufacturing concern as in Basu (1991), they found that transformational leadership related negatively to employees' innovative behavior.

Basu (1991) and Basu and Green (1997) speculated that the negative relationships between transformational leadership and innovative behaviors that they found were due to the nature of the task (i.e. low creativity environment) as most of their sample was comprised of assembly line workers. Perhaps differing perceptions of supervisors and their followers can help explain the negative effect of transformational leadership on innovative behavior. Transformational leaders, who by definition participate in innovative processes, may view as less innovative

those followers who do not meet their performance standards (Basu & Green, 1997). Alternatively, it may be that under certain circumstances transformational leaders who press for innovation intimidate followers, inciting resistance (Basu, 1991; Basu & Green, 1997; Post, 1986; Harrison, 1987; Howell & Avolio, 1992). For example, Post (1986) noted that charismatic leadership may be destructive when the leader has a continual need for approval from others. Charismatic leaders may also create excessive stress for members who are unable to handle the pressure to perform beyond expectations (Harrison, 1987). Others have suggested that "unethical charismatics" suppress critical and opposing views, and encourage dependent followers, thereby inhibiting individual initiative, independent thought or innovation (Howell & Avolio, 1992).

Findings similar to those of Basu and Green (1997) were reported by Strickland and Towler (2005). These authors examined the effects of employees' openness to experience and charismatic leadership on employees' creativity in a sample of 167 dyads. Contrary to their hypotheses, Strickland and Towler (2005) found that charismatic leadership was not related to followers' creative performance. Openness to experience predicted creative performance beyond that predicted by tenure with the organization. This relationship was partially mediated by employees' creative self-efficacy. Also, there was an interaction between followers' openness to experience and leader's charisma in their effects on followers' creativity. Specifically, employees high in openness to experience had higher creative performance under a charismatic leader than did employees lower in openness to experience.

On the other hand, leadership behaviors that stimulate followers' intellectually are positively related to subordinate creativity (Farmer & Tierney, 2007). In a longitudinal investigation, Farmer and Tierney (2007) found that creativity-specific leadership behaviors predicted subordinate creativity, creative role-identity, and creative efficacy. Creativity-specific leadership was conceptualized in terms of autonomy granting, creative encouragement, collaboration encouragement, and efficacy building behaviors. Creative role identity is defined as the extent to which employees personally associate with the role of a "creative employee". Creative self-efficacy refers to the degree to which individuals view themselves as having a capacity for creativity. In a sample of nonprofit employees, Farmer and Tierney (2007) measured creativity leadership and supervisor appraisal of subordinate's creative identity at time 1 (N = 225) and employees' creative role identity, creative self-efficacy, and creativity a year later (N = 213). The positive effects of creativity-specific leadership behaviors on followers' creativity, creative role-identity and creative self-efficacy were fully mediated by followers' perceived appraisal of the extent to which the leader viewed them as creative at work. Specifically, followers of creativity-supporting leaders saw themselves as more creative, more confident in their creative capabilities, and performed more creatively when they thought their leader believed they were creative.

Most recently, in a sample of 212 dyads, Rode and Wang (2008) found that transformational leadership was not significantly related to employee creativity after taking into account the effects of identification with leader and innovative climate. This finding supports previous arguments that the relationship between transformational leadership and creativity are affected by contextual factors (Kahai et al., 2003).

Jaussi and Dionne (2003), in their experimental study of 364 participants, examined the relationship between a leader's unconventional behavior and followers' creative performance at the individual and group levels. They reported that controlling for transformational leadership and individual intrinsic motivation for creativity, unconventional leader behavior (e.g. standing on furniture etc.) interacted with followers' perceptions of the leader as a role model for creativity at the individual level. Specifically, creative performance was highest when these two interacting variables were high. Followers' intrinsic motivation for creativity had a positive effect on followers' creative performance at the individual level but not at the group level. Contrary to expectations, transformational leadership did not moderate the relationship between the role modeling creativity of the leader and followers' creative performance at the individual level. The authors had theorized that transformational leadership provides social support and support for ideas, which encourages followers to be creative. This supportive leadership combined with role modeling creativity by the leader was expected to produce greater creative performance than role modeling alone. Thus, with transformational leadership present, it had been reasoned that enhanced followers' motivation and leader's support for ideas should increase the creativity of followers that is associated with their exposure to the role modeling of their leader.

Jaussi and Dionne (2003) also showed that transformational leadership had little effect on creativity at the individual level but related negatively to creative performance of groups. This negative relationship between transformational leadership and group creativity contradicts earlier findings (Sosik, 1997; Jung, 2000- 2001; Ryan, 2001). Also, Jaussi and Dionne (2003) found that group intrinsic motivation for creativity moderated the relationship between group cohesion and group creative performance such that group creative performance was highest in highly cohesive groups with high levels of intrinsic motivation.

2.4. Summary and Critical Commentary.

Overall, the relationship between transformational/transactional leadership and followers' creative performance remains unclear. The summary of the studies and reported relationships is presented in Table 1.

Convincing findings of a direct positive effect of transformational leadership on followers' creative performance were reported by Shin and Zhou (2003) and Wang et al. (2005). On the other hand, Basu and Green (1997), and Strickland and Towler (2005) reported a negative associations between leader's

charisma and employees' innovative behaviors/creative performance. In contrast, Farmer and Tierney (2007) found a positive effect of a leader's intellectually stimulating behaviors on followers' creativity.

Mediators. The relationship between transformational leadership behaviors and follower's creative performance is fully mediated by employees' self-efficacy beliefs regarding their own creativity (Wang et al., 2005), followers' perceived appraisal of the extent to which the leader viewed them as creative at work (Farmer & Tierney, 2007); partially mediated by followers' intrinsic motivation (Shin & Zhou, 2003), self-concordance (Bono & Judge, 2003), beliefs about their working conditions (L.C. Ryan, 2001), and debating behavior (controversial discussion of task related issues) (Boerner et al., 2007). Despite the widely acknowledged theoretical view of intrinsic motivation as a mediating mechanism through which contextual factors, including leadership, influence followers' creativity (Amabile, 1996; Oldham & Cummings, 1996), only Shin and Zhou (2003) have tested empirically intrinsic motivation as a mediator of the transformational leadership-creativity relationship. However, they did not include a measure of transactional leadership. Bono and Judge (2003) found that self-concordance partially mediates the effects of transformational leadership on creative and extra-role performance. However, transformational leadership had no effect on autonomous (intrinsic) motivation. Similarly to Shin and Zhou (2003), they did not include a measure of transactional leadership in their study. More research is needed to examine the role of intrinsic motivation as a mediator between transformational leadership and followers' creative performance. Future research should also include transactional leadership to test the effect of transformational leadership when controlling for transactional leadership.

Moderators. Moderators of the effects of transformational leadership behaviors on followers' creative performance include: type of R&D work (research vs. development) (Keller, 1992), job complexity (Wang et al., 2005) and conservation value (Shin & Zhou, 2003), and organizational climate for innovation (Shin & Zhou, 2007). More research is needed to identify other possible mediators and moderators of this relationship.

Transactional leadership. Only five of the twenty three studies reporting relationships between transformational leadership and creativity or innovation included transactional leadership together with transformational leadership as independent variables. Four of them were experimental studies and did not report the magnitude of relationships between transactional leadership and creativity outcomes. Moreover, no tests of the incremental prediction of transformational leadership over transactional leadership were undertaken.

Methodological Considerations

Definitional issues. Generally, creativity and innovation were conceptualized primarily as outcomes and a cross-sectional design was used. Eight of twenty three studies were experimental. Two studies provided a longitudinal perspective (Keller, 1992; Farmer & Tierney, 2007); one adopted a multi-level perspective on creativity (Jaussi & Dionne, 2003). Only eight studies

operationalized creativity and innovation with a behavioral measure (Basu & Green, 1997; Shin & Zhou, 2003; Wang et al., 2005; Strickland & Towler, 2005; Farmer & Tierney, 2007; Boerner et al., 2007). Creativity sometimes can not be directly observed because of its cognitive nature and manifests itself in behaviors such as suggesting new ways to approach problems or promoting new ideas to others. Therefore, a behavioral measure operationalizes creative performance in terms of actions and behaviors that indicate engagement of individuals in creative activity. Such measures assess leaders' perceptions of the creativity of their followers. Other measures of creativity used in the studies included ratings of outcomes by "subject matter experts" and self-report. Only Jung et al. (2003) assessed creativity using hard measures such as total amount spent on R&D, annual R&D expenditures as a percentage of gross revenues and number of patents obtained over a period of time.

Transformational and transactional leadership were measured almost exclusively by the MLQ or its derivative scales. As Shin and Zhou (2003) noted, there is little theoretical rationale to support differential relationships for the separate transformational leadership dimensions. Indeed, studies have shown overwhelmingly that transformational leadership dimensions are highly correlated (e.g., Avolio et al., 1999; Bass, 1985) and lack discriminant validity (Bycio, et al., 1995). Accordingly, most researchers studying links between transformational leadership and creativity computed transformational leadership scores by averaging across dimensions. Exceptions include Howell and Higgins (1990), and Keller (1992). Howell and Higgins (1990) examined the separate dimensions of transformational leadership as related to the emergence of "championship behavior". Keller (1992) examined the relationship that charisma and intellectual stimulation had with creativity outcomes. Yet, some researchers focused on charisma dimension of transformational leadership (Basu & Green, 1997; Strickland & Towler, 2005). Others assessed only intellectually stimulating leader's behaviors (Farmer & Tierney, 2007).

Using measures of transformational leadership other than the MLQ may help overcome a problem of multicollinearity. For example, Podsakoff, Mackenzie, Moorman, and Fetter's (1990) measure of leadership provides a better differentiation between dimensions of transformational leadership and transactional behaviors (the mean correlation among the dimensions is .58).

To summarize, research on the effects of transformational and transactional leadership on followers' creative performance presents a "piece-meal" of studies, sometimes, without solid grounding in theory. More systematic research in this area is needed to better understand the influence mechanism of the two leadership styles on followers' creative performance as well as to identify key mediating and moderating variables that contribute to this influence.

Chapter 3. Conceptual framework and hypotheses.

3.1. Introduction.

In this chapter I present a conceptual model and associated hypotheses. It is organized into four parts: (1) theoretical arguments for the relationships between dimensions of transformational leadership and subordinates' creative performance; (2) a theoretical rationale for the associations between transactional leader behaviors and creative performance; (3) a theoretical rationale for expecting intrinsic motivation to mediate the effects of transformational leadership on subordinates' creativity; and (4) a rationale for including the moderating and control variables within my model. The conceptual model is presented in Figure 1.

3.2. Transformational leadership and creative performance

It has been suggested that components of transformational leadership positively relate to followers creative performance (Waldman & Bass, 1991; Mumford et al., 2002). However, results of empirical studies have been inconsistent, calling for more detailed examination of relationships between components of transformational leadership and employees' creative performance. Perhaps, contrasting direct effects of different components of transformational leadership may explain the inconsistent findings.

Some researchers argue there is little theoretical rationale for supporting differential relationships for the separate dimensions of transformational leadership as originally defined by Bass (1985) (Shin & Zhou, 2003; Yukl, 1999). I propose that transformational leadership should be studied as a composite multi-dimensional construct rather than as a uni-dimensional construct.

Transformational leadership behaviors can be classified into affective and cognitive components with the charisma dimension (combining idealized influence and inspirational motivation) representing the affective component of leadership influence; and individualized consideration and intellectual stimulation representing the cognitive component. The varying nature of followers' relationship with their leader – affect vs. cognition, provides a basis for studying separate effects of affective and cognitive components on followers' performance outcomes.

Similarly, Dienesch and Liden (1986) proposed leader-member exchange (LMX) be studied as a multidimensional construct consisting of contribution, loyalty and affect. The theoretical rationale for this proposition arose from the notion that roles are multidimensional. Therefore, Dienesch and Liden (1986) argued that LMX conceptualized as a role-making process has a multi-dimensional nature. Later tests of multidimensional measures of subordinate-rated LMX (Liden & Maslin, 1998) and supervisor-rated LMX (Greguras & Ford, 2006) supported the multidimensional structure of LMX and added a new dimension- professional respect. Despite high inter-correlation among LMX dimensions, recent studies (Greguras & Ford, 2006; Maslin & Uhl-Bien, 2001)

confirmed that LMX dimensions differentially predict various criteria indicating that different aspects of the LMX relationship are of a greater or lesser importance depending on the criterion of interest. Drawing parallels with research on the dimensionality of LMX, I believe that studying relationships for separate dimensions of transformational leadership may potentially reveal important unique effects of each of the dimensions on followers' performance outcomes.

3.2.1. Charisma and creative performance.

Although there are separate bodies of literature for charismatic and inspirational leadership, many researchers treat these constructs as one combined charisma-inspiration factor (Bass, 1999; Judge & Piccolo, 2004; Avolio et al., 1999; Bycio et al., 1995).

Charismatic leaders relate the work and mission of their group to shared values, ideals and aspirations. They paint an attractive vision of what the outcomes of followers' efforts could be. This provides followers with more meaning for their work and arouses enthusiasm, excitement, emotional involvement and commitment to the group objectives. Charismatic leaders in a creative environment would theoretically articulate goals that inspire creative efforts and extraordinary approaches. Indeed, the leader who communicates an appealing vision, role models exemplar behavior, sets high performance standards and displays confidence is likely to positively affect followers' creative performance. Inspirational and emotional arousal of followers is central for charismatic influence. This process includes arousal of achievement motivation, which is relevant for complex, challenging tasks requiring initiative, risk taking, personal responsibility and persistence (Bass, 1985; 1999). Accordingly, charismatic and inspirational leadership are expected to positively impact followers' creative efforts (Waldman & Bass, 1991).

Charismatic and inspirational leadership relates positively to followers' performance (DeGroot, Kiker, & Cross, 2000; Judge & Piccolo, 2004; Lowe et al., 1996; Howell & Hall-Merenda, 1999; Dvir, Eden, Avolio, & Shamir, 2002; Kirkpatrick & Locke, 1996). DeGroot et al. (2000) reported a positive relationship between charismatic leadership and subordinates' performance moderated by level of measurement. Specifically, they found the relationship is stronger when subordinates' performance is measured at the group level ($r = .49$) rather than at the individual level ($r=.21$). However, studies examining the effects of charisma on followers' creativity report statistically non-significant (or negative) associations (Basu, 1991; Strickland and Towler, 2005). Basu (1991) reported statistically non-significant associations between charisma and followers' innovative behavior. Also, charisma negatively predicted followers' innovative behavior ($b = -.36$, $p < .01$), controlling for leader's support, employees commitment, employees' norms and attitudes towards innovation, and quality of LMX. However quality of LMX related positively to leader's support and employees' commitment (Basu, 1991). Leader's support mediated the relationship between LMX and followers' innovative behavior. Employees' commitment was

positively related to followers' innovative behavior via norms and attitudes. Therefore, Basu (1991) concluded that leaders influence followers' innovative behavior by being supportive and by fostering employees' organizational commitment, which in turn positively influences norms and attitudes towards innovation and, consequently, innovative behavior.

Strickland and Towler (2005) proposed that the lack of a main effect between leader's charisma and follower's creative performance that they reported could be due to the fact that they measured charismatic behaviors rather than using a more complete measure of transformational leadership that included intellectual stimulation and individualized consideration. They speculated further that intellectual stimulation might account for most of the positive effects of transformational leadership on creativity reported in past studies.

There is also scant research on whether a leader's role modeling has an effect on creativity (Jaussi & Dionne, 2003). Jaussi and Dionne (2003) suggested that followers' perceptions of the leader as a role model for creativity relates positively to followers' creative performance only when the leader is displaying medium to high levels of unconventional behavior.

Perhaps, charismatic behaviors have positive effects on followers' creative performance, as suggested by theory, only when they are accompanied by other relevant behaviors (i.e. intellectual stimulation, Strickland & Towler, 2005; Farmer & Tierney, 2007; or unconventional leader's behavior, Jaussi & Dionne, 2003). Intellectually stimulating leadership has overlapping behaviors with charisma, for example, arousing imagination and challenge. However, intellectual stimulation is more tailored to task-related contexts than are charismatic behaviors, which focus more on generalized goals and ideals. In addition, charismatic behaviors are directed mainly at the group, whereas, intellectual stimulation as well as individualized consideration are mainly dyadic phenomenon. Therefore, charisma will have a positive effect on followers' creative efforts when displayed together with intellectual stimulation (Strickland & Towler, 2005; Farmer & Tierney, 2007) and other relevant behaviors, whereas, its own separate effect on creative performance is either non-significant or negative (Basu, 1991).

On the other hand, creative people generally are autonomy oriented, as expressed by seeking jobs that offer autonomy, and by performing better under conditions where moderate to high levels of autonomy are provided (Deci & Ryan, 1985; Greenberg, 1992; Oldham & Cummings, 1996; Mumford et al., 2002). However, followers of charismatic leaders may adhere to their leader's vision rather than pursuing their own ideas. This might restrict their autonomy, resulting in lower creative performance (Mumford et al., 2002; Rank et al., 2004; Amabile, 1996). For example, Sosik et al. (1998) suggested that by focusing attention on the leader and his/her vision, transformational behaviors such as inspiration and vision articulation may distract followers' attention from their work and restrict group members from autonomously pursuing their own vision. Indeed, restricting autonomy in task performance reduces creativity (Amabile &

Gitomer, 1984; Amabile et al., 1996; Henessey, 1989; Koestner, Ryan, Bernieri, & Holt, 1984). Accordingly, charismatic leadership could be detrimental, or at the very least, unhelpful, in stimulating creative behaviour among subordinates. In light of the above, I hypothesize:

Hypothesis 1: Leader's charismatic behavior has a neutral or direct negative effect on followers' creative performance.

3.2.2. Individualized consideration, intellectual stimulation and creative performance.

Individualized consideration is shown when leaders stimulate learning experiences, support and coach followers in their personal development, and respect them as individuals (Bass, 1999; Lowe et al., 1996). Leaders assign special projects that promote subordinates' self-confidence, utilize their special talents, and provide learning opportunities (Bass, 1985). Although a large portion of individualized consideration is developmental, Avolio and Bass (1995) argue that individualized consideration is similar to contingent reinforcement and can be in the form of negative or positive feedback. The leader may display individualized consideration by showing support for the efforts of followers, encouraging their autonomy, and by empowering them to take on more responsibility. Transformational leaders practice delegation consistent with their judgments of followers' competence and need for growth opportunities (Bass, 1985). Individualized consideration also includes information sharing when followers are fully informed about what is happening and why. Autonomy and empowerment provided along with exciting opportunities for growth and learning, and reliable information for decision making should enhance followers' creative thinking and creative performance.

