Transformational Leadership and Innovation: A Moderated Mediation Model

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ABSTRACT

We tested a moderated mediation model of transformational leadership and employees’ innovation using a sample of 240 matched middle-manager-front-line supervisor dyads from four joint-venture companies in China. Using Edward and Lambert’s (2007) approach, the results show that transformational leadership was positively related to both employees’ creativity (idea generation) and implementation (idea implementation). Creative personality moderated the relationship between transformational leadership and psychological empowerment. Furthermore, psychological empowerment was found to mediate the relationships between transformational leadership and performance outcomes, and also mediated the interactive effect between transformational leadership and creative personality on employees’ implementation.

Keywords: Transformational leadership; innovation, creativity; psychological empowerment

Research demonstrates that understanding how to increase employees’ innovative performance can contribute to the competitive advantage of an organization over its competitors (Madjar et al. 2002). Employees’ innovation including the generation and implementation of useful ideas that are rare and inimitable, and they are important for team and organizational effectiveness (Oldman & Cummings 1996; Axtell et al. 2000). Despite many studies conducted in this area, little is known about the factors and conditions that promote innovation among employees in the workplace (Unsworth & West, 1998). A “person x situation interactional perspective” emphasizes that the conditions conducive to employees’ innovation are most likely a combination of personal and situational factors (Oldham & Cummings, 1996; Shalley et al. 2000).

A review of literature suggests that leadership has been recognized as one of the important social factors to facilitate employees’ innovation (Berson et al. 2006; Tierney et al. 1999; Bryant 2003). Among different leadership approaches, transformational leadership has attracted a great deal of research attention over the last twenty-five years and has been found to be associated with employees’ innovation in both field and laboratory settings (e.g., Sosik et al. 1998; Jung 2001). Unfortunately, the dynamics surrounding the relationship between transformational leadership and employees’ innovation are not well-understood, and research investigating such dynamics remains underdeveloped (e.g., Shin & Zhou, 2003, 2007). For example, existing research has not fully explored under what conditions the relationship between transformational leadership and employees’ innovation is stronger or weaker, what motivational mechanisms will mediate the transformational leadership-innovation relationship,
and what role is played by transformational leadership in idea generation and implementation processes. These are important research questions that should be addressed in order to provide new insights into theoretical and practical implications for employees’ innovation in the workplace.

This study therefore makes contributions to the literature in three ways. First, this study extends the existing research by examining psychological empowerment as a motivational mechanism to explain the positive effects of transformational leadership on employees’ innovation from the intrinsic motivation perspective. This provides theoretical insights into the motivational processes of transformational leadership because the literature has primarily explored its process variables such as intrinsic motivation in creativity research (e.g., Shin & Zhou, 2003). Second, exploring the role of employee characteristics, that is, creative personality in the hypothesized relationships will help understand why transformational leadership is effective in determining psychological empowerment of employees who have different creative personality characteristics. This is essential because personality influences the way how employees respond to transformational leadership which in turn affects their level of psychological empowerment to engage in innovative performance (Shamir, 2001). Finally, we respond to the call by Axtell et al. (2000) to examine two aspects of employees’ innovation as outcomes that include creativity (idea generation) and implementation (idea implementation). This is important to understand what factors influence the whole process of employees’ innovation at work because current creativity research has only focused on examining generation of ideas rather than their implementation as an outcome (Axtell et al. 2000; Unsworth & West 1998).

THEORY AND HYPOTHESIS

Transformational Leadership and Employees’ Innovation

Innovation is defined as a process that involves the generation, production, adoption, implementation and incorporation of new ideas, practices or artifacts that are relevant and useful for organizational effectiveness (Vande Ven et al. 1989). By definition, innovation consists of two key elements. The first is creativity which refers to generation of new ideas and novel suggestions, and the second is implementation which refers to adoption and incorporation of the new ideas and novel suggestions to utilize them within organizations (Unsworth & West 1998). Creativity (idea generation) and implementation (idea implementation) are regarded as the two sides of a coin which together play
an important role in determining an organization’s ability to create sustainable competitive advantages.

