The Dual Effect of Transformational Leadership on Individual- and Team-Level Creativity

BY

EKUNDAYO AKINLADE
B.S., University of Reading, 1983
M.S., Imperial College of Science and Technology, 1987
M.B.A. University of Connecticut, 1996

THESIS

Submitted as partial fulfillment of the requirements
for the degree of Doctor of Philosophy in Business Administration
in the Graduate College of the
University of Illinois at Chicago, 2014

Chicago, Illinois

Defense Committee:

Robert C. Liden, Chair and Advisor
Shelley L. Brickson
Jenny M. Hoobler
Pam Tierney, Portland State University
Sandy J. Wayne
This dissertation is dedicated to all those who never stopped supporting and believing in me even when the journey seemed endless, and to my late sister, Funto Lucas, who taught me never to give up, even when the going gets tough! Indeed, “I can do all things through Christ who strengthens me.” – Philippians 4:13
ACKNOWLEDGEMENTS

I would like to thank my dissertation chair and advisor, Professor Robert Liden, for his guidance and encouragement throughout my program. I would also like to thank other members of my committee, Professors Shelley Brickson, Jenny Hoobler, Pam Tierney and Sandy Wayne, for their invaluable input, time and support.

In addition, I would like to thank the following people without whom this dissertation would have been possible. To my husband, Bolanle, and children, Ayobami, Toyosi and Lolade - thank you for the unique and critical role you each played in motivating me to finish. To my parents Kofo and Tokunbo Lucas, and brothers, Funlade and Ladipo Lucas, thank you for your unwavering support and encouragement throughout the process. To my friends, especially Bernice Adjei and Janet Ofori-Darko, thank you for your tremendous help, prayers and words of wisdom. To all the participants who completed the surveys, thank you for your time and effort. Finally, to Nancy Bottoms, our administrative staff, thank you for your constant willingness to assist me any way you could throughout my program.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>2. LITERATURE REVIEW</td>
<td>9</td>
</tr>
<tr>
<td>2.1 Transformational Leadership</td>
<td>9</td>
</tr>
<tr>
<td>2.2 Creativity</td>
<td>11</td>
</tr>
<tr>
<td>2.3 Mediating Factors: Creative Efficacy Beliefs and Creative Role Identities</td>
<td>14</td>
</tr>
<tr>
<td>2.4 Moderating Factor: Perceived Organization Support for Creativity</td>
<td>17</td>
</tr>
<tr>
<td>3. THEORY AND HYPOTHESES</td>
<td>19</td>
</tr>
<tr>
<td>3.1 Individual-Level relationships</td>
<td>19</td>
</tr>
<tr>
<td>3.2 Group-Level relationships</td>
<td>28</td>
</tr>
<tr>
<td>3.3 Cross-Level Relationships</td>
<td>35</td>
</tr>
<tr>
<td>3.4 Moderating Factor: Perceived Organizational Support for Creativity</td>
<td>37</td>
</tr>
<tr>
<td>4. METHOD</td>
<td>40</td>
</tr>
<tr>
<td>4.1 Participants and Procedures</td>
<td>40</td>
</tr>
<tr>
<td>4.2 Survey Measures</td>
<td>41</td>
</tr>
<tr>
<td>4.3 Team Members’ Survey Measures</td>
<td>42</td>
</tr>
<tr>
<td>4.4 Project Team Leaders’ Survey Measures</td>
<td>44</td>
</tr>
<tr>
<td>4.5 Board Directors’ Survey Measures</td>
<td>44</td>
</tr>
<tr>
<td>4.6 Control Variables</td>
<td>44</td>
</tr>
<tr>
<td>4.7 Aggregation Tests</td>
<td>46</td>
</tr>
<tr>
<td>4.8 Analytical Strategy</td>
<td>46</td>
</tr>
<tr>
<td>5. RESULTS</td>
<td>50</td>
</tr>
<tr>
<td>5.1 Descriptive Statistics</td>
<td>50</td>
</tr>
<tr>
<td>5.2 Individual-Level Hypotheses</td>
<td>50</td>
</tr>
<tr>
<td>5.3 Team-Level Hypotheses</td>
<td>52</td>
</tr>
<tr>
<td>5.4 Cross-Level Hypotheses</td>
<td>53</td>
</tr>
<tr>
<td>5.5 Moderating Hypotheses</td>
<td>54</td>
</tr>
<tr>
<td>6. DISCUSSION</td>
<td>55</td>
</tr>
<tr>
<td>6.1 Overview</td>
<td>55</td>
</tr>
<tr>
<td>6.2 Theoretical Implications</td>
<td>56</td>
</tr>
<tr>
<td>6.3 Practical Implications</td>
<td>62</td>
</tr>
<tr>
<td>6.4 Strengths, Limitations and Future Research</td>
<td>63</td>
</tr>
<tr>
<td>6.5 Conclusion</td>
<td>64</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS (Continued)