There has been no research on the relationship between individualized consideration and followers' creative performance. However, there is some research linking creativity to different behaviors comprising individualized consideration (i.e. providing evaluation and feedback, giving support and encouragement). Shalley (1995) examined the effect of expectation of performance evaluation on creativity in two studies. In the first study, no significant effect was found. In the second study, individuals who worked alone, had a creativity-related goal, and expected an external evaluation showed the highest level of creativity. Earlier, Bartis, Szymanski and Harkins (1988), among others (Amabile, Goldfarb, & Brackfield, 1990; Berglas, Amabile, & Handel, 1981; Hennesey, 1989; Szymanski & Harkins, 1992), found that evaluations decreased creativity. Reflecting on these findings, Shalley and Perry-Smith (2001) hypothesized and confirmed empirically that individuals exhibited higher levels of creativity when expecting an informational evaluation, which "provides information to improve performance" (p.3), than when expecting a controlling evaluation, which "gauge how well one performs relative to a set standard" (p.3). The same is true for the effect of feedback style on individuals' creative

performance. Zhou (1998) showed that individuals exhibited the most creativity in the positive feedback and informational style condition and the least in the negative feedback and controlling style condition. Moreover, developmental feedback increases creativity when it comes from the leader as well as from coworkers. For example, the more leaders provide developmental feedback when creative coworkers are present, the greater the creativity of their followers (Zhou, 2003); the more employees received developmental feedback from co-workers, the higher was their creative performance (Zhou & George, 2001).

Sessa (1998) argued that creativity decreases when opportunities for innovation are rare and support of idea generation is absent. Scott (1995) proposed that without overt social support and encouragement (e.g. individualized consideration), people are likely to withdraw from creative efforts. Mumford et al. (2002) suggest that there are three types of support involved in the leadership of creative efforts: 1) idea support; 2) work support; and; 3) social support. Enson, Cottam and Band (2001) found that supervisory encouragement, work-group support, freedom, resources, and challenge were all related to manifested creative achievement. Therefore, I hypothesize:

Hypothesis 2: Individualized consideration positively predicts followers' creative performance.

A leader intellectually stimulates followers by motivating them to show initiative, challenging established ways of doing things, bringing new ideas to the table and being more innovative (Bass & Avolio, 1990; Bass, 1999). Intellectual stimulation of followers arouses their problem awareness and problem solving, thought and imagination (Bass, 1985). Bass (1985) has argued that intellectual stimulation is particularly important when groups face ill-structured problems. It is with problems of this type that creative efforts by followers are most welcomed.

Intellectual stimulation together with involvement, support and freedom has been identified as especially important in leading creative people (Enson et al., 2001; Oldham & Cummings, 1996; Mumford et al., 2002). Intellectual stimulation "is likely to promote creativity by encouraging followers to think 'outside the box' and by enhancing generative and exploratory thinking" (Sosik et al., 1998; p.7). Amabile et al. (1996) argued that leaders can support creativity by encouraging employees to try out different approaches without worrying about being punished for negative outcomes. Howell and Avolio (1993) found a positive relationship between the intellectual stimulation provided by the leader and unit performance when there was a climate of support for innovation within the leader's unit. Similarly, Farmer and Tierney (2007) found that creativity-specific leadership behaviors (conceptualized in terms of autonomy granting, creative encouragement, collaboration encouragement, and efficacy building behaviors) predicted subordinate creativity, creative role-identity, and creative efficacy. Therefore, I hypothesize:

Hypothesis 3: Leader's intellectual stimulation positively predicts followers' creative performance.

3.3. Transactional leadership and creative performance

Transactional leadership within a creativity context has been examined only in five studies, as reviewed previously. None of them used a behavioral measure to assess creative performance. In this respect the present study makes a contribution by defining and measuring creative performance behaviorally, in terms of actions that indicate engagement of individuals in creative activity. Creativity sometimes can not be directly observed because of its cognitive nature and manifests itself in behaviors such as suggesting new ways to approach problems or promoting new ideas to others. A detailed discussion of the findings concerning transactional leadership and creativity follows.

Sosik et al. (1997) manipulated the type of leadership in transformational vs. transactional leadership conditions of a longitudinal laboratory experiment. The dependent variable was conceptualized as group effectiveness, an outcome of group creative efforts as reflected in "idea generation effectiveness" and "report effectiveness". The former was operationalized as fluency, flexibility and originality (Torrance, 1965), while the later was assessed by rater evaluations along dimensions of imaginativeness, innovativeness and value. Anonymity of group members' input to an electronic brainstorming task was tested for its moderating effects on the relationship between leadership type and group effectiveness. Sosik et al. (1997) found that transactional leadership had a stronger effect on idea generation effectiveness than did transformational leadership; transformational leadership had a stronger effect on report effectiveness than did transactional leadership. Additionally, anonymity increased the effect of leadership on group effectiveness (both idea generation effectiveness and report effectiveness), and this effect was stronger for transformational leadership than for transactional leadership.

Jung and Avolio (1999) examined another moderator of the relationship between type of leadership (transformational vs. transactional) and creative performance – individualistic vs. collectivistic cultural orientation. They used the MLQ (Multifactor Leadership Questionnaire) to measure leadership. Creative performance was rated by expert judges on quantity and quality dimensions. The moderating effect was supported: collectivists generated more ideas with a transformational leader, whereas individualists generated more ideas with a transactional leader.

Contrary to Sosik et al. (1997), Jung (2000; 2001) reported that participants in his experiment generated a significantly greater number of unique ideas in the transformational leadership condition than did participants in the transactional leadership condition. The MLQ was used and creativity was operationalized in terms of fluency and flexibility. The effect was consistent across both operationalizations of creativity.

Using the MLQ and an originality measure of group creative performance, Kahai et al. (2003) found transactional leadership was associated with greater solution originality (number of unique solutions) than was transformational leadership. Anonymity of group members' inputs into the electronic meeting system did not moderate the effects of leadership style on originality of solutions. However, anonymity did lead to an increase in solution originality in the group reward condition relative to the individual reward condition. This effect did not vary across leadership conditions.

Overall, the results on the effect of transactional leadership on creative performance remain inconclusive. Further study of potential moderators and mediators is required for the relationship between transactional leadership and creativity performance. Next, I look more closely at the effects of contingent rewards on creative performance.

3.3.1. Contingent rewards and creative performance.

Transactional leadership has been defined as contingent reinforcement (Bass, 1985). The leader and follower agree on certain performance standards. If the follower meets the agreed standard, the leader rewards the follower or does not impose aversive reinforcement (i.e. punishment). Therefore the leader acts as an agent of reinforcement. Contingent positive reinforcement enhances the effort to maintain the desired speed and accuracy of employees' performance. Contingent aversive reinforcement is a leader's reaction to an employee's failure to achieve the agreed-upon performance. It signals the need for a clarification of what needs to be done and how. Therefore, both functions of contingent reinforcement have an informational value for the follower, i.e. they provide useful feedback to subordinates on whether their efforts meet performance requirements. Bass (1985) notes that such information is particularly helpful to the inexperienced or inexpert subordinate, especially if the negative feedback is coupled with further clarification of what performance is desired.

The effect of rewards on creative performance has received relatively little attention. Studies have yielded mixed results. According to general behavior theory (Maltzman, 1960; Pryor, Haag, & O'Reilly, 1969; Skinner, 1953; Torrance, 1970; Winston & Baker, 1985; Eisenberger et al., 1998; Eisenbeger & Rhoades, 2001), any discriminable response class, such as creative performance, should be enhanced by systematic reward. In support of this, Winston and Baker (1985) concluded, based on a review of 20 studies grounded in general behavior theory, that rewards effectively enhance divergent thinking. Abbey and Dickson (1983) found that innovative R & D climates often recognize and reward performance. Within the pharmaceutical industry rewards are associated with improvements in existing drugs and the introduction of new medications (Cardinal, 2001). Eisenberger and colleagues (Eisenberger & Armeli, 1997; Eisenberger & Selbst, 1994) show that rewards can have informational value, which can be used to encourage creativity. Moreover, rewards can contribute to creativity by providing recognition, indicating desirable behaviors and work

strategies, and establishing normative output expectations (Eisenberger & Cameron 1996; Mumford, 2002, 2003).

On the other hand, research by cognitively oriented researchers suggests that contingent reward inhibits divergent thinking and creativity (Kruglanski, Friedman, & Zeevi, 1971; Loveland & Olley, 1979; Amabile, Hennessey, & Grossman, 1986). They contend that reward in one task adversely affects creative performance on subsequent tasks; that though rewarded individuals may work harder, they produce less creative outcomes than their non-rewarded counterparts working on the same problem. This is because contingent rewards act as extrinsic constraints (Amabile et al., 1986), leading to attitudes toward the task that are more "businesslike" than "playful". Researchers in this camp further argue that creativity results from risk-taking, uninhibited exploration, and "playful combination of old elements into new patterns" (cf. Amabile, 1983). In experiments designed to test this line of reasoning, subjects who were offered rewards differed from subjects who were not offered rewards in their approach to open-ended tasks. Rewarded subjects approached their tasks with less enjoyment and focused more narrowly on the attainment of the extrinsic goal and interest in the task (Amabile et al., 1986). Accordingly, it appears that introducing extrinsic rewards can adversely affect aspects of creative performance. Rewards may well undermine subsequent interest in task performance because, when viewed as "extrinsic constraints", they create a generalized performance expectancy that inhibits creative performance on later tasks (Hennessey & Amabile, 1988).

Amabile (1983) suggested one explanation for the inconsistent findings between behavioral and cognitive studies. She argued that the positive effects reported by the behaviorists are due to instructions rather than to the reward itself. The inconsistent conclusions about the effects of rewards on creativity are discussed by Eisenberger and Selbst (1994) who note that investigators from the "cognitive camp" have generally rewarded low degrees of divergent thinking, while behaviorists generally rewarded high degrees of divergent thinking. This interpretation is consistent with research showing that rewarding a low degree of divergent thinking reduces general orientation toward divergent thinking and the quality of performance in subsequent tasks (Reiss & Sushinsky, 1975, 1976; Eisenberger, Kaplan, & Singer, 1974; Eisenberger, Leonard, Carlson, & Park, 1979). According to learned industriousness theory (Eisenberger, 1992), individuals learn which dimensions of performance and amount of effort are rewarded, and generalize it to subsequent tasks. Therefore, reward contingency (i.e. rewarding high vs. low degrees of creative thinking) emerges as an important moderator of the effect of extrinsic rewards on creative performance (Eisenberger, Rhoades, & Cameron, 1999 (b); Eisenberger & Rhoades, 2001; Eisenberger & Shanock 2003).

Eisenberger and Selbst (1994) tested empirically the opposing views on the effect of rewards on creativity. In two studies involving 504 school children, a monetary reward for a higher degree of divergent thinking in one task (word construction) increased children's subsequent originality in a different task

(picture drawing). The same reward, made contingent on a low degree of divergent thinking reduced this generalized originality effect. The effect associated with rewarding high versus low degrees of divergent thinking was eliminated when introducing a large proximal reward, and restored by its removal.

Following the logic of cognitive scholars, Eisenberger and Selbst (1994) theorized that increased reward salience, resulting from a greater reward size, proximity, etc., reduces the task attention that contributes to creative thinking, and, therefore decreases creativity. Salient rewards create future reward expectancies, drawing attention away from intrinsic properties of the task, thereby decreasing subsequent creative performance.

In Eisenberger and Selbst's (1994) first experiment, reward salience was manipulated by giving their subjects (i.e. children) no reward, a small reward, or a large reward. The salience of the reward was increased by placing the reward in sight, next to the participant. In order to differentiate the incentive properties of reward from informational effects, all participants received instructions and feedback about required task performance. A small reward for a high degree of divergent thinking enhanced generalized creativity; a small reward for a low degree of divergent thinking reduced creativity. A large reward for a high degree of divergent thinking produced no greater generalized creativity than the same reward for a low degree of divergent thinking. In the second experiment, it was hypothesized that it is still possible to obtain effects of a large reward on generalized creativity when one of the attention-eliciting properties of the reward (size) is counterbalanced by another property (proximity). In other words, the salience of the large reward should be reduced by eliminating its close physical presence (i.e. moving it away from children's sight; experiment 1). As predicted, the generalized effects of rewarding different degrees of divergent thinking were restored by moving the large reward from sight of the children. Thus, two aspects of reward salience - size and proximity, appear important when establishing contingent based rewards for motivating creativity. Specifically, these findings indicate that the increased creativity found in many behaviorally oriented studies was not due solely to the informational properties of the reward contingencies, but also involved the incentive properties of the reward.

The proposition regarding the moderating effect of reward contingency (i.e. rewarding high vs. low degree of divergent thinking) on the relationship between rewards and creative performance has received some empirical support. For example, repeated reward for simple, uncreative performance was found to decrease creativity (Eisenberger & Selbst, 1994, Experiment 1; McGraw & McCullers, 1979; Schwarz, 1982). Similarly, a reward failed to increase creativity when participants were told to produce as many responses as possible (Joussement & Koestner, 1999).

Eisenberger and Armeli (1997) investigated the effects of monetary reward on generalized creative performance and intrinsic creative interest on a sample of 416 school children. Although Eisenberger and Selbst's (1994) experiments supported the view that salient (large and proximal) rewards decrease

creativity, Eisenberger and Armeli (1997) argued that salient rewards could be used to increase generalized creativity if individuals are still able to focus attention on the task and to discriminate between creative and non-creative performance requirements. They further argued that this requirement is not explicitly communicated in most divergent-thinking tasks where individuals typically begin by generating familiar solutions retrieved from memory, followed only later by novel solutions. In experiment 1, to make the requirement for novel performance more explicit, Eisenberger and Armeli (1997) used a divergent-thinking task that required every response to be novel (generating unusual uses for physical objects). This explicit requirement of novel performance in task 1 produced greater subsequent creative performance in an entirely different task (picture drawing) when a large proximal reward was used rather than a small proximal reward or no reward. Eisenberger and Armeli (1997) concluded that whether a reward substantially increases creativity, has little effect, or substantially decreases it will depend on: a) the degree of creativity required for reward, b) the explicitness of this contingency, and c) salience of the reward.

Creativity is reduced when task instructions suggest that reward is based on aspects of performance inconsistent with creativity (e.g., simple repetitive performance). Similarly, because conventional performance is most often rewarded in everyday life, the nonspecific promise of reward often increases conventional performance at the expense of creativity. Creativity is evidently increased by any one of three reward conditions: a) reward is promised explicitly for creative performance; b) reward is promised for nonspecific performance following preliminary training with a creative task: or c) reward is given for creativity on a preliminary task and a subsequent task is assigned without the promise of reward (Eisenberger et al., 1999b).

Baer, Oldham and Cummings (2003) examined other moderators of the relationship between contingent rewards and creative performance. They looked at the moderating effect of job complexity and employee cognitive style (adaptive vs. innovative) on the relationship between extrinsic rewards (pay and recognition) and creativity. Individuals with an adaptive cognitive style (adaptors) act within given paradigms and procedures without questioning their validity. In contrast, those with an innovative style (innovators) are willing to take the risk of violating the status quo (Baer et al., 2003). These authors proposed that complex jobs (high in autonomy, skill variety, significance etc.) encourage higher levels of creativity than simple, routine jobs because individuals are likely to be excited and enthusiastic about their jobs. Offering rewards to employees in complex jobs will shift the locus of causality from intrinsic to extrinsic, depreciate the challenging qualities of the job and make the experience with the job less enjoyable. Therefore, rewarding employees in complex jobs may decrease creative performance.

In contrast, rewarding employees in simple jobs may boost their creative performance. Simple jobs offer little opportunity for personal control at work and extrinsic rewards might provide employees with this opportunity. Also, simple

jobs are often viewed as insignificant; the presence of extrinsic rewards may change this perspective. Therefore, enhanced feelings of personal control and job significance will lead to increased intrinsic motivation and consequently, creative performance. Further, Baer et al. (2003) theorized that when innovators work on complex jobs, the undermining effect of extrinsic rewards on creative performance will be reduced because innovators depend less on rewards and recognition and are driven by the challenge of the job. In simple jobs, the effect of extrinsic rewards on innovators' creative performance will be weak, because innovators tend to put less value on rewards and recognition, and therefore, are less likely to take opportunity to exert personal control by engaging in reward programs. Adaptors prefer routine and predictable jobs. They also value recognition of their efforts and achievements. Therefore, when placed in complex jobs, adaptors would experience a decrease in creative performance, whereas, in simple jobs their creative performance will be higher with extrinsic rewards.

Baer et al.'s (2003) findings supported their hypothesized relationships. For adaptors there was a positive relationship between extrinsic rewards and creativity in a "simple job" condition but a negative relationship in "complex job" condition. Innovators responded negatively to extrinsic rewards in the "simple job" condition, and showed no change in creativity as extrinsic rewards increased in the "complex job" condition.

3.3.2. Summary

The five studies linking transactional leader's behavior and followers' creative performance do not provide consistent findings. They are based on student samples; two of the five were conducted in a very specific context of an electronic meeting system and used a specific task for idea generation activities. This makes its difficult to generalize the results to the working environment of organizations.

As Bass (1985) noted, contingent reinforcement has an informational value for the follower, and this is one of the most important roles that leader's contingent rewards play in tailoring followers' performance. This assertion was supported by Eisenberger and colleagues' research (Eisenberger & Armeli, 1997; Eisenberger & Selbst, 1994) that showed that rewards bear informational value when they are contingent on followers' creative performance. In other words, when a leader explicitly identifies what degree of creativity is required from employees and how such performance will be rewarded, the leader is informing employees that their creative efforts will be recognized and rewarded, and, therefore, their creative performance should increase. However, experiments conducted by Eisenberger and Armeli (1997) and Eisneberger and Selbst (1994) involved pre-school children, which makes their finding difficult to generalize to employees.

Bass (1985) noted that transactional leaders must give constant reassurance to their subordinates. Such reassurance is a continuing reward for subordinates to associate with a leader and for trying to comply with performance

requirements. Bass (1985) wrote that each goal-performance-reward cycle is a step toward the development of followers to take increasing responsibility for their own actions, such that experienced subordinates become self-reinforcing. Leaders reward followers to encourage their acceptance of their work roles, to continue and renew their efforts, to maintain their role behavior and compliance with performance expectations. Bass (1985) argued that effective leaders use a combination of transactional and transformational leadership. In his view, transactional leadership is a basis for building continuous, mutually fruitful relationships with followers. Transactional leadership builds the foundation for followers' involvement in, and compliance with the task by informing followers of leaders' performance expectations and providing rewards when these expectations are met. Therefore, positive contingent reinforcement should have a positive effect on followers' performance, including creative performance. Based on these arguments I hypothesize:

Hypothesis 4: Transactional leadership (operationalized as contingent reward behavior) directly and positively predicts followers' creative performance.