Existing research has focused on exploring factors contributing to the production and development of creative ideas, rather than their implementation and adoption in organizations (e.g., Amabile 1988). To specify one of the contributions of this study, we conceptualize creativity and implementation as two performance outcomes reflecting that employees often involve in both idea generation and implementation processes in organizations (see Madjar et al. 2002).

A review of research suggests that social factors positively contribute to employees’ creativity and implementation (e.g., Shin & Zhou 2003, 2007). Leadership has been recognized as one of the important social factors to determine employees’ innovation. According to the full range leadership model, Bass (1985) proposed that transformational leaders can exhibit certain behaviors to motivate followers to perform beyond their initial expectations. These behaviors include idealized influence - leaders behave consistently with their promises and gain the trust of others. Second, inspirational motivation - leaders communicate compelling visions of the future and emphasize to others how their work contributes to the achievement of the vision. Third, intellectual stimulation - leaders enable followers to think creatively and challenge the status quo of doing things. Finally, individualized consideration - leaders recognize the developmental needs of individual members and provide support to them accordingly (Bass, 1985).

The above leader behaviors suggest that transformational leadership is effective in facilitating employees’ innovation in several ways. First, transformational leadership influences employees’ innovation by stimulating them to challenge existing practices of doing things in order to think of new and useful ideas for individual as well as organizational improvements (Bass 1985; Bass & Avolio 1994). The employees feel encouraged to explore and experiment new approaches for reformulating difficult issues and existing problems. Transformational leadership also motivates employees to be more involved in their work, thereby increasing their intellectual curiosity to search for new and better ways for problem solving (Bass & Avolio 1994). This increased curiosity and interest in task would lead the employees to come up with more creative ideas and such employees would also be keen to test the feasibility of the new ideas (Jung et al 2003).

Second, individualized consideration of transformational leadership is relevant for employees’
innovation. Specifically, transformational leaders provide constant feedback to their employees in the form of guidance and advice for personal development and self-improvement. The feedback therefore is perceived by the employees as helpful information that enables them to learn, develop and make improvements on their job. This argument is supported by Zhou’s (2003) findings which revealed that supervisors’ developmental feedback has a direct positive impact on employees’ creative behavior, helping them to learn from their mistakes. Given leaders’ active support and understanding, employees are more likely to overcome work-related negative emotions - such as disappointment, upset and distress because creating and implementing new ideas to enrich existing work practices are very difficult and the employees may always experience failure during the processes. However, while the employees feel encouraged by their leaders’ concern and support, they can continue to focus their effort in generating and practicing new ideas at work (Bryant 2003; Jung 2001).

Finally, transformational leaders often serve as role models to energize employees by articulating positive processes and experiences of innovation. In these processes and experiences, the employees tend to focus on the success of accomplishing the collective goals rather than spending their effort and time to leverage issues external to the task at hand (Zhou, 2003). The concentration and positive experience would nurture an orientation towards learning and development which may lead to increased employees’ creativity and implementation abilities. Thus, we hypothesize:

**Hypothesis 1:** Transformational leadership is positively related to a) employees’ creativity and b) implementation.

**Transformational Leadership and Psychological Empowerment**

Building on the work of Conger and Kanungo (1988) and Thomas and Velthouse (1990), Spreitzer (1995) proposed the concept of psychological empowerment to explain conditions under which employees would experience intrinsic motivation when fulfilling the requirements of their work roles. According to this concept, organizations can influence employees’ positive attitude and behavior by enhancing their work roles along four cognitions. The cognitions include: *meaning* (a fit between the requirements of a work role and a person’s beliefs, values and behaviors) (Brief & Nord 1990); *impact* (the degree to which a person can influence strategic, administrative or operating outcomes at work) (Ashford 1999); *competences* (self-efficacy or personal mastery specific to work – a belief in
one’s capability to perform work activities) (Gist 1987); and *self-determination* (a sense of choice in initiating and regulating actions in making decision about work) (Deci et al. 1989).