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>REFERENCES</td>
<td>65</td>
</tr>
<tr>
<td>TABLES</td>
<td>86</td>
</tr>
<tr>
<td>FIGURES</td>
<td>91</td>
</tr>
<tr>
<td>APPENDIX</td>
<td>93</td>
</tr>
<tr>
<td>VITA</td>
<td>95</td>
</tr>
</tbody>
</table>
## LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. MEANS, STANDARD DEVIATIONS, RELIABILITIES, AND INTERCORRELATIONS AMONG STUDY VARIABLES</td>
<td>86</td>
</tr>
<tr>
<td>II. RESULTS OF HIERARCHICAL LINEAR MODELING</td>
<td>88</td>
</tr>
<tr>
<td>III. RESULTS OF REGRESSION ANALYSIS FOR INDIVIDUAL-LEVEL DEPENDENT VARIABLES (DV)</td>
<td>89</td>
</tr>
<tr>
<td>IV. RESULTS OF REGRESSION ANALYSIS FOR TEAM-LEVEL DEPENDENT VARIABLES (DV)</td>
<td>90</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>FIGURE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RELATIONSHIPS BETWEEN INDIVIDUAL-FOCUSED AND GROUP-FOCUSED TFL AND INDIVIDUAL AND TEAM CREATIVITY</td>
</tr>
<tr>
<td>2</td>
<td>SUMMARY OF THE RESULTS OF THE HYPOTHESIZED MODEL</td>
</tr>
</tbody>
</table>
# LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFA</td>
<td>Confirmatory Factory Analysis</td>
</tr>
<tr>
<td>CFI</td>
<td>Comparative Fit Index</td>
</tr>
<tr>
<td>HLM</td>
<td>Hierarchical Linear Modeling</td>
</tr>
<tr>
<td>ICC</td>
<td>Intraclass Correlation Coefficient</td>
</tr>
<tr>
<td>LMX</td>
<td>Leader-Member Exchange</td>
</tr>
<tr>
<td>RMSEA</td>
<td>Root Mean Square Error of Approximation</td>
</tr>
<tr>
<td>TFL</td>
<td>Transformational Leadership</td>
</tr>
</tbody>
</table>
SUMMARY

Research on the relationship between transformational leadership (TFL) and creativity has produced mixed findings both at the individual and team levels of analysis, and it is not clear whether TFL has a positive, negative or non-significant influence on creativity. To better understand the relationship between TFL and creativity, the current study advances and tests an integrated and contingent multi-level model of TFL and creativity. Drawing on Amabile’s (1983, 1996) componential theory of creativity and Wang and Howell’s (2010) dual effect TFL framework, I contend that TFL has distinct effects on individual- and group-level creative processes and performance. Specifically, I propose that individualized TFL behaviors foster followers’ creative self-efficacy and creative role identity, promoting individual creativity. At the group level, I argue that group-focused TFL behaviors foster a team context that helps develop teams’ shared creative efficacy beliefs and creative identities, promoting team creativity. Also, I propose cross-level relationships between team creative processes and performance, and individual creative processes and performance respectively. Finally, I posit that employees’ perceptions of their organization’s support for creativity enhance the positive relationship between TFL and creativity at both the individual and team levels.

The results, using a sample of 139 professionals from 42 teams from a service-oriented organization, partially supported the relationships proposed in the model advanced. In particular, I found evidence of cross-level relationships between team creative efficacy and creative efficacy, and between team creativity and individual creativity. However, contrary to my prediction, TFL was not significantly related to creativity at the individual and team levels. The implications of these findings are discussed in light of recent theorizing that challenges the effectiveness of TFL on creativity.
1. INTRODUCTION

The internet, globalization, and the Arab Springs are a few examples of several technological, economical and political forces that have converged to produce one of the most complex, dynamic and challenging business environments ever. Yet, amidst this turbulence are unparalleled opportunities for businesses. Creativity is increasingly viewed as the “gold standard” that employees in all organizations, must possess to lead, thrive, or even survive in this highly competitive environment (Jung, Chow, & Wu, 2003). Accordingly, researchers and practitioners have invested much effort into understanding factors that promote (or inhibit) creativity in organizations (see Agars, Kaufman, Deane, & Smith, 2012; Anderson, De Dreu, & Nijstad, 2004; Shalley, Zhou, & Oldham, 2004, for reviews). Models of creativity have stressed the importance of leadership among the key factors affecting creativity (Mumford, Scott, Gaddis, & Strange, 2002). Transformational leadership (TFL), the focus of this study, is particularly relevant to creativity because it involves inspiring followers to challenge the status quo, think “outside the box” and think critically (Bass, 1985; Burns, 1978; Eisenbeiss, van Knippenberg, & Boerner, 2008; Piccolo & Colquitt, 2006; Shin & Zhou, 2007) - behaviors that have been identified as instrumental to creativity (Elkins & Keller, 2003; Gumusluoglu & Islev, 2009).