3.4. Mediating constructs

3.4.1. Transformational leadership, intrinsic motivation and creative performance

Individuals are intrinsically motivated when they seek enjoyment, interest, satisfaction of curiosity, self-expression, or personal challenge in their work (Amabile, 1993; Collins & Amabile, 1999). Early psychological studies of motivation have suggested that motivation is a state influenced in large part by the immediate situation or social context (Deci, 1971; Amabile, DeJong, & Lepper, 1976; Harter, 1981). People will be intrinsically or extrinsically motivated partly as a function of their social environment. However, recently most theorists also admit the possibility that motivation can operate like a relatively stable trait – that there will be individual differences in basic motivational orientations (Deci & Ryan, 1985; Amabile, 1993; Amabile, Hill, Hennessey, & Tighe, 1994; Collins & Amabile, 1999).

Current theories of the impact of motivation on creativity propose intrinsic motivation is essential to creative performance (Amabile, 1988, 1996; Sternberg & Lubart, 1991, 1996; Woodman & Schoenfeldt's, 1989, 1990; Woodman et al., 1993). For example, in the extension of Amabile's componential model (Amabile, 1988, 1996), Sternberg and Lubart (1991, 1992, 1995, 1996) proposed an investment theory of creativity in which they identified task-focused motivation as being critical for creativity. Woodman and Schoenfeldt's (1989, 1990) interactionist model of creative behavior also acknowledged intrinsic motivation as a component of the individual that is conducive to creative accomplishments. Csikszentmihalyi (1990) and Gardner (1993) included intrinsic motivation as a personal characteristic that contributes to creativity. These theoretical arguments were supported empirically (Amabile et al., 1994; Tierney et al., 1999; Jaskyte & Kisieliene, 2006; Shin & Zhough, 2003).

Tierney et al. (1999) reported a correlation of r = .28 (p < .01) between intrinsic motivation and creativity ratings of employees. Intrinsic motivation explained variance in creativity ratings (b = .20, p < .01) and interacted with the leaders' intrinsic motivation (b = .14, < .05) in predicting creative performance. Jaskyte and Kisieliene (2006) found that individual cognitive style (β=.24, p<.01), intrinsic motivation (β=.35, p<.01) and cultural norms (β= -.24, p<.05) were important predictors of employee creativity in a sample of employees drawn from Lithuanian non-profit organizations. These variables explained 41.5 % of the variance in creativity, controlling for job design, tolerance of freedom, consideration, work relations and hierarchical level. The observed correlation between intrinsic motivation and employee creativity in their study was r = .48 (p < .01).

However, Shalley and Perry-Smith (2001) did not find support for the notion that intrinsic motivation mediates the effects of contextual factors on creativity. Specifically, they did not find intrinsic motivation to mediate the relationship between performance evaluation and creativity. On the other hand, Zhou (2003) proposed that feedback of a developmental nature is likely to boost intrinsic motivation. She found that when creative co-workers were present and supervisors gave developmental feedback, employees' creativity was higher.

There has been only one study that directly assessed intrinsic motivation as a mediator between transformational leadership and creative performance. Shin and Zhou (2003) used a behavioral measure to assess creative performance. Intrinsic motivation was operationalized by five items adapted from Tierney et al. (1999). Shin and Zhou (2003) reported that intrinsic motivation positively correlated with both creative performance (r = 19, p < .01) and transformational leadership (r = .35, p < .01). Using Baron and Kenny's (1986) procedure to test mediation, Shin and Zhou (2003) tested two models. In model 1, they regressed creativity on a set of control variables, transformational leadership, conservation, and the two-way interaction between transformational leadership and conservation. In model 2, they regressed creativity on the same set of variables and intrinsic motivation. Hierarchical regressions showed that intrinsic motivation partially mediated (b = .18, p < .01) the influence of transformational leadership on creative performance. The coefficient for transformational leadership dropped from b = .25 (p< .01) (Model 1) to b=.21 (p< .01) (Model 2) when intrinsic motivation was added to the regression equation.

There are no studies linking charisma, intrinsic motivation and creative performance. However, such associations can be expected on theoretical grounds. Mumford et al. (2002) proposed that transformational and charismatic leadership may enhance creativity and innovation through motivation. According to cognitive evaluation theory by Deci and Ryan (1985), individuals will experience a high level of intrinsic motivation toward a task when they feel competent and "self-determining" in their work. These feelings of competency and self-determination may come as a result of charismatic influence from a leader. Charismatic leadership boosts intrinsic motivation through idealized influence and

inspirational behaviors such as describing an exciting vision, articulating a plan for its achievement, and expressing confidence in followers' abilities to perform at high levels (Yukl, 1999, 2006; Bass, 1999).

An intellectually stimulating leader motivates followers to question traditional beliefs, to look at problems in a different way, and to be innovative (Yukl, 1999). Deci and Ryan (1985) proposed that individuals perceive they are being supported and encouraged to take initiatives and to try new things, with little external pressure to achieve results in a prescribed way. Through intellectual stimulation a leader sends clear messages to followers that initiative is encouraged and mistakes will be tolerated in return for creative results. Granting such autonomy in performance represents one of the most powerful intrinsic motivators (Herzberg, 1966; Hackman & Oldham, 1976; Deci, 1975; Deci & Ryan, 1985).

In addition to autonomy, feedback is an intrinsic motivator (Hackman & Oldham, 1976). Performance evaluation is an essential part of providing feedback. Transformational leaders display individualized consideration when they attend to followers developmental needs, support and coach followers through providing informative performance evaluations and developmental feedback. Mixed results have been reported with respect to the effects on creative performance associated with informing individuals that their creativity will be evaluated (Zhou & Shalley, 2003). For example, Amabile (1979) found that individuals who expected their task performance to be evaluated exhibited lower intrinsic motivation and lower levels of creativity than did their counterparts who did not expect such an evaluation. On the other hand, positive feedback and evaluation has been shown to enhance intrinsic motivation (Deci, 1971; Tang & Hall, 1995; Cameron & Pierce, 1994; Eisenberger & Cameron, 1996; Deci, Koestner, & Ryan, 1999), especially, when conveyed in a purely informational and non-controlling manner (R.M. Ryan, 1982; Pittman, Davey, Alafat, Wetherill, & Kramer, 1980; Shalley & Perry-Smith, 2001).

As it was argued above, intrinsic motivation is recognized as an important contributor to employees' creative performance. However, an argument can be made that intellectual stimulation and individualized consideration components of transformational leadership, given they are more task related, stimulate followers' intrinsic motivation for creativity more than charismatic behaviors that lead to more general motivational outcomes. Therefore, it is reasonable to propose:

Hypothesis 5a: Intrinsic motivation for creativity partially mediates the effects of leader's individualized consideration on followers' creative performance.

Hypothesis 5b: Intrinsic motivation for creativity partially mediates the effects of leader's intellectual stimulation on followers' creative performance.

3.4.2. Transactional leadership, intrinsic motivation and creative performance.

Ford (1996) argued that, as long as habitual actions remain more attractive, even when the context may be favorable for creative action, an

individual would tend to choose habitual action. Individuals with great creative potential may not actually produce creative ideas; they need to be willing to engage in creative activities in an intense and persistent manner (Amabile, 1996). In other words, individuals will become involved in creative actions only if the consequences of such actions bring them personal benefits or advantages unattainable through habitual behavior. Such benefits can be of an intrinsic (enjoyment of the task) or extrinsic (tangible rewards) nature.

Heated debates on whether contingent rewards enhance or undermine intrinsic motivation have divided scholars into two camps. One group shares the viewpoint of CET (Deci & Ryan, 1980, 1985) and argues that rewards undermine intrinsic motivation (Rummel & Feinberg, 1988; Wiersma, 1992; Tang & Hall, 1995; Deci, Koestner & Ryan, 1999; Lepper, Henderlong, & Gingras, 1999). CET proposes that rewards can be interpreted by recipients as controllers of their behaviors or as indicators of their competence. In the first instance, rewards are expected to decrease perceived autonomy and undermine intrinsic motivation. However, when rewards are positively informational, they satisfy the need for competence and enhance intrinsic motivation.

Another group of researchers (Cameron & Pierce, 1994; Eisenberger & Cameron, 1996; Eisenberger et al., 1999a; Eisenberger & Selbst, 1994; Eisenberger & Shanock, 2003; Eisenberger & Armeli, 1997) subscribe to general interest theory (GIT) (Eisenberger et al., 1999a). GIT suggests that intrinsic motives are more diverse than the competence and self-determination components advocated by CET. It proposes that rewards can have positive or negative effects on intrinsic motivation depending on the reward contingency. According to GIT, intrinsic motivation is reduced when rewards disassociate the task with feelings of self-competence or downplay the perceived importance of the task. Rewards increase intrinsic motivation when they convey that task performance helps satisfy needs, wants and desires.

Eisenbeger and Armeli (1997) found that reward for novel performance increased subsequent intrinsic creative interest, as measured by the choice to produce original drawings rather than copy a familiar drawing (experiment 2). Intrinsic creative interest was reduced only by rewarding uncreative performance and not by rewarding creative performance. This suggests that the explicit requirement of novel performance for salient reward enhances generalized creativity without any loss of intrinsic creative interest. Eisenberger et al. (1999b) suggested that reward for high performance recognizes competence beyond that conveyed by favorable performance feedback. People recognize that reward for superior performance in everyday life signifies a high achievement. Therefore, rewards following high performance magnify the individual's sense of achievement and perception of competence. Amabile (1993) proposed that monetary reward itself does not necessarily undermine intrinsic motivation and creativity. But reward that signifies or is accompanied by constraint can have serious detrimental effects.

My research focuses on the effects of transactional leadership behavior rather than the effects of rewards per se. To the best of my knowledge, there are no studies testing intrinsic or extrinsic motivation as mediators between transactional leadership and creative performance. Studies of the effects of rewards on motivation and creative performance were for the most part performed on school children or college students (Deci et al., 1999; Eisenberger, et al., 1999a).

Contrary to CET assumptions that rewards instill control and undermine the feelings of autonomy, Eisenberger et al. (1999b) proposed that the promise or repeated use of rewards conveys that the individual giving the reward, in this case a leader, lacks control over the performance of the reward recipient - the follower. By giving the rewards repeatedly, a leader attempts to motivate and convince followers to perform as requested, thus, sending a message that followers have ultimate control over the performance. Also, the recipient has a choice of declining the reward and not acting as requested, which in itself emphasizes who is really controlling the performance results. Therefore, rewards should increase rather than decrease perceived autonomy. Eisenberger et al. (1999b) reported that rewards increased the perceived self-determination. On the basis of their findings, Eisenberger et al. (1999a, b) suggested that CET be modified to assume that reward increases perceived self-determination, autonomy and perceived competence, thereby increasing intrinsic motivation. Similarly, it could be argued that transactional leadership, with its repeated use of contingent rewards, enhances in followers a sense of achievement and self-confidence which in turn lead to elevated intrinsic motivation.

Research on leader-follower relationships has benefited from adopting the understanding of exchange relationships from social exchange theory (Blau, 1964; Sahlins, 1972). Blau (1964) introduced the dichotomy between social and economic exchange, which forms the ground for research on LMX, and can be applied to understanding the underlying processes of transformational and transactional leadership. According to social exchange theory, economic or contractual exchanges do not progress beyond what is specified in the employment agreement, whereas social exchange extends beyond requirements of the employment contract and creates feelings of personal obligation, gratitude and trust that economic exchange does not (Sparrowe & Liden, 1997; Liden, Sparrowe, & Wayne, 1997). Similarly, transactional leadership rests on purely economic exchange of contingent rewards in return for required performance. In contrast, transformational leadership is based on trust, respect for and faith in a leader that result from social interactions with a leader (Bass, 1985, 1996, 1999). As it was argued earlier, the effect of transformational leadership goes beyond that of transactional leadership (Bass & Avolio, 1993; Bass, 1998, 1999; Howell & Avolio, 1993; Avolio, 1999). Such an effect can be explained, in part, by the different motivational mechanisms of transformational vs. transactional leadership. Transformational leadership, by means of social exchange and influence on followers, activates intrinsic motivation. Transactional leadership,

rooted mostly in economic exchange, activates primarily extrinsic motivation in followers. However, as I noted earlier, by using contingent rewards, transactional leadership may enhance followers' sense of achievement and self-competence, which in turn could elevate intrinsic motivation. This effect of transactional leadership on intrinsic motivation, however, should be weaker than the effect of transformational leadership on intrinsic motivation due to the different nature of exchanges underlying leadership processes. Therefore, I propose:

Hypothesis 6: Transactional leadership positively relates to intrinsic motivation, but this effect is weaker than that of transformational leadership.

No hypothesis is offered here on the mediating role of intrinsic motivation in the relationship between transactional leadership and creative performance because of a limited theoretical rationale. I will explore this assumption of mediation.

3.5. Moderating constructs.

3.5.1. Followers' identification as moderating variable.

Contemporary leadership theories have been criticized for overemphasizing leader's traits and behaviors while neglecting followers' characteristics and their role in effective leadership (Yukl, 2006). Also, ambiguity about underlying influence processes has been identified as one of the conceptual weaknesses of leadership theories (Yukl, 1999). Recently, these issues have been addressed by focusing research on the role of followers' self-concept in leadership (D. van Knippenberg, B. van Knippenberg, De Cremer, & Hogg, 2004; Lord et al., 1999; Shamir et al., 1993).

According to identity theory (Stryker, 1968, 1980, 1987; R.H. Turner, 1978) and social identity theory (Tajfel & Turner 1979; J.C. Turner, 1982), the self-concept is defined as the knowledge a person has about him or herself. This knowledge is produced as a result of individual's social interactions and experiences. The self-concept is represented by a set of categories which are reflected through a distinct identity tied into a particular social context (D. van Knippenberg et al., 2004). Identities are hierarchically organized within the self-concept. The place in a hierarchy is defined by the identity salience, which is the probability that a particular identity will form the basis for action (Hogg, Terry, & White, 1995). The self-concept is very dynamic. Its content depends on a context in which a specific identity becomes activated or salient. The activated part of the self-concept is referred to as the working self-concept (Lord & Brown, 2004; Lord, et al., 1999). Only one of the identities may be activated in any specific context. The self-concept may be defined not only in terms of unique characteristics that distinguish the individual from others (the personal self), but

also may include significant others (the relational self or personal identification)[1]. At the collective level, self-concept is referred to as social identity (collective identification)[2]. Categorization of self and others into in-group and out-group is the underlying socio-cognitive process that defines social identity (Hogg et al., 1995). Personal, relational and collective self-concepts form three generic levels of self representation (Brewer & Gardner, 1996; Lord, et al., 1999). The salience of different self-concepts will vary across situations, group memberships and time (D. van Knippenberg et al., 2004). The identity positioned higher in salience within the hierarchy is linked more strongly to behavior.

Self-esteem is described as the evaluative component of self (D. van Knippenberg et al., 2004). Self-esteem is typically described as the degree to which people perceive themselves as capable, significant, and worthy (Gardner & Pierce, 1998). Self-esteem may stem from any dimension of the self (physical self, social self). The aggregate of these evaluations represents global self-esteem – the overall evaluation of personal worth that individuals make and maintain with regard to themselves (Rosenberg, 1965). Individuals' evaluations of themselves are grounded in their relationships with others (Ashforth & Mael, 1989; D. van Knippenberg et al., 2004). Social identity theory proposes that individuals identify with social categories to enhance self-esteem (Tajfel, 1978).

The self-concept has been proposed to be a mediator and a moderator of leadership effects on followers' outcomes (van Knippenberg et al., 2004). Shamir et al.'s (1993) self-concept based leadership theory posits identification and self-esteem as key mediating variables underlying the influence of charismatic leadership. However, there is only partial empirical support for their theory (Shamir, Zakai, Brenin, & Poper, 1998). Interestingly, Shamir et al. (1998) found that leader's behaviors emphasizing collective identity related positively to both subordinates' identification with and trust in the leader and subordinates' identification and attachment to their units. These findings reveal some inconsistency in theoretical interpretations of salient identity. Drawing from social identity theory, Lord et al. (1999) proposed that subordinates are unlikely to focus on more than one identity at a time. In contrast, Howell and Shamir (2005) argued that followers often identify with both the leader and the group. Shamir et al.'s (1998) findings support this argument. Leader's behavior directed at establishing collective identity in followers, in fact, activates personal identity with the leader as well.

There has been no empirical investigation of whether two identities can be activated simultaneously, though Brewer and Gardner (1996) provide an

[1] According to D. van Knippenberg et al. (2004), personal identification should not be confused with personal self. Personal identification is an identification with a particular other person (in this context with a leader) and is identical to the relational self. The personal self reflects the self-concept that does not include others in the sense of self.

[2] Social identification should be distinguished from internalization (Ashforth & Mael, 1989; O'Railly & Chatman, 1986). Identification refers to self in terms of social categories (I am); internalization refers to incorporation of values, attitudes, etc. (I believe) (Ashforth & Mael, 1989).

explanation for the phenomenon. They recognize the tension between needs and motives that promote differentiation of the self from others and those that promote assimilation and unit formation. At each level of self representation the opposing forces of assimilation and differentiation create a dynamic equilibrium that fluctuates with changes in distance between the self and others. Thus, at the level of relational self, individuals strive for a sense of uniqueness and, at the same time, seek intimacy with significant others. The collective identity is signified by a conflict between the necessity to satisfy simultaneously needs for inclusion with a group and individual distinctiveness.

There are a number of studies that found support for a mediating role of personal and collective identification in the relationship between leader behaviors and various followers' outcomes (De Cremer & van Knippenberg, 2002; Kark, Shamir, & Chen, 2003; Conger et al., 2000). Some studies report positive associations between transformational leadership behaviors and followers' identification (Kark et al., 2003; Conger et al., 2000; Paul, Costley, Howell, Dorfman & Trafimow, 2001; Shamir et al., 1998). However, there is no empirical evidence that followers' identification mediates between transformational or transactional leadership and creative performance.