According to Thomas and Velthouse (1990), empowerment is developed based on social cognitions so individuals rely on informational cues from their social contexts to make judgments about their jobs and working environments. This notion suggests that individuals’ perceptions of their working environments are shaped by their subjective interpretations rather than some objective reality. In this regard, researchers, such as Smircich and Morgan suggested that leaders influence employees “by mobilizing meaning, articulating and defining what has previously remained implicit, by inventing images and meanings that provide a focus for new attention, and by consolidating, confronting, or changing prevailing wisdom” (1982: 258). These authors suggested that leaders are recognized as a key source of information cues and employees will rely on their leaders’ messages, attitudes and behaviors to make sense of their work roles.

Shamir et al. (1993) also asserted that transformational leaders can shape employees’ perceptions of their work roles by promoting value internalization and self-engagement with their work. This enables employees to see how their work is congruent with their personal goals and values. Once the employees experience this congruence, they view their individual effort and work roles as contributing to a larger collective effort for shared goals. This enhances the meaning and impact of the work roles and leads to psychological empowerment (Bono & Judge 2003). Furthermore, leaders who engage in individualized consideration by coaching and mentoring, raise their employees’ confidence in pursuing high standards in their performance of work roles because such leader behavior aims at developing the employees to reach their full potential (Bass 1985; Bass & Avolio 1994). This also increases the employees’ personal mastery and capabilities of performing their task. Finally, leaders who exhibit intellectual stimulation by motivating employees to create new ways to approach their jobs will determine their perceptions of job variety and autonomy because they are able to decide how to manage their job at hand. In sum, transformational leadership facilitates psychological empowerment by changing the way how employees interpret and experience the requirements of their work roles in different ways. Thus, we hypothesize:

**Hypothesis 2:** Transformational leadership is positively associated with psychological empowerment.
The Mediating Role of Psychological Empowerment

The mediating role of psychological empowerment in the relationships between transformational leadership and employees’ creativity and implementation is premised on intrinsic motivation theory. The core assumption of intrinsic motivation theory is that individuals have a strong desire to experience autonomy, competence, and meaningfulness in their work lives and the intensity of such feelings becomes a driving force to determine how effective and efficient the individuals will perform (Deci & Ryan 1985). On this basis, we propose psychological empowerment as an underlying mechanism to manifest the feelings of autonomy, competence and meaningfulness. As mentioned earlier, psychological empowerment is defined as “increased intrinsic task motivation manifested in a set of four cognitions reflecting an individual’s orientation to his/her work role” (Spreitzer 1995: 1443).

As a result, when an employee is empowered, he/she tends to be more creative because he/she experiences higher levels of self-efficacy, confidence, meaning and self-determination (Jung et al 2003; Zhou 1998).

Underpinned by intrinsic motivation theory, we expected that transformational leadership contributes to psychological empowerment which in turn influences employees’ creativity and implementation. Specifically, transformational leaders displaying individualized consideration are being sensitive to employees’ needs for their personal growth so the employees are provided with more opportunities for decision latitude and a greater amount of autonomy to control over their job (Bass 1985; Bass & Avolio 1994). Such employees would experience a sense of self-determination, perceiving themselves as more capable of influencing the details of their job, so they tend to generate and implement more creative ideas. Work by Avolio (1999 also) suggests that leaders emphasizing intellectual stimulation would increase employees’ level of concentration on the task at hand because they are engaged in mental exercises to generate new approaches to performing tasks in more effective ways. The employees deriving a sense of meaning from the challenging task would be likely to break cognitive mind-sets and come up with more new ideas for implementation (Shalley et al. 2000). Finally, employees who work with transformational leaders would feel empowered and energized to engage in idea generation and implementation because they are inspired by the compelling vision about the higher value of being innovative at work (Bass, 1985). Hence, we hypothesize:
Hypothesis 3: Psychological empowerment mediates the relationships between transformational leadership and a) employees’ creativity and b) implementation.

The Moderating Role of Creative Personality

According to Gough (1979) creative personality has been measured based on how individuals score on creative personality scale (CPS). For example, individuals who score high on CPS are described as self-confident, intelligence and capable whereas those who score low on the CPS are described as conventional, cautious, or dissatisfied. The characteristics of high and low creative individuals appear to suggest that the relationship between transformational leadership and psychological empowerment is contingent upon the different levels of employees’ creative personalities. Early work in creativity research demonstrates that individuals with more creative personalities tend to value a contextual condition that is supportive than those with less creative personalities (Oldham & Cummings 1996). This suggests that individuals with more creative personalities may be able to generate and implement more creative ideas working in a supportive context than those with less creative personalities working in the same context.