Indeed, various studies have examined the relationship between TFL and innovative behavior (e.g., Basu & Green, 1997; Howell & Avolio, 1993; Jaussi & Dionne, 2003; Jung, 2001; Jung et al., 2003; Kahai, Sosik, & Avolio, 2003; Shin & Zhou, 2003; Sosik, Kahai, & Avolio, 1998; Sosik, Kahai, & Avolio, 1999). However, it remains unclear whether TFL has a positive, non-significant or even a negative effect on followers’ creativity. For example, while Shin and Zhou’s (2003) study demonstrated that TFL is associated with higher levels of individual creativity, Jaussi and Dionne (2003) found no empirical evidence that the two were
positively related. However, in the same study, Jaussi and Dionne (2003) found a significant but negative relationship between TFL and team creativity. This was in contrast to previous studies that showed a positive relationship between TFL and team creativity (e.g., Jung 2001; Sosik et al., 1998; Sosik et al., 1999). Evidently, the relationship between TFL and creativity, especially at different levels of analysis, is a complex one that current research is yet to fully understand.

In light of these inconsistent findings, the purpose of this dissertation is to contribute to a deeper understanding of the relationship between TFL and creativity in organizations. To do so, I adopted a multilevel theoretical perspective, which may offer valuable insights into the TFL-creativity link for several reasons. First, research and theoretical advancement in the leadership literature underscore the inherent multilevel nature of leadership (Wang & Howell, 2010, 2012; Yammarino & Dansereau, 2008). Yet, as Yammarino and Dansereau (2008) noted, the vast majority of research on leadership has been conducted almost exclusively at a single level of analysis, predominantly at the individual level and to a lesser extent at the group level. This focus on a single level does not consider how processes at one level may influence processes at another level. Failure to adopt a multilevel approach may result in drawing misleading inferences and a limited understanding of the effect of leadership on followers’ outcomes (Chen et al., 2007; Wang & Howell, 2010, 2012; Yammarino & Dansereau, 2008).

Second, creativity scholars contend that since creativity is often enacted within the context of teams, fostering creativity in organizations not only requires understanding individual creativity but also warrants insights into team creativity and the dynamic interplay between these two levels of creativity (Hirst, van Knippenberg, & Zhou, 2009; Howell & Avolio, 1993; Richter, Hirst, van Knippenberg, & Baer, 2012). Traditional approaches to creativity research have focused on creativity at the individual level of analysis with relatively little attention paid to
team level creativity (Kurtzberg & Amabile, 2001; West & Sacramento, 2012). Thus, for a thorough and more integrated understanding of creativity in the workplace, careful consideration of the creative phenomenon at different levels of analysis is required (Kozlowski & Klein, 2000).

Recently, Wang and Howell (2010) laid the groundwork for multilevel TFL studies by developing a scale that divided TFL behaviors into two levels, individual-focused and group-focused behaviors. *Individual-focused TFL behaviors* are theorized to empower individual followers to develop their full potential, enhance their abilities and skills, and improve their self-efficacy and self-esteem. *Group-focused TFL behaviors* are aimed at communicating the importance of group goals, developing shared values and beliefs, and inspiring unified effort to achieve group goals amongst team members (Wang & Howell, 2010). Thus, although transformational leaders have been found to influence both individual- and team-level processes and outcomes (e.g., Wang & Howell, 2010, 2012; Wang & Zhu, 2011), there could be important differences in how they affect teams as a whole versus individual members’ processes and outcomes. Preliminary evidence from Wang and Howell’s (2010) study showed that outcomes associated with individual-focused TFL behaviors (task performance and personal initiative at the individual level) differed from outcomes associated with group-level TFL behaviors (team performance and helping behavior at the team level). The current study extends Wang and Howell’s (2010) work to the domain of creativity.