Lord at al. (1999) integrated recent theory and research on the self-concept and leadership theory. They proposed that most effective leaders match their leadership behaviour to the predominant identity level of followers. The authors also speculated that when social exchanges between leader and followers emphasize differences among subordinates and stimulate individual level identities transactional leadership should be both common and effective. When leaders emphasize collective identity transformational leadership becomes more effective. Therefore, Lord et al. (1999) proposed that level of self-identity moderates the relationship of transactional and transformational leadership to attitudinal and performance outcomes. Specifically, they suggest that transactional leadership is most effective when followers' personal self is activated, whereas transformational leadership will be most effective when followers' relational or collective self is activated. Similarly, Kark and Shamir (2002) suggested that certain charismatic and transformational leadership behaviors are associated mostly with personal identification whereas others are associated mostly with social identification.

Most recently, building on earlier theorizing by Lord et al. (1999) and others (Brewer & Gardner, 1996), Howell and Shamir (2005) proposed that followers whose relational self (personal identification) is most salient will form a personalized charismatic relationship with the leader, whereas followers whose collective self is most salient will form a socialized charismatic relationship with the leader. Howell and Shamir (2005) defined personalized relationship as those in which followers are confused and disoriented before joining the relationship, and the relationship provides them with a clear sense of self and greater self-confidence. A socialized relationship is one in which followers have a clear sense

of self and a clear set of values, and the relationship provides them with means for expressing their values through collective actions.

There is empirical support for the above arguments. Kark et al. (2003) tested the relationship between transformational leadership, followers' personal and social identification, followers' empowerment and dependence on the leader. Contrary to common assumptions, the same type of leadership (transformational) associated simultaneously and positively with both empowerment and dependence. Kark at al. (2003) suggested that different mechanisms (personal or social identification) account for different outcomes (empowerment and dependence of followers) of transformational leadership. Interpreting these findings from a perspective suggested by Lord et al. (1999) and by Kark and Shamir (2002), perhaps transformational leadership primes both the relational self (evidenced by personal identification with the leader) and the collective self (evidenced by social identification with the unit), each leading to different consequences. Priming the relational self results in follower dependence on the leader, whereas priming the collective self results in followers' empowerment. In general, transformational leadership was more strongly associated with personal identification with the leader than with social identification.

There has been little empirical research done on the role of followers' identification in the relationship between transformational leadership behavior and followers' creative performance. The only available research of this relationship comes from Rode and Wang (2008). They hypothesized that personal identification with a leader positively moderates the relationship between transformational leadership and employee creativity such that the relationship is stronger when identification is high. In a sample of 212 dyads from multiple organizations, they found no support for this hypothesis. However, they also found that in a high innovative climate, the relationship between transformational leadership and creativity was stronger when identification with leader was high rather than low. In low innovative climates, the leadership-creativity relationship was not affected by identification with a leader. Also, when controlling for the effects of identification and innovative climate, transformational leadership was not significantly related to employee creativity. This research has a few important limitations. First, the authors did not examine separate dimension effects of transformational leadership. Second, they did not include collective identity as a moderator of the transformational leadership-creativity relationship.

Building on Rode and Wang (2008) and Lord et al. (1999) who proposed that followers' self-concept moderates the effects of transformational and transactional leadership on performance outcomes, I examine how followers' individual and collective identity intervene in the relationship between components of transformational leadership and followers' creative performance.

As shown by Kark et al. (2003), transformational leadership may lead to followers' sense of empowerment as well as their dependency on their leader through activating different aspects of followers' self concept. Following Shamir et al. (1993) and Howell and Shamir (2005), who link charismatic behavior to

followers' personal and collective identity, the charismatic component of transformational leadership may be partially responsible for this dual effect.

Indeed, charismatic leaders enhance collective identity by articulating a vision that relates a follower's self-concept to shared values and role identities associated with the group (Conger et al., 2000). Emphasizing the symbolic and ideological aspects of the work, charismatic leaders present work as meaningful, noble, and even heroic. Such behavior is likely to boost followers' motivation to offer changes, creative ideas, and innovations. On the other side, charismatic influence is based on strong personal identification with a leader and the follower's desire to please and imitate the leader. Followers idolize their leaders and measure their own self-worth based on their leader's approval of them. Desire for leader approval or fear of disappointing the leader becomes their primary source of motivation (Yukl, 2002, 2006). Strong personal identification creates loyal, obedient followers who are dependent on their leader (Kark et al., 2003). This inhibits followers from showing initiative, criticizing leaders' ideas or plans, challenging or deviating from them, or expressing their own creative ideas. Similarly, when the leader demonstrates individualized consideration he/she pays attention to the followers' needs; supports and coaches followers toward personal growth, thereby creating a very personalized, mentoring relationship with followers.

According to Howell and Shamir (2005), followers who form a personalized relationship with a leader are more likely to have blind faith and unquestionable obedience to the leader and to become dependent on the leader than followers who form socialized relationships. Also, personalized relationships with a leader are more likely than socialized charismatic relationships to lead to harmful consequences for the organization and its members. In this case, decreased creative performance will result when the leader displays individualized consideration to followers who personally identify themselves with a leader.

Transformational leadership through social identification creates empowered followers (Kark et al., 2003). Lowe et al. (1996) noted that, when a leader exhibits intellectual stimulation, he empowers followers to attain higher performance goals. Empowered followers are more likely than dependent followers to challenge the status quo, take initiative, offer-up creative ideas, and become more innovative.Based on the above arguments, I hypothesize that

Hypothesis 7a: Followers' identification moderates the negative effect of charisma on their creative performance such that its effect is stronger for followers with a personal identification than for followers with a collective identification.

Hypothesis 7b: Followers' identification moderates the positive effect of individualized consideration on followers' creative performance such that this

effect is less strong for followers with a personal identification than for followers with a collective identification.

Hypothesis 7c: Followers' identification moderates the positive effect of intellectual stimulation on followers' creative performance such that this effect is less strong for followers with a personal identification than for followers with a collective identification.

3.5.2. Followers' self-esteem as moderating variable.

Self-esteem has been identified as an important variable in the relationship between leader's behaviors, followers' self-concept and followers' creative performance (van Knippenberg et al., 2004; Zhou & Shalley, 2003). However, the role of followers' self-esteem in these relationships remains unclear. Shamir et al. (1993) proposed that followers' self-esteem mediates the effects of leader's behavior on followers' outcomes. The theoretical literature on the role of followers attributes in leadership processes suggests that different components of transformational leadership affect followers with different levels of self-esteem. For example, early research on charisma by political scientists and psychoanalysts (Downton, 1973; Kets de Vries, 1988, cf. Conger, 1999) proposed that charismatic leaders were more likely to attract followers who, due to their dependent character, were easily molded and persuaded by the dynamic personality of their leader. Yukl (1999) suggests that followers are more susceptible to charismatic influence if they are insecure, alienated, and fearful about their physical safety or economic security; they lack self-esteem, and have a weak self-identity. Apparently the level of followers' self-esteem and the state of their self-concept is closely connected.

Conger (1999) notes that, from the psychoanalytic view point, low self-esteem followers attempt to resolve a conflict between who they are and what they wish to become by substituting their leader as their ego ideal. Some psychoanalysts (Erikson, 1968; Downton, 1973, cf. Conger, 1999) trace this need back to an individual's failure to mature in adolescence and young adulthood. Because of absent, oppressive, or weak parents, individuals may develop a state of identity confusion. Associating emotionally with a charismatic leader is a mechanism of coping with this confusion and achieving maturity. Given that the leader is, in essence, a substitute parent and model, a powerful emotional attachment and identification with the leader is formed by followers. In part, followers are fulfilling a pathological need rather than a healthy desire for role models from whom to learn and grow (Conger, 1999). Gardner and Avolio (1998) note that a charismatic leader offers followers with low self-esteem an idol whom they can believe in, express their affection towards, admire and from whom they experience higher self-esteem.

There has been little research to support the above propositions. However, some support for these dynamics is found in research on cults and certain political movements. For example, studies (Freemesser & Kaplan, 1976; Galanter, 1982; cf. Conger, 1999) have shown that followers of charismatic political and religious leaders have lower self-esteem, a higher intolerance for indecision and crisis, greater feelings of helplessness, and more experiences of psychological distress than others. Because these studies were almost entirely conducted on populations of individuals who voluntarily joined movements, the situation can be quite different in the corporate world.

Indeed, an alternative perspective is that charismatic leaders attract high esteem followers as well as those with low self-esteem. High esteem individuals are attracted to transformational leaders because of a more constructive identification with the leader's abilities, a desire to learn from them, a quest for personal challenge and growth, and the attractiveness and rewards of the mission. Bass (1985) proposed that high self-esteem, confident followers see the opportunity to fulfill their higher order needs in this relationship. However, individuals with relatively low self-esteem or less confidence are more likely to pay attention to competent role models than individuals with high self-esteem (Zhou, 2003). Sidani (1993) speculated that although low-esteem and emotionally distressed followers may be drawn by charisma, they would have difficulty "surviving" under charismatic business leaders. In fact, Sidani (1993) has found that high (rather than low) self-esteem individuals attributed more charisma to business leaders who gave charismatic speeches.

I believe the answer to this controversy can be found if one examines separate interactions of the components of transformational leadership with followers' self-esteem. Perhaps, leader's charismatic behaviors attract low esteem followers, whereas, individualized consideration and intellectual stimulation are more appealing to high esteem individuals. I suggest that role modeling, symbolism, displays of confidence and determination by a charismatic will potentially affect low esteem individuals more strongly than those with high esteem. Zhou (2003) also argued that individuals with less prior experience, less confidence or lower self-esteem would be more likely to look for, and be influenced by, role models because the model's behaviors and strategies could serve as behavioral standards, guidance or sources of inspiration. On the other hand, high self-esteem followers, more than their low self-esteem counterparts, are likely to find the developmental support, coaching, mentoring, intellectual stimulation, and challenge provided by transformational leaders appealing.

Previous arguments also suggest that low esteem followers are more likely to personally identify with a leader. As discussed earlier, personal identification with a leader is most likely to result in low creative performance. Also, results of creativity research imply that low self-esteem followers are less likely to be creative (Zhou, 2003). For example, Rank, Nelson and Xu (2004) reported that supervisors' transformational leadership was considerably less strongly associated with subordinates' creativity (but not innovation) for low self-esteem employees.

Brockner et al. (1998) pointed out that individuals who have high self-esteem are more likely to express voice, because they tend to believe that their actions will be influential and effective. Zhou and George (2001) further argued that such employees will more positively react to such negative contextual conditions as job dissatisfaction by exhibiting greater creativity than low self-esteem employees.

Therefore, I hypothesize that followers' self-esteem moderates the relationship between components of transformational leadership (charisma, individualized consideration and intellectual stimulation) and followers' identification. Specifically:

Hypothesis 8a: Charisma relates more positively to personal self-identification with leader than does individualized consideration and intellectual stimulation for low self-esteem followers.

Hypothesis 8b: For high self-esteem followers individualized consideration relates more positively to followers' collective identification than does leader charisma.

Hypothesis 8c: For high self-esteem followers intellectual stimulation relates more positively to followers' collective identification than does leader charisma.

Hypothesis 9a: Followers' self-esteem moderates the relationship between charisma and followers' creative performance such that it is more negative for low self-esteem followers than for high self-esteem followers.

Hypothesis 9b: Followers' self-esteem moderates the relationship between individualized consideration and followers' creative performance such it is more positive for high self-esteem followers than for low self-esteem followers.

Hypothesis 9c: Followers' self-esteem moderates the relationship between intellectual stimulation and followers' creative performance such it is more positive for high self-esteem followers than for low self-esteem followers.

Chapter 4. Methodology

4.1. Introduction

This chapter includes three sections. The first describes the participants and the data collection procedure. The second discusses the measures used. The final section provides an overview of the analytic strategies used in testing the hypotheses of my model (Figure 1).

4.2. Sample and procedure

This study was originally intended to sample employees and their supervisors in the Canadian banking industry. However, the data collection from this original sample was not successful. Given the time constrains of the project and difficulty of securing another employee sample, I relied on more easily accessible sample. Specifically, data were collected from graduate students (Masters, PhD and post-doctorate) and their academic supervisors of a medium sized Canadian university.

The literature on academic mentoring defines mentors as individuals who use their experience to give advice, to challenge and guide their protégés in personal and professional development, and to generally help their protégés achieve their goals (Kea, Penny, & Bowman, 2003; LeCluyse, Tollefson, & Borgers, 1985; Dua, 2007). Although an academic environment is quite different from a business environment, the student-supervisor relationship is similar to the leader-subordinate workplace relationship in many ways. For example, students work under supervision of their mentors to achieve specific performance goals and standards; they expect to receive the guidance and inspiration as well as rewards and acknowledgement of their contributions from the supervisors.

Data were collected by means of an on-line survey operated by "Lime Survey" software. 1256 students and 389 supervisors were invited by e-mail to participate in the survey. Supervisors were asked to rate creative performance of each of their students. An identification code was assigned to each respondent allowing for matching of responses of supervisors with those of their students. For their participation in the study, participants' ID codes were entered into a draw to win one of the two (for supervisors) and one of the three (for students) $100 gift certificates from the store of the winner's choice. Two follow-up reminders resulted in the return of 246 student surveys (19.6% response rate) and 59 supervisor surveys (15.2% response rate). After matching the responses, a total of 44 dyads comprised the final sample for the study. For students, 45.5% were male. The average age of students was 29.3 years (sd = 6.29 years). For supervisors, 81.8% were male. The average age of supervisors was 46.93 years (sd = 9.5 years). The average relationship tenure was 27.93 months (sd = 17.23 months).

4.3. Measures

4.3.1. Independent variables

Transformational and transactional leadership. Transformational leadership was measured with the Podsakoff et al. (1990) scale modified to fit the nature of the sample. The scale consists of 23 items measuring six dimensions: articulating a vision, providing an appropriate model, fostering the acceptance of group goals, high performance expectations, providing individualized support, and intellectual stimulation. Sample items include, "Paints an interesting picture of the future for his/her graduate students" (articulating a vision), "Leads by example"(role-modeling), "Encourages students and/or post-doc fellows to be "team players" (acceptance of group goals), "Insists on only the best performance" (performance expectations), "Shows respect for my personal feelings" (individualized consideration), "Challenges me to think about old problems in new ways" (intellectual stimulation). The first three dimensions (articulating a vision, providing appropriate model and fostering the acceptance of group goals) form a second-order latent construct - so called "core transformational leader behaviors" (Podsakoff et al., 1990). These behaviors, together with the high performance expectations factor, are conceptually equivalent to the charisma-inspiration dimension that emerges in most factor analyses of responses to the MLQ (Bass, 1999; Avolio, Bass, & Jung, 1999). Podsakoff et al. (1990) report the following reliabilities for their dimensions: core transformational leader behaviors (α=.87), high performance expectations (α=.78), individualized support (α=.90) and intellectual stimulation (α=.91).

Transactional leadership was measured with three items from Podsakoff et al.'s (1990) five item scale of contingent reward behavior. Sample item "Gives me special recognition when my work is very good". The reported Cronbach alpha is α=.92.

I chose the Podsakoff et al. (1990) measure of transformational and transactional leadership over Bass's MLQ for several reasons. There is an ongoing debate on whether the original dimensions of transformational leadership articulated by Bass (1985) are empirically separable (Avolio et al., 1999) or show discriminant validity (Bycio et al., 1995). The mean correlation among the dimensions is .83 (Judge & Piccolo, 2004). Accordingly, many researchers combine the dimensions into a higher order transformational leadership factor. Overall, then, the dimensionality of transformational leadership as measured by MLQ remains questionable. High correlations among the dimensions of transformational leadership of the MLQ also present a statistical problem of multicollinearity. Also, contingent rewards as measured by the MLQ relates more strongly to the subscale scores of transformational leadership than to scores on the other transactional leadership scales (e.g. management by exception; Bycio et al., 1995; Goodwin, Wofford, & Boyd, 2000; Wofford, Goodwin, & Whittington, 1998). Contingent reward correlates highly (p = .80) with transformational leadership (Judge & Piccolo, 2004). The Podsakoff et al. (1990) measure of leadership provides a better differentiation between dimensions of transformational leadership and transactional behaviors (the mean correlation

among the dimensions is .58). As the major focus of my study is to examine the separate effects of leadership dimensions, the Podsakoff et al. (1990) scale is most suitable.

Another reason for using the Podsakoff et al. (1990) scale is that it includes leadership behaviors that enhance collective identity in followers. These behaviors are reflected in a component "Fostering the acceptance of group goals" and include: "Fosters collaboration among graduate students and peers"; "Encourages graduate students and/or post-doc fellows to be "team players"; "Develops a team attitude and spirit among student and peers". As I propose to examine the effect of followers' identity levels on the relationship between leadership styles and followers creative performance, I consider the Podsakoff et al. (1990) measure as more comprehensive than the MLQ.

4.3.2. Dependent variables

Creative/innovative performance. There are three types of creativity measurement known in the literature (Zhou & Shalley, 2003). The first is Amabile's consensual assessment technique (Amabile, 1983, 1996; Shalley, 1991, 1995; Shalley & Perry-Smith, 2001; Zhou, 1998; Zhou & Oldham, 2001). With this technique, two or more raters serve as expert judges. The judges normally have relevant educational degrees and years of work experience. They are usually asked to independently rate the overall creativity of each solution or product on a scale ranging from "not at all creative" to "extremely creative". Some studies used a 7-point scale, others an 11-point scale. If inter-judge reliability (the extent to which the ratings are consistent) and inter-judge agreement (the extent to which the judges assigned the same rating to each solution) are acceptable – a creativity score is computed.

The second way of measuring creativity - supervisor ratings - is the most commonly used method in field research. There are five scales available: 1) George and Zhou's 13-item scale (3 of the 13 items were adapted from Scott & Bruce, 1994) (see George & Zhou, 2001, 2002; Shin & Zhou, 2003; Zhou, 2003; Zhou & George, 2001); 2) Oldham and Cummings' (1996) 3-item scale; 3) Scott and Bruce's (1994) 6-item scale; 4) Tierney et al.'s (1999) 9-item scale (4 of these nine items were adapted from Ettlie & O'Keefe, 1982); 5) Ettlie and O'Keefe (1982). Some scales emphasize innovation more than creativity (Scott & Bruce, 1994); others are more balanced (George & Zhou, 2001).

Finally, the third way of measuring creativity is to rely on non-rating outcome such as the number of patents, patent disclosures, research papers and technical reports, and ideas submitted to employee suggestion programs.