However, substitute leadership theory (Kerr & Jermier 1978) proposes an alternative view to theorize the moderating effect of creative personality. Specifically, the theory emphasizes that there are factors that potentially attenuate the positive implications of transformational leadership because individuals with more creative personalities are regarded as a potential factor which serves as a ‘neutralizer’ to reduce the leadership effect. In other words, while individuals with more creative personalities do not make transformational leadership redundant, they do reduce the potential impact of such leadership (Kerr & Jermier 1978). It is conceivable that an individual with more creative personalities could nullify the effect of transformational leadership on their psychological empowerment. This alternative view of the moderating effect is corroborated with the findings reported by Shin and Zhou (2003) who found that followers high on conservation (i.e., values of tradition, conformity and security) respond more positively to the effects of transformational leadership by experiencing high levels of intrinsic motivation than those low on conservation. On this basis, we propose that individuals with less creative personalities, who are relatively less self-confident and more conventional, should perceive transformational leadership as more instrumental so they will
experience higher levels of psychological empowerment to engage in innovative performance. In contrast, employees’ with more creative personalities, who are relatively more intelligent and capable, should perceive transformational leadership as less instrumental so they will experience low levels of psychological empowerment to engage in innovate performance. Hence, we make the following hypotheses:

**Hypothesis 4:** Creative personality moderates the relationship between transformational leadership and psychological empowerment in such way that for employees low on creative personality, transformational leadership has a stronger and positive impact on psychological empowerment than for employees higher on creative personality.

**Hypothesis 5:** Psychological empowerment mediates the interactive effect between transformational leadership and creative personality on a) employees’ creativity and b) implementation.

**METHOD**

**Sample and Procedure**

The sample for this study consisted of 300 supervisors and 50 middle-level managers working in four foreign joint-venture manufacturing companies located in a major city in China. The companies adopted Western management practices to enhance their operational effectiveness. The supervisors and their managers were responsible for facilitating the development of industrial products. Two forms of questionnaire were used to collect data from managers and employees. Each manager was asked to provide responses to items of creative performance and implementation for his/her immediate subordinates, and each subordinate was asked to provide responses to items pertaining to transformational leadership, creative personality and psychological empowerment. With the assistance of the human resource manager of each company, an identification code was used to match supervisor responses and manager ratings for each set of questionnaires.

A total 240 matched manager-supervisor dyads (37 managers and 240 supervisors) provided useable data for this study. Of the managers sample, 53 per cent were male, 73 per cent were aged above 36, and 60 per cent had tertiary education. Their average organizational tenure was 9.93 years. Of the supervisor sample, 55 per cent were male, 68 per cent were aged above 31, and 38 per cent had tertiary education. Their average organizational tenure was 5.83 years.
Measures

To assure equivalence of the following measures in the Chinese and the English versions of the survey instrument, a standard translation and back-translation procedure was used (Brislin 1980). All measures consisted of items with response options ranging from 1 “strongly disagree” to 7 “strongly agree”, unless otherwise indicated. The alpha of the scales is reported below Table 1.

**Transformational leadership.** The multifactor leadership questionnaire was used to measure individual perceptions of transformational leadership (MLQ 4X-short; Bass, & Avolio, 1995). Respondents provided responses on a seven-point scale ranging from 1 (Not at all) to 7 (Very often).

**Creative Personality.** This was assessed by creative personality scale developed by Gough (1979). The scale consisted of 30 personality adjectives which could be broken down into positive traits (18 items) and negative traits (12 items). The scale was designed to assess the extent to which an individual perceives himself/herself as creative.

**Psychological empowerment.** We used Spreitzer’s (1995) 12-item psychological empowerment scale to measure individual perceptions of empowerment. This scale is composed of four dimensions and each of which has three items to measure: meaning, self-determination, impact and competence.