In building a model linking individual- and group-focused TFL behaviors to creativity, I also considered the mechanisms underpinning these relationships. Several authors have argued that examining the processes through which leaders enhance their followers’ creativity is a promising direction for understanding creative action in organizations and could also help explain some of the discrepant findings in the literature (e.g., Gong, Huang, & Farh, 2009).
Because both efficacy beliefs and role identities serve as strong regulatory guides influencing followers’ motivational processes and have been documented to be critical drivers of performance in several task domains (Lord & Brown, 2001), they are particularly relevant to creativity. Therefore, I simultaneously examined the mediating role of creative self-efficacy and creative role identity at the individual level, and team creative efficacy and team creative role identity at the team level, on the relationship between TFL and creativity.

Moreover, the current study investigated cross level relationships, answering calls in the extant organizational behavior literature for more integrative approaches across multiple levels for a more comprehensive understanding of workplace phenomena (Kozlowski & Klein, 2000). These calls have been echoed in both the TFL and creativity literatures (e.g., Drazin, Glynn, & Kazanjian, 1999; Yammarino & Dansereau, 2008). For example, Wang and Howell (2012) highlighted the importance of exploring cross-level relationships arguing that to fully understand effective leadership it is necessary to integrate individual-level processes with group-level processes. Similarly, in the creativity literature, in response to calls for multilevel creativity research, scholars have begun adopting a cross-level perspective to enhance our understanding of how creativity unfolds at the individual and team levels (e.g., Hirst et al., 2009; Hirst, van Knippenberg, Chen, & Sacramento, 2011; Richter et al., 2012; Zhou & Shalley, 2008). With this in mind, I aimed to further integrate the TFL and creativity literatures by examining the cross-level relationships between group level creative processes (team creative efficacy and team creative role identity) and individual level processes (creative self-efficacy and creative role identity), linking TFL to individual and team creativity.

Finally, since context may enhance or constrain leadership behavior (House & Aditya, 1997; Schriesheim, Wu, & Scandura, 2009), and context also has a profound effect on how
creativity is enacted in organizations (Oldham & Cummings, 1996; Shalley et al., 2004; Woodman, Sawyer, & Griffin, 1993), it follows that the social context in which individuals are embedded may augment or mitigate the effects of TFL on their creativity (Agars et al., 2012). In particular, because individuals are embedded in teams and teams are in turn embedded in organizations, understanding how perceptions of the organizational context influences both team and individual level processes is important. Given this, I build on and extend previous work (e.g., Rich, Lepine, & Crawford, 2010; Scott & Bruce, 1994) that found a supportive work context enhanced creativity. Specifically, I explored the moderating role of perceived organizational support for creativity on the relationship between TFL and creativity at both the individual and team levels. I argue that while TFL behaviors in general may inspire follower creativity as mentioned above, the benefits may be enhanced by a supportive context.

In summary, I developed and tested a contingent multilevel model that links TFL to individual- and team-level creativity via four intervening processes (see Figure 1). Amabile’s (1983, 1996) co-mponential model of creativity serves as the overarching theoretical framework for the model advanced. The basic assumptions of this model are that contextual factors influence individual cognitive and motivational processes, which in turn drive creativity. I contend that when leaders exhibit TFL behaviors this elicits critical cognitive and motivational processes at the individual level (creative role identity and creative self-efficacy) and group level (team creative role identity and team creative efficacy) that foster individual and team creativity.

- Insert Figure 1 about here -
Overall, the present study offers several important contributions to the literature. First, adopting a multi-level perspective responds simultaneously to calls for multilevel TFL (e.g., Wang & Howell, 2010, 2012; Wu, Tsui, & Kinicki, 2010), and creativity (e.g., Shalley et al., 2004; Zhou & Shalley, 2008) theorizing and research. Traditionally, research based on multilevel theoretical frameworks addressing creativity (Drazin et al., 1999) has assumed that the relationships are parallel across levels of analysis, in other words, that they are homologous (Chen, Bliese, & Mathieu, 2005; Kozlowski & Klein, 2000; see also, Chan, 1998, compositional model). However, multilevel research directly testing these homologous models, are scarce (Chen & Bliese, 2002; Chen et al., 2005; House, Rousseau, & Thomas-Hunt, 1995; Kozlowski & Klein, 2000). Yet, we cannot assume that relationships at one level will necessarily hold at another level (Chen et al., 2005). For example, Chen and Bliese (2002) found at the team level, that leadership climate more strongly predicted collective efficacy than self-efficacy, whereas individual differences (e.g., role clarity) was a stronger predictor of self-efficacy than of collective efficacy at the individual level. The current study extends this line of work by examining the extent to which the relationship between TFL behaviors, creative efficacy beliefs, creative role identities and creative performance, are homologous across the individual and team levels. Examining the similarities and distinctiveness between individual and team-level creative processes should allow for greater integration between micro and macro creativity models, and provide a more coherent multilevel understanding of how creativity emerges at different levels of an organizations (Chen et al., 2002). For example, it is possible that research findings at one level of analysis can be applied to another level to generate testable propositions (Lindsley, Brass, & Thomas, 1995) and advance theory.