I used 7 items from a 9-item supervisor rating questionnaire to measure followers' creative performance (Tierney et al., 1999; Tierney & Farmer, 2002). Prior research used six and four items from the original Tierney et al. (1999) scale (Tierney & Farmer, 2002; Farmer & Tierney, 2007). Both derivative scales demonstrated good internal consistency. I choose items that were the most appropriate for the sample and omitted the two items: "Solves problems that had

caused others difficulty", and "Generated ideas revolutionary for our field". On a 6-point scale ranging from 1 "never" to 6 "always" supervisors familiar with their students ' performance indicate how often each statement characterize a student. Sample behaviors are "Demonstrates originality in his/her work", "Tries out new ideas and approaches to problems". Each student was rated by one supervisor. The ratings were averaged for each student. The Chronbach alpha reported for this scale is .96 (Tierney & Farmer, 2002).

There has been a call to use both supervisor ratings and objective measures of creativity (e.g. patent disclosures) and to check the degree of convergence across them (Zhou, 2003; George & Zhou, 2001). However, supervisor ratings and objective measures of creativity are only modestly correlated ($r = .33$, $p < .001$; Scott & Bruce, 1994); $r = .29$, $p < .01$ (Tierney et al., 1999). Accordingly, I used only supervisor ratings of creativity.

4.3.3. Mediating variables

Followers' intrinsic motivation. Followers' intrinsic motivation was measured by Intrinsic Motivational Orientation scale (Tierney et al., 1999). On a 7-point scale ranging from 1 (Strongly Disagree) to 4 (Strongly Agree), respondents assessed the degree to which they were intrinsically motivated to be creative. The scale consists of 5 items. Sample items include: "I enjoy finding solutions to complex problems"; "I enjoy engaging in analytical thinking". Reported reliabilities range from $\alpha = .74$ (Tierney et al., 1999) to $\alpha = .84$ (Shin & Zhou, 2003).

4.3.4. Moderating variables

Social identification. I used 6 items from the original Mael and Ashforth (1992) scale of social identification. This scale was later used to construct the 8-item Kark et al. (2003) measure of social identification in which 2 more items were added from Shamir et al. (1998). Given constrains on the total number of items in my survey, I decided to use the shorter scale. On a 7-point Likert-type scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree), respondents indicated the extent to which they agree with each statement. Sample items are: "When I talk about (name of the org), I usually say "we" rather than "they"; "I am very interested in what others think about (name of the org)". Cronbach $\alpha = 0$ .80 (Kark et al., 2003).

Personal identification .I used 6 items similar to those of the social identification scale to measure personal identification (Kark et al., 2003). However, for the personal identification scale the items are rephrased to focus on the supervisor rather than the organization. Sample items are: "My academic superior's successes are my successes"; "I have complete faith in my academic supervisor". Reported reliability is $\alpha = 0.96$ (Kark et al., 2003).

Followers' self-esteem. Followers' self-esteem was measured by 6 items from Rosenberg's (1965) Self-Esteem scale. This 10-item scale has been commonly used to measure adolescents' global feelings of self-worth and is the

standard against which other measures of self-esteem are evaluated (Blascovich & Tomaka, 1991; Judge, Erez, Bono, & Thoresen, 2003). The scale is typically scored in a four-point response format ranging from "strongly agree" to "strongly disagree" resulting in a range of 10-40. The higher score represents higher self-esteem. However, it has also been adapted to a Likert-scale with 5- and 7-point response formats. I used 7-point response format. The sample items include: "I feel that I am person of worth, at least on an equal basis with others"; "I take a positive attitude toward myself". There is considerable support for the construct validity of this scale (Blascovich & Tomaka, 1991). Reported reliabilities have ranged from $\alpha = 0.77$ (Dobson, Goudy, Keith, & Powers, 1979) to $\alpha = 0.88$ (Fleming & Courtney, 1984).

I preferred this scale over other measures of self-esteem because of its psychometric properties, short format and ease of administration and scoring. For example, the 12-item core self-evaluation scale measures a broad, higher-order trait indicated by self-esteem, generalized self-efficacy, emotional stability and internal locus of control (Judge et al. 2003). However, for the purposes of my research I needed to measure self-esteem as a separate construct not blended with other personality traits. In this regard, Rosenberg's scale is a better choice. Also, in order to keep the total number of items on the survey to the possible minimum, I referred to the early exploratory factor analysis study of the original 10-item scale by Carmines and Zeller (1979) and included only items that loaded more than .60 on their respective factor.

4.3.5. Control variables

I have included several control variables suggested by prior research. Age is an important control variable that might influence leadership effects on employees' creative performance (Mumford, et al., 2002; Jung et al., 2003).Gabriel and Gardner (1999) argued that there are gender differences in identity levels. According to social role theory, women adopt a more nurturing social role that is oriented to one-on-one relationships (Lord & Braun, 2004). Gabriel and Gardner (1999) further proposed that women adopt an interdependent identity at the relational rather than at the collective level. For example, women's social interactions are characterized more by cooperation, intimate friendships and efforts to maintain interpersonal harmony (Gabriel & Gardner, 1999). In contrast, men adopt a more competitive interpersonal identity (Gabriel & Gardner, 1999). Specifically, they do not define themselves in terms of personal relationships as readily as women; their interactions are characterized more by demonstration of dominance and competitiveness within the group, and by behavior that enhances their personal status and success rather than maintaining or deepening personal relationships (Gabriel & Gardner, 1999; Lord & Braun, 2004). Therefore, I included gender as a control variable. Age and gender was measured directly in the questionnaire.

Individuals' educational level is associated with creativity through task related expertise (Amabile, 1988; Mumford & Gustafson, 1988; Mumford, et al.,

2002; Wang et al., 2005; Jung et al., 2003). According to Amabile's componential model of creativity (Amabile, 1988, 1996), there are three components of creativity: domain-relevant skills, creativity-relevant processes and task motivation. Domain-relevant skills refer to knowledge and expertise in a given task domain. It follows that individuals who are more knowledgeable of certain tasks have a better opportunity to be creative. Therefore, I controlled for respondents' educational level. I measured educational level with a 3-point scale ranging from 1 (Master's degree) to 3 (Post Doctorate degree).

Organizational tenure has been identified as another moderator of the relationship between leadership and followers' creative behavior (Baer et al., 2003; Jung et al., 2003; Mumford, et al., 2002). However, given the nature of the present sample, it seemed more appropriate to control for the tenure of the relationship between student and supervisor and the extent the supervisor and student liked each other. Relationship tenure was measured in number of months the supervisor and student knew each other. Supervisor-student liking was assessed with 2 items from a 4-item liking scale (Wayne & Ferris, 1990). Items mirror each other for student and supervisor versions. Sample item: "I like my academic supervisor very much". Reliability for the scale is $\alpha = 0.94$ (Wayne & Ferris, 1990).

Job complexity moderates the relationship between transformational leadership and followers' creative performance (Wang et al., 2005); as well as the relationship between contingent rewards and employees' creative performance (Baer et al., 2003). Moreover, job complexity positively contributes to creative self-efficacy, which in turn positively predicts employees' creative performance (Tierney & Farmer, 2002). I measured "job" complexity with a 10-item revision of the Job Diagnostic Survey (Hackman & Oldham, 1976, 1980; Idaszak & Drasgow, 1987; Piccolo & Colquitt, 2006), $\alpha = .90$ (Piccolo & Colquitt, 2006). On a 7-point scale from 1 (Very Inaccurate) to 7 (Very Accurate) respondents indicate how accurate each of the items describes the complexity of the work (i.e. thesis/research project) they are doing with their supervisor. Sample items include: "The work requires me to use a number of complex or high-level skills"; "The work is quite simple and repetitive". The items were averaged for each student.

Individuals' cognitive style has been recognized as an important moderator of leadership effects on employees' creativity (Tierney et al., 1999; Baer et al., 2003) as well as a predictor of employees' creativity (Jaskyte & Kisieliene, 2006). Employees' cognitive style was measured by 17 items from the Kirton Adaptation-Innovation Inventory (KAI) (Kirton, 1976). This is a 32-item instrument that consists of three sub-scales: originality, efficiency and conformity. On a scale ranging from (1) "very hard" to (5) "very easy", respondents indicate how difficult it is for them to present themselves as a certain type of person. The scores for 17 items are summed to derive an overall KAI score, with high scores indicating innovative cognitive style and low scores – adaptive style. Over the

years, KAI has demonstrated acceptable reliability with Cronbach's α ranging from 0.79 to 0.91 (Baer et al., 2003; Brown, 2001).

4.4. Data analysis

Descriptive statistics, reliability coefficients and zero-order correlations were computed and analyzed. For hypothesis testing I used hierarchical liner regression. As illustrated in Figure 1, the conceptual model includes paths to test for partial mediation of intrinsic motivation in relationships between components of transformational leadership (individualized consideration and intellectual stimulation) and followers' creative performance (H 5).

Chapter 5. Results

This chapter reports results from the data analysis and hypotheses testing.

5.1. Zero-order correlations

Zero-order correlations, means, standard deviations and reliability coefficients are presented in Table 2.

The charisma component of transformational leadership associated positively with personal identification ($r = .39$, $p < .01$) and self-esteem ($r = .48$, $p < .01$). Individualized consideration related positively to students' liking of their supervisor and personal identification with the supervisor (both $r = .44$, $p < .01$). Intellectual stimulation correlated positively with self-esteem ($r = .50$, $p < .01$).

Charisma, individualized consideration and intellectual stimulation all showed high and significant ($p < .01$) inter-correlations and correlations with transactional leadership, suggesting a possible multicollinearity problem. Of all leadership dimensions, only charisma and transactional leadership had significant associations with supervisor-rated creativity ($r = .39$, $p < .01$ and $r = .36$, $p < .05$ respectively). Supervisor ratings of creativity positively correlated with job complexity ($r = .45$, $p < .01$), relationship tenure ($r = .46$, $p < .01$) and supervisor liking the student ($r = .60$, $p < .01$).

5.2. Hypotheses Testing

Hierarchical regression analysis was used for hypothesis testing. Of the ten control variables only three had significant coefficients ($p < .01$) in predicting creativity (see Table 3.). These variables are student education ($\beta = .35$), job complexity ($\beta = .34$), and supervisor liking ($\beta = .53$). Supervisor liking explained a significant amount of variance in supervisor ratings of student creativity, thus, supporting the concern that these two measures may be confounded. For further analysis, due to a small sample size, only supervisor liking was controlled for when testing Hypotheses 1-4. For testing the remaining hypothesis, no controls were used.

Table 4 summarizes the regression results for Hypothesis 1, 2 and 3. Hypothesis 1 stated that leader's charismatic behavior has either a neutral or direct negative effect on followers' creative performance. Hypothesis 2 and 3 stated that both individualized consideration and intellectual stimulation relate positively to creative performance. In step 1, the control variable (supervisory liking) was entered. In step 2, I entered charisma, individualized consideration and intellectual stimulation. None of the coefficients for transformational leadership behaviors was significant. Thus, Hypotheses 1 through 3 were not supported. When creativity was separately regressed on each of the components of transformational leadership controlling for supervisor liking of the student, the results remained non significant (see Table 5).

Also the collinearity test shows a multicollinearity problem for intellectual stimulation – the condition index is more than 30, and two of the variance proportions are more than 50 (Tabachnik, & Fidell, 2001). The condition index is

the square root of the largest eigenvalue divided by the smallest eigenvalue. When there is no collinearity, the eigenvalues and condition index will equal one. As collinearity increases, eigenvalues will be both greater and smaller than 1 (eigenvalues close to zero indicate a multicollinearity problem), and the condition index will increase. An informal rule of thumb is that if the condition index is 15, multicollinearity is a concern; if it is greater than 30 multicollinearity is a very serious concern (Belsley, Kuh, & Welsch, 1980). The variance proportion indicates the relative contribution from each principal component/variable to the variance of each regression coefficient (Freud & Wilson, 1998). Tabacknik and Fidell (2001) suggest that if a variable/component has more than one variance proportion greater than .50, multicollinearity is a concern.

Using the same procedure as used above, Hypothesis 4 (a direct positive relationship between transactional leadership and followers' creative performance) was tested. Table 6a summarizes the regression results for Hypothesis 4, showing that it was not supported. However, when creativity was regressed separately on charisma and transactional leadership (including no controls), both charisma and transactional leadership positively predicted creativity to a similar degree ($\beta = .39$, $\rho < .01$ for charisma; $\beta = .36$, $\rho < .05$ for transactional leadership) (see Table 6b).

To test the mediating effect of intrinsic motivation in the relationship between individualized consideration, intellectual stimulation, and creativity (Hypotheses 5a and 5b), the procedure suggested by Baron and Kenny was followed (1986). With respect to hypothesis 5a, intrinsic motivation was regressed on individualized consideration (Model 1, Table 7a), and separately, creativity was regressed on individualized consideration (Model 2, Table 7a). In Model 3 (Table 7a), creativity was regressed on both individualized consideration and intrinsic motivation. I followed the same procedure to test for Hypothesis 5b (see Table 7b). Intellectual stimulation predicted intrinsic motivation for creativity ($\beta = .35$, $\rho < .05$) but not supervisory ratings of students' creativity per se. Accordingly, the results provide no support for the mediation described in Hypotheses 5a and 5b. However, further analysis shows that self-esteem fully mediates the effects of intellectual stimulation ($\beta = .24$, $\rho < .10$) and job complexity ($\beta = .31$, $\rho < .05$) on intrinsic motivation for creativity (Table 7c). With self-esteem included as an independent variable ($\beta = .29$, $\rho < .10$), both the effects of intellectual stimulation and job complexity on intrinsic motivation for creativity decreased in magnitude and became non significant.

The results of testing Hypothesis 6 about the positive effects of transactional leadership on intrinsic motivation are provided in Table 8. Hypothesis 6 was not supported.

To test Hypotheses 7a, in steps 1 through 3, I regressed creativity on charisma, personal identification and the interaction between charisma and identification (Table 9a). To test Hypothesis 7b, I followed the same procedure to regress creativity on individualized consideration, collective identification, and

the interaction between consideration and identification (Table 9b). Finally to test Hypothesis 7c, I regressed creativity on intellectual stimulation, collective identification and the interaction between stimulation and identification (Table 9c). Results presented in Tables 9a, 9b and 9c do not support Hypothesis 7a, 7b and 7c, and show multicollinearity for the interaction terms.

To test Hypothesis 8a, in steps 1 through 3, I regressed personal identification on charisma, self-esteem and the interaction between charisma and self-esteem (see Table 10a). To test Hypothesis 8b, following similar procedure, I regressed collective identification on individualized consideration, self-esteem and the interaction between consideration and self-esteem (Table 10b). Finally, to test Hypothesis 8c I regressed collective identification on intellectual stimulation, self-esteem and the interaction between stimulation and self-esteem (Table 10c). Results presented in Tables 10a, 10b and 10c do not support Hypothesis 8a, 8b and 8c, and show multicollinearity for the interaction terms. However, the results show that self-esteem fully mediates the effect of intellectual stimulation (β =.30, $\rho < .05$) on collective identification. When self-esteem was entered into the regression ($\beta = .40$, $\rho < .01$) in step 2, the coefficient for intellectual stimulation decreased to $\beta = .10$ and became non significant, whereas the explanatory power of the model increased ($\Delta R2 = .12$).

To test Hypotheses 9a, I first regressed creative performance on charisma. In step 2 and 3 I regressed creativity on charisma, self-esteem, and the interaction between self-esteem and charisma (see Table 11a). To test Hypothesis 9b, I followed the same steps to regress creativity on individualized consideration, self-esteem, and the interaction between self-esteem and consideration (Table 11b). Finally, I regressed creativity on intellectual stimulation, self-esteem, and the interaction between self-esteem and intellectual stimulation (Table 11c). Results presented in Tables 11a though 11c do not support Hypothesis 9a, 9b and H9c, and show multicollinearity for the interaction terms.

Chapter 6. Discussion.

6.1. Overview of findings

The present study aimed to explore the separate effects of the transformational leadership component (charisma, intellectual stimulation, individualized consideration) and transactional leadership on follower creative performance. The second goal of this investigation was to test for a mediating effect of intrinsic motivation in the relationship between transformational components and follower creativity. Finally, I tested for possible moderating effects of followers' identity and self-esteem on associations between leadership behaviors and employees' creative performance. The results of the study do not support the proposed hypotheses. A discussion of the implications of these findings follows.

6.1.1. Main effects.

Although the hypotheses about main effects of transformational leadership dimensions and transactional leadership on follower creativity were not supported, the results indicate that charisma ($\beta = .39$, $\rho < .01$) and transactional leadership ($\beta = .36$, $\rho < .05$) positively predicted creativity in the absence of any controls (see Table 6b). Due to a small sample size, the statistical power of the model is compromised with any additional independent variables added. Therefore, it may be worthwhile to interpret these findings with no controls included. The positive association between charisma and follower creativity was contrary to the hypothesized direction. In previous research, charismatic behaviors showed no effect or even negative associations with creativity when examined separately from other transformational leadership behaviors (Basu & Green, 1997; Strickland & Towler, 2005). However, findings reported in these studies were based on manufacturing samples. This suggests contextual boundaries around the influence of transformational leadership. Specifically, in the context of academia, where creativity is a part of successful performance, charismatic behaviors of academic supervisors positively predict students' creative performance. On the other hand, charisma appears less effective in highly routine, low creativity-demanding manufacturing environments as shown by previous investigations (Basu & Green, 1997; Strickland & Towler, 2005). Future research should examine the role of context in associations between components of transformational leadership and follower creativity.

The observed positive effect size between transactional leadership and follower creativity was in the predicted direction. It provides an additional argument in support of general behavior theory about the positive effects of contingent rewards on creativity (Maltzman, 1960; Pryor, Haag, & O'Reilly, 1969; Skinner, 1953; Torrance, 1970; Winston & Baker, 1985; Eisenberger, Armeli, & Pretz, 1998; Eisenbeger & Rhoades, 2001).

Interestingly, the effect sizes of both charisma and transactional leadership are similar in magnitude. These results are consistent with a recent meta-analysis

of the effects of transformational and transactional leadership on follower creativity (Kuzmenko, 2008). In this meta-analysis, Kuzmenko (2008) reported positive average effect size of both transformational and transactional leadership (ρ=.21 for transformational and ρ=.18 for transactional). Also, the magnitude similarity of the effects of both leadership styles in the present study is consistent with findings of Judge and Piccolo (2004) in their meta-analysis of leadership style (transformational and transactional leadership) and job performance. Specifically, they reported that contingent reward leadership had validity levels comparable with those of transformational leadership, and that the difference in overall validities was small (.39 vs. .44, respectively). These findings suggest a conceptual connection between transformational and transactional leadership. Contingent reward may be similarly effective in enhancing creative performance as is transformational leadership, though specific transformational components may well be more predictive (see Bass & Avolio, 1994). However, Judge and Piccolo (2004) contend that the superiority of one leadership style over the other is dependent on context.