**Creativity.** The extent to which individuals performed creatively was measured based on managers’ ratings of an 8-item abbreviated version of George and Zhou’s (2001) creativity scale. The items reflect the generation and communication of creative ideas.

**Implementation.** We used Borrill et al.’s (2000) six-item scale of implementation of innovation to measure the construct. The managers were asked to indicate how each of their subordinates had implemented and practiced new creative ideas at work.

RESULTS

Table 1 presents the descriptive statistics, reliabilities and correlations for our study variables. As hypothesized, transformational leadership was positively related to psychological empowerment ($r = .42, p < .01$), creativity ($r = .16, p < .05$) and implementation ($r = .17, p < .05$). Furthermore, psychological empowerment was positively related to creativity ($r = .20, p < .01$) and implementation ($r = .28, p < .01$).

Table 2 reports the regression results pertaining to Hypotheses 1 to 4. We conducted the
regression analysis by entering the control and study variables to a regression equation in different steps. We examined Hypotheses 1a and b by testing the relationships between transformational leadership, creativity and implementation. Table 2 - Step 2 indicates that transformational leadership was positively related with creativity \((\beta = .17, p <.05)\) and implementation \((\beta = .15, p <.05)\). These results provide support for Hypotheses 1a and b. To test Hypotheses 2, we explored the effect of transformational leadership on psychological empowerment. As predicated, results in Table 2 – Step 2 show that transformational leadership was positively related to psychological empowerment \((\beta = .37, p <.01)\). Hence, Hypotheses 2 received support.

In testing Hypotheses 3a to 4a, we explored the mediating role of psychological empowerment in the relationships between transformational leadership, creativity and implementation. The mediation effect was achieved when the relationships between transformational leadership and the outcomes become non-significant after the psychological empowerment was entered into the test but the effect of the mediator was still significant in Step 4. Results of Step 4 in Table 2 reveal that psychological empowerment was positively related to creativity \((\beta = .17, p <.05)\), whereas the link between transformational leadership and creativity became non-significant (beta dropped from \(\beta = .17, p <.05\) to \(\beta = .10, n.s\)) in Step 4. A similar pattern of results was found that psychological empowerment was positively associated with implementation \((\beta = .25, p <.01)\), whereas the link between transformational leadership and implementation also become non-significant (beta dropped from \(\beta = .15, p <.05\) to \(\beta = .04, n.s\)) in Step 4. Thus, both Hypotheses 3a to 4b received support.

In addition, we examined Hypothesis 4, the interaction effect between transformational leadership and creative personality on psychological empowerment. Results of Step 3 in Table 2 show that the interaction term between transformational leadership and creative personality had a negative impact on psychological empowerment \((\beta = -.23, p <.01)\) and the explained variance of the interaction term was significantly \((\Delta R^2 = .05, p <.01)\) in step 4. We plotted Figure 1 to explain the interaction pattern. The graph reveals that employees with low creative personality score experienced a higher level of psychological empowerment when their managers exhibit more transformational leadership rather than less. In contrast, employees with high creative personality score experienced lower levels
of psychological empowerment even their mangers exhibit more transformational leader behaviors. Hypothesis 4 received support.

To test Hypothesis 5, we followed the moderated mediation procedures outlined by Edwards and Lambert (2007) to examine whether creative personality moderates the relationship between transformational leadership, psychological empowerment and employees’ creativity as well as implementation. Table 2 shows that the interactive effects of transformational leadership and creative personality on both employees’ creativity and implementation were not significant. Results in Table 3 further indicate that at low levels of creative personality, transformational leadership was related to psychological empowerment which was also related to both employees’ creativity and implementation. However, the indirect effect of transformational leadership was only related to employees’ implementation ($\beta = .11, p < .05$). The results imply that psychological empowerment only mediated the interactive effect between transformational leadership and creative personality on employees’ implementation when employees with low creative personality. Thus, Hypothesis 5 received partial support.