Further, by considering cross-level effects responds to calls to consider compositional as
well as the cross-level effects in multilevel research (e.g., Lindsley et al., 1995). As Wang and Howell (2012) noted, the cross-level approach can delineate the “complementary and synergistic” way through which group-level and individual-level processes jointly influence outcomes at both the individual and team levels, which may explain additional variance and advance our understanding of TFL’s influence on individual and team creativity. Investigating such cross-level effects also contributes to the emerging trend in the general organizational behavior literature, focusing on meso-theorizing.

Second, several organizational scholars have expressed concern over the “main effect” approach that has dominated much of TFL and creativity research (e.g., Hirst et al., 2009; Richter et al., 2012; Schaubroeck, Cha, & Lam, 2007), calling for new conceptual studies to investigate how (i.e., via which processes) and when (i.e., under which conditions) TFL influences creativity. This study addresses these concerns by exploring four different mechanisms linking TFL to creativity and examining contingencies that moderate the effect of TFL on creativity at both the individual and team levels.

From a practical perspective, a better understanding of how leaders can simultaneously influence individual and team creativity is important for leadership development programs. Each year, organizations spend substantial revenue on leadership development with varying returns on their investment. For example, in a recent analysis, Avolio and colleagues (Avolio, Avey, & Quisenberry, 2010) found that return on a leadership development initiative ranged from a negative (-$460,588) to a highly positive ($5,811,600) effect. They stressed the importance of understanding contextual and personal factors that could influence the return on leadership development investment. Findings from this study could serve as valuable inputs for organizations interested in improving their leadership development programs to ensure that they
derive significant returns from their investments. For example, it could offer insights as to leadership skills that could be effective at one level of analysis but have unintended consequences, positive or negative, at another level (Lindsley et al., 1995).
2. LITERATURE REVIEW

2.1 Transformational Leadership (TFL)

Over the past few decades, TFL has emerged as arguably one of the most influential leadership theories (Bono & Judge, 2003; Piccolo & Colquitt, 2006). Originally conceptualized by Burns (1978) and further extended by Bass (1985), TFL has been positively linked to various individual, group and organizational outcomes (see Judge & Piccolo, 2004 for review). Central to Burn’s (1978) original model of TFL is a focus on followers’ outcomes. In particular, transformational leaders are proposed to motivate their followers to realize performance outcomes beyond expectations by elevating followers’ needs and desires from self-interest to a higher purpose or vision (Bass, 1985; Eisenbeis & Boerner, 2013). However, similar to other leadership styles, TFL researchers contend that these outcomes are achieved through the leaders’ observed behaviors, shifting the focus of more recent TFL models to leader behaviors (Conger, 1999).

Furthermore, TFL scholars argue that a key distinguishing aspect of TFL from traditional leadership styles is a focus on change and innovation (Bass & Riggio, 2006; Burns, 1978). Specifically transformational leaders are purported to exhibit behaviors that closely match the determinants of creativity in the workplace, such as encouraging followers to think ‘outside the box’, to challenge the status quo, and to adopt an exploratory critical thinking approach to their work (Bass & Riggio, 2006; Elkins & Keller, 2003). As such, TFL is viewed as potentially enhancing creativity and innovation (Agar et al., 2012; Eisenbeiss & Boerner, 2013; Rosing, Frese, & Bausch, 2011).
Indeed, in a recent meta-analysis, Rosing et al. (2011) found a .28 weighted and corrected mean correlation between TFL, and creativity and innovation, for the 31 studies they analyzed. Although Rosing et al.’s study paints an optimistic picture of the effects of TFL on employee innovative behaviors, a closer look at the evidence from the individual studies that comprised this meta-analysis suggests a less positive picture. Correlations varied considerably between studies, from a highly significant but negative relationship between TFL and group creativity ($r = -0.28$; Jaussi & Dionne, 2003), to a highly positive relationship between TFL and individual creativity ($r = 0.30$; Moss & Ritossa, 2007). One reason given by the authors for these differences was the level of analysis the study was conducted, underscoring the importance of examining the effects of TFL behaviors at multiple levels.

While transformational leaders are proposed to influence their followers both at the individual and team levels, traditionally most TFL research studies have focused on individual level outcomes with less emphasis on its effect on group level processes. The individual-level perspective assumes that the same leader displays different behaviors towards each follower resulting in an individualized perception of leadership behavior (Wang & Howell, 2010; Wu et al., 2010). When transformational leaders engage in differentiated behaviors, they adjust their behaviors to followers’ individual needs, such as providing them with challenging and relevant work experience, and resources to accomplish their tasks. As a result, transformational leaders can foster a work environment that is conducive to innovative behavior (Bass, 1985).