Over several decades of transformational leadership research, transactional leadership was often downgraded by leadership scholars. For example, Yukl (2006) notes that transactional leadership is defined mostly in a negative way, whereas, transformational leadership suffers from a bias toward heroic conceptions of leadership. The present finding, although based on a modest sample, suggests that transactional leadership is no less effective than transformational leadership in influencing followers' creativity, and deserves more research attention from both leadership and creativity scholars. Specifically, research should examine the extent to which followers distinguish between transformational and transactional leadership perceptions as the two are highly correlated (Judge & Piccolo, 2004).

The present results also complement the findings of research on academic mentoring. Specifically, prior studies indicate that academic mentors have generally positive effects on students' productivity (i.e. number of publications) and overall academic success (i.e. grades) (Goldstein, 1979; Kelly & Schweitzer, 1997; Cronan-Hillix T., Gensheimer, Cronan-Hillix W., & Davidson, 1986). For example, in recent research on the mentoring relationship in graduate school, Tenenbaum, Crosby, and Gliner (2001) reported that supervisors' instrumental help (i.e. giving feedback and helping to improve presentation and writing skills) and assistance with networking positively predicted students' productivity in terms of number of publications, posters and conference talks.

6.1.2. Supervisors' liking of their students and ratings of their student's creativity.

I used supervisors' ratings to measure students' creativity. Also, I controlled for supervisors' liking of students as a proxy for the quality of the supervisor-student relationship. The results indicate that supervisors' ratings of creativity positively correlated with their liking of their student ($r = .60$, $p < .01$). This finding is consistent with previous research on leader-follower relationships

and creativity (Scott & Bruce, 1994; Tierney et al., 1999). However, such a high correlation suggests that the supervisory measure of creativity may be confounded by supervisor liking of the student. In other words, supervisors may rate the students they like most as creative (i.e. "I like this student, hence he/she must be quite creative). Concerning the positive association between relationship tenure and supervisory ratings of student creativity, perhaps, the supervisor best observes a student's creativity in the later stages of thesis development. This represents another contextual influence on the relationship.

On the other hand, perhaps supervisors are inclined to like students who are creative (i.e. "this student is creative, therefore I like him/her"). Supplementary analysis provides initial support for this proposition. Specifically, students' creative performance predicted supervisors' liking of their students (β = .56, $p < .001$), controlling for relationship tenure, student age and student gender (See Table 12a). Unfortunately, given the constraints of a cross-sectional design, no conclusion about the causality of the relationship between ratings of creativity and liking can be made.

Finally, a third explanation for the relationship between supervisor liking and student creativity is that supervisors tend to spend more time and effort with students they like, which in turn contributes to students creative performance. This reasoning is consistent with leader-member exchange theory that includes liking as an affective mechanism of the exchange (Dienesch & Liden, 1986). Also, positive correlations between supervisor liking and charisma ($r = .35$, $p < .05$), and transactional leadership ($r = .47$, $p < .05$) suggest that supervisors exert more influence on - and provide more resources, feedback and rewards to - students they like, which, in turn, contributes positively to their students' creativity.

Future research should use longitudinal designs to ascertain causal relationships between supervisor liking and follower creativity. No previous research on transformational and transactional leadership and creativity has controlled for supervisor liking of their subordinates. Future studies of the influence of leadership on creativity should account for the effect that supervisor's liking of their subordinates has on their ratings of their students' creativity.

6.1.3. Supplementary results

A supplementary analysis of the data revealed that student gender contributes negatively to supervisor liking ($b = -.22$, $p < .10$; females coded 0, males coded 1) when controlling for the effect of student' creativity ($b = .59$, $p < .001$) (Table 12b). Eighty-two percent of the supervisors and forty-six percent of the students were male. This result may suggest that male students were less liked than were their female counterparts.

Finally, students' creativity fully mediated the relationship between relationship tenure and supervisor liking of students when controlling for student age and gender (see Table 12a). The coefficient for tenure as a predictor of

supervisor liking dropped from $b = .34$, $p < .05$ to $b = .067$ and became non significant when controlling for perceived creativity, suggesting full mediation. These results suggest that leader liking of a follower can be enhanced by followers' creative performance.

6.2. Practical implications

This study provides practical implications for both individuals and organizations. With respect to individuals, results suggest that in work contexts where creativity is highly valued, supervisors may simply like creative followers. They may also devote more attention and invest more time and resources into followers they like, thereby creating facilitating conditions for creativity. With respect to organizations, it appears that leader charisma and contingent rewards have an equally positive influence on the creativity of subordinates. Perhaps leaders can compensate for their lack of charisma in efforts to stimulate creativity among followers through providing timely feedback, clearly articulating performance expectations and rewarding followers when these expectations are met. However, context is likely to be important, such that leader administered contingent rewards may be more effective than leader charisma in highly routine, low complexity jobs (Baer et al., 2003).

6.3. Limitations

Although, the data for the present study were collected from different sources, it has several limitations. The major limitation lies with the small sample size ($N = 44$). Though a number of previously published studies in this area were based on sample sizes of 40-50 dyads (Hofman & Morgeson, 1999; Manz & Sims, 1986; Graen & Schiemann, 1978), the findings reported here need to be replicated using a larger sample. Also, the sample for the current study was drawn from academia when the assumptions and conceptualizations of the relationships studied were based on employee creativity research. Future research should examine these relationships across contexts varying in complexity and the degree to which creativity is valued. A second shortcoming of this study is the high correlations among the self-reported variables, such as intrinsic motivation, self-identification, self-esteem and leadership ratings of one's supervisor. The observed multicollinearity among these variables undermined hypothesis testing. Thirdly, the cross-sectional design of the current study prohibits casuals inferences from the relationship tested. Finally, conducted in a field setting, the generalizability of results beyond an academic setting is questionable, necessitating testing this study's hypotheses in other organizations and industries.

6.4. Conclusion and Future Directions

The goal of the present study was to enrich our understanding of the influence of transformational, charismatic and transactional leadership behaviors on followers' creative performance. Results suggest that charisma and transactional leadership have positive effects of similar size on followers'

creativity. This study also suggests a number of promising avenues for future research.

After almost two decades since the first investigation of the influence of transformational and transactional leadership on follower creativity the theoretical foundation for this research is barren. Existing empirical studies draw on the transformational leadership model, which does not specifically address creative performance. In fact, transformational theory fails to clearly describe leadership behaviors that encourage creativity (Yukl, 1999). Theories of creativity also do not provide detailed explanations as to how leaders influence followers' creativity, through what mechanisms and cognitive processes (Woodman & Schoenfeld, 1989; Woodman et al., 1993). A recent attempt to connect leadership and creativity theoretically resulted in a conceptual model of the relationship between self-leadership, innovation, creativity and organizational support (DiLiello & Houghton, 2006). However, more theoretical work is needed to address the effects of formal organizational leadership rather then self-leadership.

Previous research provides little knowledge about what leadership behaviors across theories of transformational and charismatic leadership are most relevant for explaining follower creative performance. The present study reports similar positive effects of charismatic and transactional leadership on creativity. However, the relative predictive validity of charisma and transactional leadership on creativity may depend on the context (Kuzmenko, 2008; Judge & Piccolo, 2004). The role of contextual factors on the leadership-creativity association emerges as a promising area for future research.

The present study found a high positive relationship between supervisors' liking of their students and supervisors' ratings of their students' creativity. Supervisor liking was used in this study as a proxy for the quality of leader-follower relationships, which are usually examined in the realm of LMX theory and research. Although the concept of LMX is much boarder than liking and affect, previous research also shows that LMX mediates the effect of transformational leadership on followers' performance and OCB (Wang H., Law, Hackett, Wang D., & Chen, 2005). Also, there is empirical support for positive LMX-creativity associations (Scott & Bruce, 1994; Tierney et al., 1999). The present findings provide additional support for the notion that LMX (with "liking" as proxy in the current study) mediates leadership's effects on creativity. More empirical work is needed to explore this possible mediation.

If this research is to be replicated using supervisor-student dyads, I would suggest several changes to strategies employed here. First, the number of variables investigated should be limited so as to preserve the statistical power of the hypothesis testing. One way to accomplish this would be to simplify the model by examining the effects of separate components of transformational leadership and transactional leadership on follower creativity; and instead of controlling for supervisor liking, LMX should be tested as the mediator of the effects of transformational leadership on creativity. Moreover, in addition to (or instead of) a measure of job complexity, perhaps a measure of the creativity

intensity of the work context ought to be used to test for contextual influences on the leadership-creativity relationship. Finally, in addition to supervisor ratings of creativity, it would be ideal to use other assessments, such as hard measures of creativity, which in the context of the present research was difficult to obtain.

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APPENDIX A. Hypotheses

Hypothesis 1: Leader's charismatic behavior has a neutral or direct negative effect on followers' creative performance.
Hypothesis 2: Individualized consideration positively predicts followers' creative performance.
Hypothesis 3: Leader's intellectual stimulation positively predicts followers' creative performance.
Hypothesis 4: Transactional leadership (operationalized as contingent reward behavior) directly and positively predicts followers' creative performance.
Hypothesis 5a: Intrinsic motivation for creativity partially mediates the effects of leader's individualized consideration on followers' creative performance.
Hypothesis 5b: Intrinsic motivation for creativity partially mediates the effects of leader's intellectual stimulation on followers' creative performance.
Hypothesis 6: Transactional leadership positively relates to intrinsic motivation, but this effect will be weaker than that of transformational leadership.
Hypothesis 7a: Followers' identification moderates the negative effect of charisma on their creative performance such that its effect is stronger for followers with a personal identification than for followers with a collective identification.
Hypothesis 7b: Followers' identification moderates the positive effect of individualized consideration on followers' creative performance such that this effect is less strong for followers with a personal identification than for followers with a collective identification.
Hypothesis 7c: Followers' identification moderates the positive effect of intellectual stimulation on followers' creative performance such that this effect is less strong for followers with a personal identification than for followers with a collective identification.
Hypothesis 8a: Charisma relates more positively to personal self-identification with leader than does individualized consideration and intellectual stimulation for low self-esteem followers;
Hypothesis 8b: For high self-esteem followers individualized consideration relates more positively to followers' collective identification than does leader charisma.
Hypothesis 8c: For high self-esteem followers intellectual stimulation relates more positively to followers' collective identification than does leader charisma.
Hypothesis 9a: Followers' self-esteem moderates the relationship between charisma and followers' creative performance such that it is more negative for low self-esteem followers than for high self-esteem followers.
Hypothesis 9b: Followers' self-esteem moderates the relationship between individualized consideration and followers' creative performance such it is more positive for high self-esteem followers than for low self-esteem followers.

Hypothesis 9c: Followers' self-esteem moderates the relationship between intellectual stimulation and followers' creative performance such it is more positive for high self-esteem followers than for low self-esteem followers.

APPENDIX B. Supervisor Letter of Information/Consent

Please, read the following information before proceeding to complete the survey.

- Participation in this study is purely voluntary. You may choose not to participate, choose not to answer particular questions, or quit the survey at any time (before, during or after completing and submitting the survey) with no effect on your employment status.
- Responses will be logged, such that reminder notices are not sent to those of you who have responded. There will be one reminder sent after two weeks of the invitation e-mail. Your answers will be kept strictly confidential. Only the investigator will have access to individual responses.
- There are no known risks to you from participating in this survey. However, some individuals may feel uncomfortable providing information about students they academically supervise and/or post-doctoral fellows. If you do not wish to respond to particular questions, please skip over them.
- During the survey, while you provide assessment of the supervised students' creative performance and voice behavior (proactively raising issues and suggesting improvements), the students you academically supervise will be asked to assess your supervisory style.
- If you do not wish to participate in the survey, and do not wish to receive a reminder, please respond to the invitation email with 'Do Not Wish to Participate' in the subject line. Completion of the survey indicates your consent to participate in this study. If you decide to withdraw from the study after completing and submitting the survey, you may do so by e-mailing the request to Tatiana Kuzmenko at kuzment@mcmaster.ca or tkuzmenko@yahoo.com. Upon receiving the request to withdraw, the researcher will immidiately delete your responses from the database.

This survey will be available to you for a month until March 30th 2008.

If you have difficulty accessing the survey, have any questions or would like more information about the survey, please contact Tatiana Kuzmenko at kuzment@mcmaster.ca or tkuzmenko@yahoo.com or by phone (905)-525-9140 x 26169.

The results of the study will be available to you after May 2008 at http://www.business.mcmaster.ca/HRLR/phd/kuzment/.

This study has been reviewed and approved by the McMaster Research Ethics Board.

The Research Ethics Board advises researchers to inform participants about follow-up support that is available if needed. If you find that participating in the study is distressing and wish to seek assistance, you may refer to the McMaster University resources at www.workingatmcmaster.ca

If you have concerns or questions about your rights as a participant or about the way the study is conducted, you may contact:

McMaster Research Ethics Board Secretariat, Phone: (905)-525-9140 x 23142

Office of Research Services, E-mail: ethicsoffice@mcmaster.ca

APPENDIX C. Supervisor Survey

(to be completed by a supervisor for each student).
"Please, answer the following questions for each of your graduate students (i.e. supervise their doctoral or master thesis research or post-doctoral research projects). If you have more than 6 students under your supervision, please, provide ratings for any 6 of them."

Identification
"Please indicate the first and last name of a student/post-doc fellow you are rating"

Creative/innovative performance - 7 items from (Tierney et al., 1999; Tierney & Farmer, 2002). $\alpha = 0.96$ (Tierney & Farmer, 2002).
"Please indicate how often the following statements characterize this employee"

Never	Very Rarely	Rarely	Occasionally	Very Frequently	Always
1	2	3	4	5	6

1. Demonstrates originality in his/her work.
2. Takes risks in terms of producing new ideas on assignments or projects.
3. Finds new uses for existing concepts, methods or processes.
4. Tries out new ideas and approaches to problems.
5. Identifies opportunities for new concepts, methods and processes.
6. Serves as a good role model for creativity.
7. Generates novel ideas of potential benefit to his/her research, the department, or McMaster University.

Control variables.
Age
What is your age? _____
Gender
What is your gender? Male; Female
Relationship tenure - (Jung, Chow, & Wu, 2003; Baer, Oldham, & Cummings, 2003).
How many months have you been supervising the student you are rating (please, round to the nearest month)?
Supervisor's liking of a student – mirroring items (Wayne & Ferris, 1990; Liden, Wayne & Stillwell, 1993). $\alpha = 0.76$.
"Please indicate the extent to which you agree or disagree with the following statements"

Strongly Disagree	Somewhat Disagree	Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

1. I like my student very much as a person.
2. I think my student would make a good friend.

APPENDIX D. Student Letter of Information/Consent

Please, read the following information before proceeding to complete the survey.

- Participation in this study is purely voluntary. You may choose not to participate, choose not to answer particular questions, or quit the survey at any time (before, during or after completing and submitting the survey) with no effect on your academic or employment status.
- Responses will be logged, such that reminder notices are not sent to those of you who have responded. There will be one reminder sent after two weeks of the invitation e-mail. Your answers will be kept strictly confidential. Only the investigator will have access to individual responses.
- There are no known risks to you from participating in this survey. However, some individuals may feel uncomfortable providing information about their motivation, self-esteem and/or their academic supervisor (a faculty member who supervises your work on doctoral or master thesis or post-doctoral research projects). If you do not wish to respond to particular questions, please skip over them.
- During the survey, while you provide assessment of your supervisor's leadership style, your academic supervisor will be asked to assess your creative performance and voice behavior (proactively raising issues and suggesting improvements).
- If you do not wish to participate in the survey, and do not wish to receive a reminder, please respond to the invitation email with 'Do Not Wish to Participate' in the subject line. Completion of the survey indicates your consent to participate in this study. If you decide to withdraw from the study after completing and submitting the survey, you may do so by e-mailing the request to Tatiana Kuzmenko at kuzment@mcmaster.ca or tkuzmenko@yahoo.com. Upon receiving the request to withdraw, the researcher will immidiately delete your responses from the database.

This survey will be available to you for a month until March 30th 2008.

If you have difficulty accessing the survey, have any questions or would like more information about the survey, please contact Tatiana Kuzmenko at kuzment@mcmaster.ca or tkuzmenko@yahoo.com or by phone: 905-525-9140 x 26169.

The results of the study will be available to you after May 2008 at http://www.business.mcmaster.ca/HRLR/phd/kuzment/ .

This study has been reviewed and approved by the McMaster Research Ethics Board.

The Research Ethics Board advises researchers to inform participants about follow-up support that is available if needed. If you find that participating in the study is distressing and wish to seek assistance, you may refer to McMaster University resources available at http://csd.mcmaster.ca/

If you have concerns or questions about your rights as a participant or about the way the study is conducted, you may contact:

McMaster Research Ethics Board Secretariat, Phone: (905)-525-9140 x 23142

Office of Research Services, E-mail: ethicsoffice@mcmaster.ca

APPENDIX E. Student Survey

(to be completed by a student).

Identification
"Please indicate the first and last name of your academic supervisor"

Transformational Leadership Podsakoff et al. (1990) scale;
"Please indicate the extent to which you agree or disagree that each of the following statements accurately describes your academic supervisor".

Strongly Disagree	Somewhat Disagree	Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

Core charismatic behaviors (α=.87)

1. Has a clear understanding of where we are going on research initiatives
2. Paints an interesting picture of the future for his/her students
3. Is always seeking new opportunities for students and faculty
4. Inspires graduate students and peer on future possibilities
5. Is able to get others committed to his/her dream or vision
6. Leads by "doing", rather than simply by "telling"
7. Provides a good model for me to follow
8. Leads by example
9. Fosters collaboration among graduate students and peers
10. Encourages graduate students and/or post-doc fellows to be "team players"
11. Gets others to work together for the same goal
12. Develops a team attitude and spirit among students and peers

High performance expectations (α=.78)

13. Shows us that he/she expects a lot from us
14. Insists on only the best performance
15. Will not settle for second best

Providing individualized support (α=.90)

16. Acts without considering my feelings (R)[3]
17. Shows respect for my personal feelings
18. Behaves in a manner thoughtful of my personal needs
19. Spends time teaching and coaching me [4]

[3] Reverse coded
[4] Substituted item from MLQ

Intellectual stimulation (α=.91)

20. Challenges me to think about old problems in new ways
21. Asks questions that prompt me to think
22. Has stimulated me to re-think the way I doing things
23. Has ideas that have challenged me to reexamine some basic assumptions about my research

Transactional leadership - Podsakoff et al. (1990) scale; α=.92
"Please indicate the extent to which you agree or disagree that each of the following statements accurately describes your academic supervisor".