DISCUSSION

Implications for Research

First, our study has responded to the call by Axtell et al. (2000) to examine the effect of transformational leadership on two aspects of employees’ innovation - creativity (idea generation) and implementation (idea implementation). Our results suggest that transformational leadership plays an important role in enhancing the idea generation and implementation processes. The findings also imply that employees’ creative idea generation and implementation should be studied together as outcomes to increase our understanding of the whole innovative process. Second, this study extends the existing research on transformational leadership and creativity by testing the mediating role of psychological empowerment in the relationships between transformational leadership, employees’ creativity and implementation. Our findings show that psychological empowerment fully mediated the transformational leadership-performance relationships, suggesting that employees are likely to be empowered when working with transformational leaders, and the empowered employees will tend to generate and implement more creative ideas. Third, the findings of this study confirm that the
relationship between transformational leadership and psychological empowerment varied as a function of employees’ creative personality characteristics. Underpinned by substitute leadership theory (Kerr & Jermier, 1978), our results suggest that employees with less creative personalities generally respond more favorably to the influence of transformational leadership by experiencing higher levels of psychological empowerment. This implies that follower characteristics such as personality play a role in the motivational process of transformational leadership, explaining why some employees feel higher levels of empowerment or intrinsic motivation than others (Howell et al., 1986).

**Implications for Practice**

Given employees’ innovation is important for organizational effectiveness, understanding psychological empowerment as a mediator for the relationship between transformational leadership and employees’ creativity and implementation has practical implications. Our results also suggest that transformational leaders are effective in elevating the levels of psychological empowerment of employees who generally have less creative personality characteristics. Although there are employees with relatively less creative personalities, they can experience benefits from working with transformational leaders to experience self-esteem and self-worth based on higher levels of empowerment. This magnifies the implications of transformational leadership. Not only does it provide support for employees’ creativity and implementation it also motivates the employees with less creative personalities to experience higher levels of empowerment. The employees may work hard to focus on the task at hand in order to generate more creative ideas and implement them for improving organizational processes and operations. Organizations should continue to invest resources and money to develop front-line supervisors and middle manages to be transformational leaders for effectiveness of employees’ innovation because they are especially helpful for employees with relative less creative personalities.

**Limitations and Future Research Directions**

Although this research makes several important contributions, this study has two limitations. First, the findings of this study provide support for the relationships hypothesized in the model but the cross-sectional nature of the research design has limited any possible interpretation of casual relationships among transformational leadership, psychological empowerment and performance.
outcomes. Hence, cross-sectional research design did not allow us to completely eliminate alternative interpretation of the results. Future research should address this issue by conducting a longitudinal or experimental study to strengthen casual inference. Second, this study drew its sample from the PRC, a country with a culture known to be highly collectivistic (Hofstede 1980). It is unsure whether the collectivistic orientation of this country would set a ceiling effect on the extent that an employee would recognize himself/herself as creative in general. This is possible because creative personality was found to be unrelated with creativity and implementation, and hence the issue of range restriction may affect the present findings. Future study could consider theorizing and testing cultural values such as power distance, collectivism and individualism as boundary conditions to examine whether or not the relationships are altered under different cultural situations.

REFERENCES


Gough HG (1979) A creative personality scale for the adjective check list. *Journal of Personality and


Psychology, 88: 413-422.
TABLE 1
Means, Standard Deviations, Reliabilities, and Correlations among Study Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
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<tr>
<td>1. Age of employees</td>
<td>35.01</td>
<td>9.12</td>
<td>-</td>
<td>-</td>
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<tr>
<td>2. Gender of employees</td>
<td>1.55</td>
<td>.50</td>
<td>-.21**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>3. Education</td>
<td>2.80</td>
<td>1.34</td>
<td>.11</td>
<td>-.25**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4. Organizational Tenure</td>
<td>5.83</td>
<td>3.89</td>
<td>-.27**</td>
<td>-.25**</td>
<td>.06</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5. Transformational leadership</td>
<td>5.63</td>
<td>.95</td>
<td>.04</td>
<td>-.08</td>
<td>.29**</td>
<td>.09</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>6. Creative personality</td>
<td>1.66</td>
<td>3.23</td>
<td>.08</td>
<td>-.08</td>
<td>.21**</td>
<td>-.00</td>
<td>.19**</td>
<td>-</td>
<td>-</td>
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<td>7. Psychological empowerment</td>
<td>5.06</td>
<td>.75</td>
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<td>-.03</td>
<td>.22**</td>
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<td>.42**</td>
<td>.20**</td>
<td>-</td>
<td>-</td>
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<td>-.19**</td>
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<td>.21**</td>
<td>.16*</td>
<td>.06</td>
<td>.20**</td>
<td>-</td>
<td>-</td>
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<td>9. Implementation</td>
<td>4.93</td>
<td>1.01</td>
<td>-.10</td>
<td>-.03</td>
<td>.25**</td>
<td>.15*</td>
<td>.17*</td>
<td>.08</td>
<td>.28**</td>
<td>.69**</td>
<td>(.93)</td>
</tr>
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</table>