However, because leadership by nature is multilevel, occurring not only between individual leaders and their followers, but also between leaders and teams (Yammarino & Dansereau, 2008), researchers have begun to conceptualize TFL as a group-level construct. Group-focused TFL is based on the idea that the leaders act in a similar manner to all followers,
resulting in the emergent of followers’ shared perceptions of their leaders’ behaviors (Conger & Kanungo, 1987). Through group-focused behaviors, transformational leaders realign followers’ self interests, encouraging them to develop shared work goals (Nielsen & Daniels, 2012). Several studies have provided evidence of shared perceptions of TFL behaviors within work groups and positive outcomes for both individuals and teams, including team creativity (e.g., Shin & Zhou, 2007).

Although TFL researchers have begun to focus on group-level TFL, true multilevel models that concurrently examine the relationship between TFL and performance at multiple levels are rare (see Wang & Howell, 2010, 2012; Wu et al., 2010 for exceptions). Yet, it is important to consider levels of analysis issues since it is possible that performance at one level influences, or even conflicts with, performance at another level (Hirst et al., 2009). Perhaps the most compelling evidence bearing on this point, is provided by Wu et al.’s. (2010) study, which in accordance with Kark and Shamir’s (2002) theoretical development, conceived TFL as comprising individual- and group-focused behaviors. They found that individual-focused TFL diminished group effectiveness, whereas group-focused TFL positively contributed to group effectiveness. Building on this, Wang and Howell (2010) developed and tested a dual effect TFL scale that divided TFL behaviors into individual and group-focused behaviors and addressed some of the issues identified with the global measure of TFL, as I will discuss later (see Schriesheim et al., 2009 for full discussion). The current study extends this framework to the creativity domain.

2.2. Creativity

Following consensus in the creativity literature, I define creativity as the production of novel and useful ideas concerning products, services, methods or procedures by individuals or
teams (Zhou & George, 2003). This definition of creativity is conceptually distinct from innovation in that creativity involves the production of new and useful ideas, whereas innovation includes idea generation as well as implementation throughout an organization (Shin & Zhou, 2007).

The traditional “person approach” to creativity research can be traced back to its intellectual roots in psychology, with a focus largely on individual differences such as personality and intellectual traits, and less attention on context (Agar et al., 2012; Drazin et al., 1999; West & Sacramento, 2012). This is in contrast to macro-level approaches that have dominated the study of innovation in organizations, which have focused essentially on contextual factors, such as strategy, organizational structure, climate, and available resources, but disregarded the individual (West & Sacramento, 2012). While these two approaches yielded noteworthy conclusions, they also raise a number of important questions. For instance, how does the social context of work interplay with individual characteristics to affect creativity?

One theoretical approach instrumental in integrating these two streams of research is the social psychological perspective, illustrated in Amabile’s (1983) componential model of creativity. According to Amabile’s (1983, 1996) componential model, creativity emerges at the intersection of three components considered essential for creativity: domain-relevant skills, creativity-relevant skills and task motivation. Domain-relevant skills include knowledge, technical skills, and special domain-relevant talents, and are viewed as the “raw materials” individuals require to generate novel and useful ideas (Amabile, 2012). Creativity-relevant skills refer to the ability to think critically, generate alternatives, engage in divergent thinking or to solve problems creatively (Amabile, 1996; Gong et al., 2009). Task motivation includes an individual’s reaction to the intrinsic properties of a task, and determines the extent to which
domain relevant skills and creativity-relevant skills will be fully applied towards successful creative performance (West & Sacramento, 2012). While these three components are a function of individual differences, a central theme in Amabile’s (1996) componential model is that elements of the work environment will impact individual and team creativity by influencing expertise, creativity skills and task motivation.

The importance of context was further emphasized in Woodman et al.’s (1993) theory of organizational creativity, proposed to be one of the first true multi-level models of creativity (Drazin et al., 1999; West & Sacramento, 2012). The model identified both situational factors, such as group norms at the group level, and resources at the organizational level, and dispositional factors, such as cognitive abilities, as having direct and indirect influences on individual creative outcomes (West & Sacramento, 2012). The major implication of these theories is the increased recognition that to fully understand creativity in the workplace, careful consideration of context, and the complexities such context presents, must be taken into account (Agar et al., 2012; West & Sacramento, 2012), underscoring the need to adopt a multi-level approach to the study of creativity.