Strongly Disagree	Somewhat Disagree	Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

1. Always gives me positive feedback when I perform well
2. Gives me special recognition when my work is very good
3. Frequently does not acknowledge my good performance (R)

Intrinsic motivational orientation - Tierney et al's. (1999) scale. Reported reliabilities range from α = .74 (Tierney et al., 1999) to α = .84 (Shin & Zhou, 2003).
"Please indicate the extent to which you agree or disagree that each statement"

Strongly Disagree	Somewhat Disagree	Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

1. I enjoy finding solutions to complex problems
2. I enjoy coming up with new ideas for research
3. I enjoy engaging in analytical thinking.
4. I enjoy creative new procedures for undertaking my research.
5. I enjoy improving on existing research processes, methods and/or outcomes.

Self-esteem* - 6 items from Rosenberg's (1965) Self-Esteem scale. Reported reliabilities have ranged from α = 0.77 (Dobson, Goudy, Keith, & Powers, 1979) to α = 0.88 (Fleming & Courtney, 1984).
"Please indicate the extent to which you agree or disagree that each statement"

Strongly Disagree	Somewhat Disagree	Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

* All items loaded more than 0.5 on a factor (Carmines & Zeller, 1979).

1. I feel that I am a person of worth, at least on an equal basis with others.
2. All in all, I am inclined to feel that I am a failure (R).
3. I am able to do things as well as most other people.
4. I take a positive attitude toward myself.
5. I certainly feel useless at times (R)[5].
6. At times I think I am no good at all (R).

Collective identification - 6 items from an 8-item measure of social identification from Kark, Shamir and Chen (2003). $\alpha = 0$ .80.
"Please indicate the extent to which you agree with each statement"

Strongly Disagree	Somewhat Disagree	Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

1. I am very interested in what others think about my faculty/school.
2. My faculty/school's successes are my successes.
3. I am proud to be a member of my faculty/school.
4. I have complete faith in my faculty/school.
5. When I talk about my faculty/school, I usually say "we" rather than "they".
6. If a story in the media criticized my faculty/school, I would feel embarrassed.

Personal identification - 6 items similar to those of the social identification scale (Kark et al., 2003); the items are rephrased to focus on the supervisor rather than the organization. $\alpha = 0.96$
"Please indicate the extent to which you agree with each statement"

Strongly Disagree	Somewhat Disagree	Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

1. When someone criticizes my academic supervisor, it feels like a personal insult.
2. I am very interested in what others think about my academic supervisor.
3. My academic supervisor's successes are my successes.
4. I am proud to be under his/her supervision.
5. My academic supervisor represents values that are important to me.
6. I have complete faith in my academic supervisor.

Control variables.
Age
What is your age? _____

[5] Item reverse coded

Gender
What is your gender? Male ; Female
Educational level - Wang, Cheng, and Farh (2005)
"Please indicate on a scale below your level of education"
1 = college, 3 = university, 4 = masters, 5 = PhD, 6= Post doctoral.

Relationship tenure - (Jung, Chow, & Wu, 2003; Baer, Oldham, & Cummings, 2003).
How many months have you been working under mentorship of your academic supervisor (please round up to the nearest month)?

Job complexity - 10-item revision of the Job Diagnostic Survey (Hackman & Oldham, 1974, 1980; Idaszak & Drasgow, 1987; Piccolo & Colquitt, 2006). α = .90 (Piccolo & Colquitt, 2006). "Please, indicate how accurate each of the following statements is describing the work you do with (or for) your academic supervisor"

Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate
1	2	3	4	5	6	7

1. The work requires me to use a number of complex or high-level skills (V)
2. The work is arranged so that I can do an entire piece of work from beginning to end (I)*
3. Just doing the work required by the job provides many chances for me to figure out how well I am doing (F)
4. The work is quite simple and repetitive (V)
5. This work is one where a lot of other people can be affected by how well the work gets done (S)
6. The work gives me a chance to use my personal initiative and judgment in carrying out the work (A)*
7. The work provides me the chance to completely finish the pieces of work I begin (I)
8. After I finish a component of the work, I generally know whether I performed it well (F)*
9. The work gives me considerable opportunity for independence and freedom in carrying it out (A)
10. The work itself is very significant and important in the broader scheme of things (S)*

V=Variety, I=Task Identity, F=Feedback, A=Autonomy, S=Significance
* Revised item based on Idaszak and Drasgow (1987).

Students' cognitive style** - 17 items from the Kirton Adaptation-Innovation Inventory (KAI) (Kirton, 1976). Cronbach's α ranging from 0.79 to 0.91 (Baer et al., 2003; Brown, 2001). "Imagine that you are asked to present consistently and for a long time a certain image of yourself to others. Please, state the degree of difficulty it would take you to present yourself as a person with the following characteristics".

Very Hard	Hard	Moderately Hard	Easy	Very Easy
1	2	3	4	5

1. Has original ideas
2. Proliferates ideas
3. Is stimulating
4. Copes with several new ideas at the same time
5. Will always think of something when stuck
6. Would sooner create than improve
7. Has fresh perspectives on old problems
8. Is thorough*** (R)[6]
9. Masters all details painstakingly(R)
10. Is methodical and systematic(R)
11. Enjoys detailed work(R)
12. Fits readily into "the system" (R)
13. Conforms(R)
14. Readily agrees with other team members (R)
15. Never seeks to bend or break the rules(R)
16. Never acts without proper authority(R)
17. Is prudent when dealing with authority(R)

Student's liking of a supervisor – mirroring items (Wayne & Ferris, 1990). α = 0.86.

"Please indicate the extent to which you agree or disagree with the following statements"

Strongly Disagree	Somewhat Disagree	Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

1. I like my academic supervisor very much as a person.
2. I think my academic supervisor would make a good friend.

** All items loaded more than 0.5 on a factor (Kirton, 1976).

*** Items from 8 to 17 (for efficiency and conformity subscales) are reverse coded.

[6] Item is reverse coded.

Table 1. Studies examining relationships between transformational and transactional leadership and followers' creativity.

No	Authors/ year	Sample size/ Analysis level	Independent Variable	Dependent Variable	Definition of creativity	Effect size	Moderator/ Mediator Effects
	Cross-sectional						
	Manufacturing						
1	Basu[7] 1991	223/dyads	TL (charisma): Bass (1985)-short measure	Innovative behavior: SR – Ettlie & O'Keefe (1982) scale, SLFR Archival data	Inventions, implementation of existing ideas and introduction of new ideas	SR=.03 SLFR= -.07	N/A
2	Basu & Green 1997	225	Follower autonomy; Leader support; Follower commitment;	Innovative behavior: SR – Ettlie & O'Keefe (1982) scale.	A broad set of activities involving the creation and implementation of new concepts and products.	.03	*Moderator:* TL-Bass (1985) No support for negative relationship between TL and Innovative behavior
3	Strickland & Towler 2005	167/dyads	Charisma: MLQ Openness to Experience	Creative performance: SR -Scott & Bruce (1994)	The production of something that is both novel and useful	.10	*Mediator:* Creative self-efficacy Supported for partial mediation
	R&D						
4	Waldman & Atwater 1992	40 project leaders	TL: MLQ	Project effectiveness: SR	Not provided	Project leaders:.07; High-level leaders:.34 *	N/A
5	Shin & Zhou	290 / dyads	TL: MLQ	Creativity: SR – Zhou & George (2001)	Generation of new and useful ideas	.22**	*Moderator*: Conservation-supported;

[7] Doctoral dissertation

	2003				concerning products, processes and procedures.		*Mediator:* Intrinsic motivation-supported
6	Shin & Zhou 2007	75 teams	Educational specialization heterogeneity; Team creative efficacy;	Team creativity – Amabile (1996)	Combining previously unrelated things into something new, or borrowing ideas, insights, or practices from one field and adapting or modifying them for a different context.	.28*	*Moderators:* TL: MLQ (supported); Team tenure (not supported); *Mediator:* Team creative efficacy (partial support);
	Other industries[8]						
7	Howell & Higgins 1990	25 pairs (champion and non-champion)	TL: MLQ	Champion emergence/ Behavior: Interviews	Not provided	Charisma=.02; Inspiration=.31** Stimulation=.18; Consideration =.44**	N/A
8	Ryan[9] 2001	247 managers	TL: SLFR	Teams creativity and productivity – Oldham & Cummings(1996); efficiency – measure developed for the study	The extent an employee develops solutions that are novel and useful	Creativity =.33; Productivity =.36; Efficiency =.29 All p<.001 (2 tailed)	*Mediators:* Challenge of work, manager support, manager inspiration, work autonomy, manager influence. Partial support for the first three variables
9	Jung, Chow, Wu 2003	32/ companies	TL: MLQ	Org. Innovation: R&D intensity; R&D expenditure; number of patents.	Not provided Reference to Amabile (1998) and Oldham & Cummings (1996)	Intensity =.36** Expenditure =-.13 Patents =.18	*Moderators:* Employees perceptions – empowerment (not supported), support for innovation (supported)

[8] Graphic design, electronics-telecommunication, high technologies
[9] Doctoral dissertation

10	Wang, Cheng & Farh[10] 2005	190/ dyads	TL: MLQ Core Self-evaluation	Creative performance: SR- Zhou & George (2001)	Generation of new and useful ideas concerning products, processes and procedures.	.25**	*Moderator:* Job complexity - supported *Mediator:* Employee creative self-efficacy- supported for full mediation
11	Garcia-Morales, Llorens-Montes & Verdu-Jover 2006	408 CEOs	TL: SLFR - 5 items from Podsakoff et al. (1996)	Organizational innovation: SLFR - 3-item scale Miller&Friesen (1983)	The process of proposing, adopting, developing, and implementing a new idea	.39***	N/A
12	Boerner, Eisenbeiss & Griesser 2007	91 leaders	TL, TAL : SLFR- MLQ	Follower innovation: SLFR- Role Based Performance Scale – Welbourne et al. (1998)	Not provided	TL =.36*** TAL = not significant (number not reported)	*Mediator:* Debate –supported for partial mediation
13	Rode & Wang 2008	212 dyads	TL: MLQ	Employee creativity – Tierney et al. (1999)	Generation of new and useful ideas concerning products, processes and procedures.	.19*	*Moderators:* Personal identification with a leader (not supported); Innovative climate (supported):
	Longitudinal studies						
14	Keller 1992	Project groups: T1- 66 T2-61 and 48 – 109 total	Charisma, Intellectual stimulation: MLQ	Project quality, budget/ schedule performance: SLFR, JR	Not provided	T1-project quality: member ratings- CL=.36**; IS= .27*; management ratings- CL=.32**; IS=.30*; Budget schedule:	*Moderator:* Type of R&D work- research vs. development - supported

[10] Conference presentation

						member ratings – CL=.39**; IS= .25*; management ratings-CL=.27*; IS=.26*; T2 project quality: member ratings- CL=.39**; IS= .32**; management ratings – CL=.34*; IS= .39**; Budget schedule: member ratings – CL=.38**; IS= .30*; management ratings - CL=.30*; IS= .30*;	
15	Farmer & Tierney 2007	T1 – 225 T2 - 213	Creative leadership: T1 - Tierney&Farmer (2003) scale	Employee creativity: T2- SR -4 items from Tierney et al. (1999)	Not provided	.29 **	*Mediator:* Percieved leader's appraisal of employee creativity - Supported for full mediation.
	Experimental studies						
	Student samples						
16	Sosik, Avolio & Kahai 1997	159	TL, TAL: Dummy coded 1-TAL 2-TL	Group output: Idea generation effectiveness; Report effectiveness: Innovativeness; Imaginativeness and value	Not provided	TAL stronger effect on idea generation effectiveness than TL	N/A

				- Fluency, Flexibility and Originality- Torrance (1965)			
17	Sosik 1997	36 groups	TL: MLQ	Group creativity: JR- number of solutions; solutions originality; solution clarifications; critical remarks; supportive remarks; questions about solutions;	Group idea generation	Number of solutions = -.06 solution originality =.38* solution clarifications=.21 critical remarks=.08 supportive remarks=.22 questions about solutions=.12	N/A
18	Sosik, Kahai & Avolio 1998	36 groups	TL: MLQ	Divergent thinking : Originality, Fluency, Flexibility, Elaboration - Torrance(1965)	Group's divergent production of ideas	Fluency = -.06 Flexibility = .01 Originality = .39* Elaboration = .21;	*Moderator*: Anonymity. Support for Flexibility only
19	Jung & Avolio 1999	194 Caucasian; 153 Asian; 347 Total	TL, TAL: MLQ Leadership condition.: TAL-1; TL-2;	Performance of brainstorming task: JR – quantity and quality (practicality & long-term orientation)	Not provided	Caucasians: quantity = -.25** practicality = -.11* orientation = .25** Asian: quantity = .18* practicality =.16* orientation =.04	*Moderator:* Individualism/ Collectivism - supported
20	Jung 2000-2001	194	TL, TAL: MLQ Leadership condition.: TAL-1; TL-2;	Divergent thinking: Fluency and Flexibility - Torrance (1965)	An outcome of an individual's accumulated creative thinking skills and expertise based on experience.	Not reported Both fluency and flexibility was higher under TL than TAL	N/A

21	Kahai, Sosik,& Avolio 2003	39 groups	TL, TAL: MLQ No idealized influence included	Group creativity : Solution originality-number of unique solutions and their rarity; Creativity relevant group processes: Participation and cooperation	Creativity is described in terms of elements of divergent thinking	Not reported Originality was higher under TAL than TL	*Moderator:* Anonymity- No support;
22	Bono & Judge 2003	162	TL: manipulation	Creative performance: Average number of ideas from task 1&3	Not provided	.20*	*Mediation:* Self-concordance Supported for partial mediation
23	Jaussi, Dionne 2003	322/Individ. level 74/Group	Creative role modeling -Tierney et al. (1999);	Follower creative performance: JR Group creative performance: Fluency, Flexibility, Originality	Not provided	Individual level = -.03; Group level = -.28**;	*Moderator*: TL:MLQ; no support;

Notes:
TL – transformational leadership
TAL – transactional leadership
SR – supervisor ratings
SLFR – self-report
JR- Judges ratings

* $p < .05$
** $p < .01$
*** $p < .001$

Table 2. Means, Standard Deviations, and Correlations of the Variables.

		Mean	S.D.	1	2	3	4	5	6	7	8	9	10
1.	Charisma	5.92	0.82	**.91**									
2.	Performance Expectation	5.11	1.12	.16	**.77**								
3.	Individualized Consideration	5.84	0.97	.54**	-.23	**.83**							
4.	Intellectual Stimulation	5.82	0.98	.61**	.28	.39**	**.90**						
5.	Transactional Leadership	5.77	1.11	.65**	-.05	.57**	.50**	**.88**					
6.	Student Liking	6.00	0.98	.23	-.10	.44**	.16	.20	**.70**				
7.	Personal Identification	5.26	0.99	.39**	.02	.44**	.29	.31*	.52**	**.78**			
8.	Social Identification	4.70	0.97	.19	.04	.11	.30*	.22	-.10	.48**	**.76**		
9.	Intrinsic Motivation	6.12	0.71	.22	.04	.00	.35*	.16	.03	.19	.20	**.97**	
10.	Self-Esteem	5.45	1.02	.48**	.06	.27	.50**	.45**	-.02	.23	.45**	.45**	**.83**
11.	Cognitive Style	49.85	6.87	-.11	-.23	-.01	-.09	-.13	-.05	-.29	-.30	.33*	-.11
12.	Job Complexity	5.19	0.71	.36*	.11	.14	.33*	.24	.03	.38*	.49**	.39**	.39**
13.	Relationship Tenure	27.93	17.23	.38*	.08	.28	.30*	.46**	.09	.30	.16	.22	.21
14.	Creativity	4.54	0.93	.39**	-.02	.17	.15	.36*	-.01	.03	-.05	.09	.17
15.	Supervisor Liking	6.18	0.69	.35*	.06	.16	.05	.47*	-.03	-.02	.09	-.02	.19
16.	Student Gender	0.45	0.50	.06	.19	-.03	-.03	-.04	.28	.06	-.21	.13	-.16
17.	Supervisor Gender	0.81	0.39	.29	.15	.05	.19	.22	.03	.11	.07	-.09	.00
18.	Supervisor Age	46.93	9.50	.01	.00	-.17	-.03	.07	.13	-.09	-.19	.16	-.12
19.	Student Age	29.30	6.29	.28	.29	.36*	.25	.23	-.11	-.07	-.02	.00	.18
20.	Student Education	3.14	0.91	.19	-.06	.30	.11	.30*	.07	-.18	-.24	-.15	.08

Table 2. (Continues). Means, Standard Deviations, and Correlations of the Variables.

		Mean	S.D.	11	12	13	14	15	16	17	18	19
1.	Charisma	5.92	0.82									
2.	Performance Expectation	5.11	1.12									
3.	Individualized Consideration	5.84	0.97									
4.	Intellectual Stimulation	5.82	0.98									
5.	Transactional Leadership	5.77	1.11									
6.	Student Liking	6.00	0.98									
7.	Personal Identification	5.26	0.99									
8.	Social Identification	4.70	0.97									
9.	Intrinsic Motivation	6.12	0.71									
10.	Self-Esteem	5.45	1.02									
11.	Cognitive Style	49.85	6.87	**.76**								
12.	Job Complexity	5.19	0.71	-.11	**.74**							
13.	Relationship Tenure	27.93	17.23	-.02	.25	-						
14.	Creativity	4.54	0.93	.01	.45**	.46**	**.96**					
15.	Supervisor Liking	6.18	0.69	-.22	.20	.37*	.60**	**.81**				
16.	Student Gender	0.45	0.50	.27	-.01	-.18	-.04	-.24	-			
17.	Supervisor Gender	0.81	0.39	-.23	.05	-.15	-.14	-.18	.19	-		
18.	Supervisor Age	46.93	9.50	.06	.17	.08	.00	-.24	.12	.33*	-	
19.	Student Age	29.30	6.29	.07	.00	.18	.02	.09	.02	-.04	.02	-
20.	Student Education	3.14	0.91	-.10	-.07	.07	.19	-.04	-.14	.14	.35*	.25

Table 3. Results of Regression Analysis of Creativity on Control Variables.