a N = 240. Internal consistency reliabilities appear in parentheses along diagonal.
b Age of employees = exact age or year of birth
c Gender of employee was coded: 1 = Female, 2 = Male.
d Education level was coded: 1 = Junior school, 2 = technical studies, 3 = Matriculation, 4 = tertiary, 5 = undergraduate or above
e Organizational tenure = Length of time in years employees have worked in their organization.
* p < .05; ** p > .01
# TABLE 2

Results of Hierarchical Regression Analysis for the Hypothesized Relationships

<table>
<thead>
<tr>
<th>Variables</th>
<th>Psychological Empowerment</th>
<th>Creativity</th>
<th>Creativity</th>
<th>Implementation</th>
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<td><strong>Step 1 - Controls</strong></td>
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<td>Age</td>
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<td>.11</td>
<td>.11</td>
<td>-.00</td>
<td>-.00</td>
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<tr>
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<td>.11</td>
<td>.05</td>
<td>.24**</td>
<td>.20**</td>
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<td>.17</td>
<td>.17*</td>
<td>.15*</td>
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<td><strong>Step 2 - Main Effects</strong></td>
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<td>Transformational Leadership</td>
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<td>.17*</td>
<td>.10</td>
<td>.15*</td>
<td>.04</td>
</tr>
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<td>Creative Personality</td>
<td>.12*</td>
<td>.02</td>
<td>.01</td>
<td>.02</td>
<td>.00</td>
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<td><strong>Step 3 - Moderating Effect</strong></td>
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<tr>
<td>Transformational Leadership x Creative Personality</td>
<td>-.23**</td>
<td>.04</td>
<td>.00</td>
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<td>Psychological Empowerment</td>
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<td></td>
<td>.25**</td>
<td></td>
</tr>
</tbody>
</table>

| F                  | 11.672                  | 5.077      | 5.841      |
| R²                 | .26**                   | .12**      | .13**      |
| Adjusted R²        | .24**                   | .09**      | .11**      |
| ΔR²                | .05**                   | .02**      | .04**      |

* p < .05; ** p > .01
TABLE 3

Analysis of Simple Effects from the First and the Second Stage Moderation Model

<table>
<thead>
<tr>
<th>Moderator</th>
<th>TL on PE</th>
<th>PE on</th>
<th>Direct effect of TL on PE</th>
<th>Indirect effect of TL on PE</th>
<th>Total effect on PE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PE</td>
<td>Creat</td>
<td>Implem</td>
<td>Creat</td>
<td>Implem</td>
</tr>
<tr>
<td>Low Employee Creative Personality</td>
<td>.59**</td>
<td>.10</td>
<td>.40**</td>
<td>.14</td>
<td>.03</td>
</tr>
<tr>
<td>High Employee Creative Personality</td>
<td>.10</td>
<td>.10</td>
<td>.15</td>
<td>.08</td>
<td>.10</td>
</tr>
<tr>
<td>Differences of Low and High Effects</td>
<td>-.49**</td>
<td>.13</td>
<td>22</td>
<td>-.06</td>
<td>.07</td>
</tr>
</tbody>
</table>

1. N = 240.
2. TL = Transformational leadership; PE = Psychological empowerment; CP = Creative Personality; Creat = Creativity; Implem = Implementation
3. * p <.05; ** p <.01.
FIGURE 1
Moderating Effect of Creative Personality on the Relationship between Transformational Leadership and Psychological Empowerment