Wang and Zhu (2011) recently tested an integrated multilevel model of TFL and creativity. They found that individual TFL positively affected individual creativity through its influence on creative identity, whereas group TFL positively influenced group creativity and individual creativity by its influence on group creative identity. The researchers used a global TFL scale at both the individual and team levels, and did not distinguish between individual- and group-level TFL behaviors. The current study builds on this study by using Wang and Howell’s (2010) dual-level TFL model that partitions TFL behaviors into individual- and group–focused behaviors, to examine transformational leaders’ influence on individual and team creativity.
2.3 Mediating Factors: Creative Efficacy Beliefs and Creative Role Identities

Traditionally, the few studies that have explored the mediating processes linking TFL and creativity have focused on intrinsic motivation as a major driver of creativity (Gumusluoglu & Islev, 2009). This perspective contends that intrinsically motivated employees are more eager to learn, explore their interests and expend effort based on their interest and curiosity, leading them to focus on novel ideas (Amabile, 1983, 1996; Grant & Berry, 2011; Tierney, Farmer, & Graen, 1999). However, the empirical support linking intrinsic motivation to creativity has produced mixed results (George, 2007; Shalley et al., 2004), with some studies showing a positive effect on creativity (e.g., Amabile, 1985; Shin & Zhou, 2003), and others showing weak or non-significant relationships (e.g., Perry-Smith, 2006; Shalley & Perry-Smith, 2001). Of particular relevance to this study is empirical evidence, which showed that intrinsic motivation only partially mediated the relationship between TFL and creativity (e.g., Shin & Zhou, 2003), suggesting the possibility of other mediators. As Zhang and Bartol (2010) noted, according to Amabile’s (1983) componential conceptualization of creativity, “intrinsic motivation is a necessary but not sufficient condition for creative outcomes” (p111). As such, researchers have called for new theoretical approaches and empirical investigations to deepen our knowledge of the motivational mechanisms that fuel creativity (e.g., Mumford, 2000; Shalley et al., 2004; Zhou & Shalley, 2008).

One approach that offers a promising theoretical lens to investigate the mechanism linking TFL to creativity is social cognitive theory (Bandura, 1977), a motivational concept that is fundamental for understanding how individuals behave in a social context. Central to social
cognitive theory is that self-efficacy, an individual’s belief in his or her capability to produce given outcomes, is the key mechanism driving individuals’ behavior (Bandura, 1997; Liao, Liu, & Loi, 2010). Building on this theory, Tierney and Farmer (2002) developed the creative self-efficacy scale, which they defined as “the belief that one has the knowledge and skills to produce creative outcomes” (p1138). They argued that the conceptually more narrow creative self-efficacy might be more relevant to creative performance than general job self-efficacy because while one could have self-efficacy in performing one’s routine tasks, it is possible to lack self-efficacy in creative performance, which requires different sets of skills and inherently holds risks (Tesluk, Farr, & Klein, 1997). Further, in their study, Tierney and Farmer (2002) found that creative self-efficacy predicted creativity over and beyond job efficacy. Following the same logic, I examined the role of creative self-efficacy on the relationship between individual-focused TFL and creativity. Moreover, I extended this concept to the team level, where I investigated the role of team creative efficacy on the relationship between TFL and team creativity. This builds on Shin and Zhou’s (2007) study, which found that team creative efficacy mediated the relationship between TFL and team creativity. However, unlike Shin and Zhou that used a global measure of TFL, the current study examined the mediating effects of team creative efficacy on the relationship between group-focused TFL behaviors and team creativity.

In addition, an alternative and promising mechanism, proposed to have a profound effect on behavior in both the TFL and creativity literatures is an individual’s self-concept, viewed as the knowledge a person has about himself or herself such as competencies, attitudes, preferences and aspirations (van Knippenberg, De Dreu, & Homan, 2004; Wang & Howell 2012). Specifically, transformational leaders are proposed to exert their influence on followers through their self-concept (e.g., Kark, Shamir, & Chen, 2003; Lord, Brown, & Freiberg, 1999; Shamir,
Shamir et al. (1993) proposed the self-concept theory of leadership drawing on literature on self-categorization, self-construal, and social identity (Brewer & Gardner, 1996; Markus & Kitayama, 1991; Tajfel & Turner, 1986; Turner et al., 1987). According to this framework, the self-concept comprises an individual self, encompassing idiosyncratic characteristics; the relational self, encompassing relationships with significant others; and a collective self, encompassing shared identity with salient group members. Central to the tenets of this theory is the idea that the follower's self-concept may mediate the influence of leadership on followers’ attitude or behavior (e.g., Van Knippenberg et al., 2004). One illustration of the potential value of the self-concept of leadership perspective, may be found in a recent study by Wang and Howell (2012). Consistent with previous studies (e.g., Kark et al., 2003), they found that leader identification mediated the positive relationship between TFL and individual outcomes, providing evidence for the mediating role of identity processes in the relationship between TFL and outcomes. Moreover, evidence is provided for the importance of identity processes at the group level. For instance, Wu et al. (2010) found that group identification mediated the effect of group-focused TFL on group performance.