Control Variables	Beta	t	Sig	R2	Adjusted R2	ΔR2	F	Sig
				.64	.53	-	5.85	.000
Student Education	.345	2.839	.008					
Student Age	-.179	-1.583	.123					
Student Gender	.182	1.462	.153					
Supervisor Age	-.058	-.455	.652					
Supervisor Gender	-.063	-.523	.604					
Supervisor Liking the student	.530	4.285	.000					
Student Liking the supervisor	-.096	-.838	.408					
Job Complexity	.342	3.022	.005					
Cognitive Style	.150	1.252	.219					
Relationship Tenure	.223	1.831	.076					

N = 44

Table 4. Results of Regression Analysis of Creativity on Charisma, Individualized Consideration and Intellectual Stimulation Components of Transformational Leadership and Collinearity Diagnostics. (N = 44)

Model	Beta	t	Sig	R2	Adjusted R2	ΔR2	F	Sig
Step 1				.36	.35	-	23.932	.000
Supervisor Liking	.602	4.892	.000					
Step 2				.40	.34	.04	6.508	.000
Supervisor Liking	.533	3.930	.000					
Charisma	.218	1.172	.248					
Ind. Consideration	-.038	-.258	.798					
Intell. Stimulation	.009	.056	.956					

Model	Dimension	Eigen value	Condition Index	Variance Proportions				
				(Constant)	Supervisor Liking	Charisma	Indiv. Considerat.	Intellect. Stimulation
1	1	1.994	1.000	.00	.00			
	2	.006	18.148	1.00	1.00			
2	1	4.951	1.000	.00	.00	.00	.00	.00
	2	.021	15.378	.05	.19	.01	.05	.29
	3	.016	17.544	.01	.01	.00	.81	.25
	4	.008	25.623	.33	.05	.62	.06	.13
	5	.005	32.725	.60	.74	.37	.09	.33

Table 5. Results of Separate Regression Analyses of Creativity on Charisma, Individualized Consideration and Intellectual Stimulation Components of Transformational Leadership.

Regression	Beta	t	Sig	R2	Adjusted R2	ΔR2	F	Sig
Model 1				.399	.37	.036	13.625	.000
Supervisor Liking	.532	4.125	.000					
Charisma	.203	1.574	.123					
Model 2				.368	.34	.005	11.947	.000
Supervisor Liking	.59	4.692	.000					
Ind. Consideration	.073	.583	.563					
Model 3				.378	.35	.015	12.484	.000
Supervisor Liking	.597	4.842	.000					
Intel. Stimulation	.125	1.011	.318					

N = 44

Table 6a. Results of Regression Analysis of Creativity on Transactional Leadership.

Independent Variables	Beta	t	Sig	R2	Adjusted R2	ΔR2	F	Sig
Step 1								
Supervisor Liking	.602	4.892	.000	.363	.35	-	23.932	.000
Step 2				.370	.34	.007	12.045	.000
Supervisor Liking	.557	3.964	.000					
Transactional Leadership	.096	.681	.500					

N = 44

Table 6b. Results of Separate Regression Analyses of Creativity on Charisma and Transactional Leadership (No control variables).

Regression	Beta	t	Sig	R2	Adjusted R2	ΔR2	F	Sig
Model 1				.15	.13	-	7.409	.009
Charisma	.387	2.722	.009					
Model 2				.129	.108	-	6.204	.017
Transactional Leadership	.359	2.491	.017					

N = 44

Table 7a. Results of Hierarchical Regression Analysis for Intrinsic Motivation Mediation (Individualized Consideration)

Independent Variables	Beta	t	Sig	R2	Adjusted R2	ΔR2	F	Sig
Model 1: Intrinsic Motivation				.000	-.024	-	.000	.990
Ind. Consideration	.002	.012	.990					
Model 2: Creativity				.029	.006	-	1.255	.269
Ind. Consideration	.170	1.120	.269					
Model 3: Creativity				.038	-.009	.009	.807	.453
Ind. Consideration	.170	1.111	.273					
Intrinsic Motivation	.094	.614	.542					

N = 44

Table 7b. Results of Hierarchical Regression Analysis for Intrinsic Motivation Mediation (Intellectual Stimulation)

Independent Variables	Beta	t	Sig	R2	Adjusted R2	ΔR2	F	Sig
Model 1: Intrinsic Motivation				.119	.098	-	5.672	.022
Intel. Stimulation	.345	2.382	.022					
Model 2: Creativity				.023	.000	-	.993	.325
Intel. Stimulation	.152	.996	.325					
Model 3: Creativity				.025	-.022	.002	.528	.594
Intel. Stimulation	.136	.825	.414					
Intrinsic Motivation	.048	.290	.773					

Table 7c. Results of Hierarchical Regression Analysis for Self-Esteem Mediation (Intellectual Stimulation)

Independent Variables	Beta	t	Sig	R2	Adjusted R2	ΔR2	F	Sig
Model 1: Self-esteem				.304	.27	.15	8.956	.001
Job Complexity	.265	1.858	.070					
Intel. Stimulation	.411	2.974	.005					
Model 2: Intrinsic Motivation				.203	.164	.052	5.229	.009
Job Complexity	.308	2.082	.044					
Intel. Stimulation	.243	1.646	.107					
Model 3: Intrinsic Motivation				.264	.208	.061	4.773	.006
Job Complexity	.232	1.550	.129					
Intel. Stimulation	.122	.771	.445					
Self-Esteem	.294	1.881	.078					

N = 44 (Tables 7b and 7c)

Table 8. Results of Regression Analysis of Intrinsic Motivation on Transactional Leadership

Independent Variables	Beta	t	Sig	R2	Adjusted R2	ΔR2	F	Sig
Transactional Leadership	.164	1.078	.287	.027	.004	-	1.162	.287

N = 44

Table 9a. Results of Regression Analysis of Creativity on Charisma, Personal Identification and Their Interaction.

Independent Variables	Beta	t	Sig	R2	Adjusted R2	ΔR2	F	Sig
Step 1:				.15	.13	-	7.409	.009
Charisma	.387	2.722	.009					
Step 2:				.167	.127	.017	4.121	.023
Charisma	.443	2.864	.007					
Personal Identification	-.143	-.926	.360					
Step 3:				.239	.182	.072	4.185	.011
Charisma	1.585	2.608	.013					
Personal Identification	1.674	1.764	.085					
Interaction	-2.508	-1.939	.060					

N = 44

Collinearity Diagnostics (Table 9a)

Model	Dimension	Eigen value	Condition Index	Variance Proportions			
				(Constant)	Charisma	Personal Identification	Interaction
1	1	1.991	1.000	.00	.00		
	2	.009	14.611	1.00	1.00		
2	1	2.971	1.000	.00	.00	.00	
	2	.019	12.428	.16	.12	.99	
	3	.009	17.862	.84	.88	.00	
3	1	3.951	1.000	.00	.00	.00	.00
	2	.035	10.564	.01	.00	.00	.01
	3	.013	17.501	.01	.03	.02	.00
	4	.000	137.326	.98	.96	.98	.99

Table 9b. Results of Regression Analysis of Creativity on Individualized Consideration, Collective Identification and Their Interaction.

Independent Variables	**Beta**	**t**	**Sig**	**R2**	**Adjusted R2**	**ΔR2**	**F**	**Sig**
Step 1:				.029	.006	-	1.255	.269
Individualized Consideration	.170	1.120	.269					
Step 2:				.034	-.013	.005	.722	.492
Individualized Consideration	.178	1.153	.256					
Collective Identification	-.071	-.460	.648					
Step 3:				.052	-.019	.018	.736	.537
Individualized Consideration	.684	1.148	.258					
Collective Identification	.547	.760	.452					
Interaction	-.851	-.879	.385					

N = 44

Collinearity Diagnostics (Table 9b)

Model	Dimension	Eigen value	Condition Index	Variance Proportions			
				(Constant)	Individualized Consideration	Collective Identification	Interaction
1	1	1.987	1.000	.01	.01		
	2	.013	12.263	.99	.99		
2	1	2.958	1.000	.00	.00	.00	
	2	.031	9.836	.02	.31	.79	
	3	.011	16.041	.98	.69	.21	
3	1	3.934	1.000	.00	.00	.00	.00
	2	.040	9.871	.02	.01	.01	.02
	3	.025	12.425	.01	.02	.03	.01
	4	.000	92.283	.97	.97	.97	.97

Table 9c. Results of Regression Analysis of Creativity on Intellectual Stimulation, Collective Identification and Their Interaction.

Independent Variables	**Beta**	**t**	**Sig**	**R2**	**Adjusted R2**	**ΔR2**	**F**	**Sig**
Step 1:				.023	.000	-	.993	.325
Intellectual Stimulation	.152	.996	.325					
Step 2:								
Intellectual Stimulation	.185	1.146	.258	.034	-.014	.011	.713	.496
Collective Identification	-.108	-.668	.508					
Step 3:				.035	-.038	.001	.479	.699
Intellectual Stimulation	.346	.440	.662					
Collective Identification	.107	.103	.918					
Interaction	-.307	-.210	.835					

N = 44

Collinearity Diagnostics (Table 9c)

Model	Dimension	Eigen value	Condition Index	Variance Proportions			
				(Constant)	Intellectual Stimulation	Collective Identification	Interaction
1	1	1.986	1.000	.01	.01		
	2	.014	12.130	.99	.99		
2	1	2.962	1.000	.00	.00	.00	
	2	.025	10.887	.07	.26	.95	
	3	.013	14.988	.93	.74	.05	
3	1	3.934	1.000	.00	.00	.00	.00
	2	.045	9.353	.01	.00	.00	.01
	3	.021	13.706	.00	.02	.02	.00
	4	.000	126.207	.99	.98	.98	.99

Table 10a. Results of Regression Analysis of Personal Identification on Charisma, Self-esteem and Their Interaction.

Independent Variables	**Beta**	**t**	**Sig**	**R2**	**Adjusted R2**	**ΔR2**	**F**	**Sig**
Step 1:				.151	.131	-	7.487	.009
Charisma	.389	2.736	.009					
Step 2:				.153	.112	.002	3.702	.033
Charisma	.366	2.226	.032					
Self-esteem	.047	.284	.778					
Step 3:				.157	.094	.004	2.486	.074
Charisma	.084	.128	.899					
Self-esteem	-.403	-.395	.695					
Interaction	.640	.447	.657					

N = 44

Collinearity Diagnostics (Table 10a)

Model	Dimension	Eigen value	Condition Index	Variance Proportions			
				(Constant)	Charisma	Self-esteem	Interaction
1	1	1.991	1.000	.00	.00		
	2	.009	14.611	1.00	1.00		
2	1	2.974	1.000	.00	.00	.00	
	2	.017	13.052	.29	.05	.92	
	3	.009	18.189	.71	.94	.07	
3	1	3.953	1.000	.00	.00	.00	.00
	2	.036	10.539	.01	.00	.00	.01
	3	.011	18.888	.01	.04	.02	.00
	4	.000	141.197	.98	.96	.98	.99

Table 10b. Results of Regression Analysis of Collective Identification on Individualized Consideration, Self-esteem and Their Interaction.

Independent Variables	**Beta**	**t**	**Sig**	**R2**	**Adjusted R2**	**ΔR2**	**F**	**Sig**
Step 1:				.012	-.012	-	.498	.484
Individualized Consideration	.108	.706	.484					
Step 2:				.207	.168	.195	5.335	.009
Individualized Consideration	-.013	-.091	.928					
Self-esteem	.458	3.172	.003					
Step 3:				.209	.149	.002	3.518	.024
Individualized Consideration	.200	.309	.759					
Self-esteem	.694	.972	.337					
Interaction	-.361	-.338	.737					

N = 44

Collinearity Diagnostics (Table 10b)

Model	Dimension	Eigen value	Condition Index	Variance Proportions			
				(Constant)	Individual. Consideration	Self-esteem	Interaction
1	1	1.987	1.000	.01	.01		
	2	.013	12.263	.99	.99		
2	1	2.966	1.000	.00	.00	.00	
	2	.022	11.560	.02	.41	.83	
	3	.012	15.586	.98	.59	.17	
3	1	3.942	1.000	.00	.00	.00	.00
	2	.037	10.378	.02	.00	.00	.02
	3	.021	13.662	.00	.03	.03	.00
	4	.000	110.513	.98	.97	.97	.98

Table 10c. Results of Regression Analysis of Collective Identification on Intellectual Stimulation, Self-esteem and Their Interaction.

Independent Variables	**Beta**	**t**	**Sig**	**R2**	**Adjusted R2**	**ΔR2**	**F**	**Sig**
Step 1:				.092	.070	-	4.250	.045
Intellectual Stimulation	.303	2.061	.045					
Step 2:				.214	.176	.122	5.596	.007
Intellectual Stimulation	.103	.649	.520					
Self-esteem	.403	2.529	.015					
Step 3:				.255	.199	.041	4.555	.008
Intellectual Stimulation	-.811	-1.263	.214					
Self-esteem	-.790	-.955	.345					
Interaction	1.838	1.469	.150					

N = 44

Collinearity Diagnostics (Table 10c)

Model	Dimension	Eigen value	Condition Index	Variance Proportions			
				(Constant)	Intellectual Stimulation	Self-esteem	Interaction
1	1	1.986	1.000	.01	.01		
	2	.014	12.130	.99	.99		
2	1	2.970	1.000	.00	.00	.00	
	2	.017	13.265	.42	.06	.93	
	3	.013	14.947	.58	.94	.07	
3	1	3.945	1.000	.00	.00	.00	.00
	2	.040	9.894	.02	.00	.00	.01
	3	.015	16.455	.00	.04	.03	.00
	4	.000	121.818	.98	.96	.97	.99

Table 11a. Results of Regression Analysis of Creativity on Charisma, Self-esteem and Their Interaction.

Independent Variables	**Beta**	**t**	**Sig**	**R2**	**Adjusted R2**	**ΔR2**	**F**	**Sig**
Step 1:				.150	.130	-	7.409	.009
Charisma	.387	2.722	.009					
Step 2:				.150	.109	.000	3.622	.036
Charisma	.395	2.396	.021					
Self-esteem	-.016	-.094	.925					
Step 3:				.231	.173	.081	3.995	.014
Charisma	1.630	2.610	.013					
Self-esteem	1.950	2.001	.052					
Interaction	-2.799	-2.045	.048					

N = 44

Collinearity Diagnostics (Table 11a)

Model	Dimension	Eigen value	Condition Index	Variance Proportions			
				(Constant)	Charisma	Self-esteem	Interaction
1	1	1.991	1.000	.00	.00		
	2	.009	14.611	1.00	1.00		
2	1	2.974	1.000	.00	.00	.00	
	2	.017	13.052	.29	.05	.92	
	3	.009	18.189	.71	.94	.07	
3	1	3.953	1.000	.00	.00	.00	.00
	2	.036	10.539	.01	.00	.00	.01
	3	.011	18.888	.01	.04	.02	.00
	4	.000	141.197	.98	.96	.98	.99

Table 11b. Results of Regression Analysis of Creativity on Individualized Consideration, Self-esteem and Their Interaction.

Independent Variables	**Beta**	**t**	**Sig**	**R2**	**Adjusted R2**	**ΔR2**	**F**	**Sig**
Step 1:				.029	.006	-	1.255	.269
Individualized Consideration	.170	1.120	.269					
Step 2:				.048	.001	.019	1.024	.368
Individualized Consideration	.133	.840	.406					
Self-esteem	.141	.894	.377					
Step 3:				.161	.098	.113	2.555	.069
Individualized Consideration	1.642	2.463	.018					
Self-esteem	1.814	2.467	.018					
Interaction	-2.555	-2.323	.025					

N = 44

Collinearity Diagnostics (Table 11b)

Model	Dimension	Eigen value	Condition Index	Variance Proportions			
				(Constant)	Individualized Consideration	Self-esteem	Interaction
1	1	1.987	1.000	.01	.01		
	2	.013	12.263	.99	.99		
2	1	2.966	1.000	.00	.00	.00	
	2	.022	11.560	.02	.41	.83	
	3	.012	15.586	.98	.59	.17	
3	1	3.942	1.000	.00	.00	.00	.00
	2	.037	10.378	.02	.00	.00	.02
	3	.021	13.662	.00	.03	.03	.00
	4	.000	110.513	.98	.97	.97	.98

Table 11c. Results of Regression Analysis of Creativity on Intellectual Stimulation, Self-esteem and Their Interaction.

Independent Variables	**Beta**	**t**	**Sig**	**R2**	**Adjusted R2**	**ΔR2**	**F**	**Sig**
Step 1:				.023	.000	-	.993	.325
Intellectual Stimulation	.152	.996	.325					
Step 2:				.037	-.010	.014	.781	.465
Intellectual Stimulation	.085	.484	.631					
Self-esteem	.134	.760	.451					
Step 3:				.098	.030	.061	1.444	.244
Intellectual Stimulation	1.212	1.716	.094					
Self-esteem	1.603	1.763	.086					
Interaction	-2.265	-1.645	.108					

N = 44

Collinearity Diagnostics (Table 11c)

Model	Dimension	Eigen value	Condition Index	Variance Proportions			
				(Constant)	Intellectual Stimulation	Self-esteem	Interaction
1	1	1.986	1.000	.01	.01		
	2	.014	12.130	.99	.99		
2	1	2.970	1.000	.00	.00	.00	
	2	.017	13.265	.42	.06	.93	
	3	.013	14.947	.58	.94	.07	
3	1	3.945	1.000	.00	.00	.00	.00
	2	.040	9.894	.02	.00	.00	.01
	3	.015	16.455	.00	.04	.03	.00
	4	.000	121.818	.98	.96	.97	.99

Table 12a. Results of Regression Analysis of Supervisor Liking on Students' Creative Performance

Independent Variables	**Beta**	**t**	**Sig**	**R2**	**Adjusted R2**	**ΔR2**	**F**	**Sig**
Step 1:				.173	.111	-	2.797	.052
Relationship tenure	.336	2.257	.030					
Student gender	-.184	-1.261	.215					
Student Age	.034	.230	.819					
Step 2:				.42	.36	.247	7.050	.000
Relationship tenure	.067	.469	.642					
Student gender	-.207	-1.669	.103					
Student age	.069	.558	.580					
Creative performance	.561	4.068	.000					

N = 44

Table 12b. Results of Regression Analysis of Supervisor Liking on Students' Gender and Creative Performance

Independent Variables	**Beta**	**t**	**Sig**	**R2**	**Adjusted R2**	**ΔR2**	**F**	**Sig**
				.410	.381	-	14.234	.000
Creative performance	.593	4.937	.000					
Student gender	-.217	-1.804	.079					

N = 44

Figure 1. The Conceptual Model.