Similarly, creativity scholars have begun exploring the self-concept of role identity (Burke, 1991; Stryker, 1980) as an important mechanism for understanding how creativity unfolds in organizations (Farmer, Tierney, & King-McIntyre, 2003). A role identity is defined as a self-view attributed to oneself in relation to a specific role. In other words, role identities can be viewed as an extended sense of self based on the roles an individual performs. Drawing on role identity literature, Farmer et al. (2003) defined creative role identity as the extent to which creativity is part of one’s self-concept. According to role identity theory (Burke 1991; Stryker,
role identities motivate behavior consistent with the role, because people have a critical need for self-verification, that is, people’s desires for others to view them as they see themselves (Farmer et al., 2003; Markus & Wurf, 1987). The salience of an individual’s role identity may vary across situations, time and relationships. However, the more central it is, the more likely the individual will behave consistent with the role (Stryker, 1980). Extending this to the domain of creativity suggests that individuals with strong creative role identities are more likely to engage in creative behavior (Farmer et al., 2003). Several studies have provided evidence to support this contention (e.g., Farmer et al., 2003; Tierney & Farmer, 2011; Wang & Zhu, 2011). The current study integrates research on self-concepts from the TFL and creativity literatures by examining the mediating roles of creative role identities at the individual and team levels, including cross-level relationships.

2.4 **Moderating Factor: Perceived Organizational Support for Creativity**

Although it seems clear that leadership does make a difference with respect to creativity, it is also clear that we do not fully understand the conditions that make it possible for transformational leaders to positively influence their followers’ creativity, as evidenced by the inconsistent findings linking TFL to creativity (West & Sacramento, 2012). These contradictory findings suggest that more contingent models of TFL and creativity are required in order to broaden our understanding of the complexities of these relationships, such as, when they are likely to be positive or negative, or, stronger or weaker. To better understand these complexities, creativity researchers have drawn on a predominant framework in the creativity literature, an interactionist perspective, in which the effects of context on creativity are viewed not simply as additive as suggested in the componential model, but as interacting with other factors influencing creativity (Woodman et al., 1993). Based on this framework, several factors have been identified
as moderating the relationship between TFL and creativity including emphasis on quality, psychological empowerment and support for innovation (Eisenbeiss et al., 2008; Pieterse, van Knippenberg, Schippers, & Stam, 2010). In line with this contingent approach to the study of TFL and creativity, I examined the moderating role of perceived organizational support for creativity, which refers to employees’ perception of the extent to which their organization stimulates, respects, rewards, and recognizes creativity (de Stobbeleir, Ashford, & Buyens, 2011; Scott & Bruce, 1994; Zhou & George, 2001). As such, the present study builds on theory and research suggesting that supportive contexts encourage employee performance (see Shalley et al., 2004 for a review). Further, this focus on the role of moderators in the TFL-creativity relationship is also consistent with the emphasis on a contingency approach in the extant leadership literature (e.g., van Knippenberg & Hogg, 2003).
3. THEORY AND HYPOTHESES

3.1 Individual-Level Relationships

Creativity is a complex phenomenon that tends to involve complicated, ill-defined problems requiring relatively demanding and intensive effort (Ford, 2000; Mumford et al., 2002; Reiter-Palmon & Illies, 2004; Shalley & Gilson, 2004; Zhang & Bartol, 2010). For creativity to occur, individuals must be able to think divergently, see things from different perspectives, find fresh solutions to old problems, and combine previously unrelated processes, products, or materials into something new and better (Amabile, 1996; Mumford & Gustafson, 1988; Shin, Kim, Lee, & Bian, 2012; Shin & Zhou, 2007). Moreover, since creativity inherently involves risks (Tesluk et al., 1997), individuals also have to be willing to challenge the status quo, suggest ideas that could be contrary to the accepted norm or try new things with the risk of failing, and or the possibility of sanctions (Hirst et al., 2011). Thus for creativity to occur, followers must not only possess the ability to generate and share new and useful ideas, they must also believe that engaging in such activities will not be detrimental to them (West & Sacramento, 2012).

Theoretically, TFL behavior is critical to employees’ creativity for two primary reasons. First, Amabile’s (1993) componential model highlights the role played by contextual factors, such as leadership, in influencing the individual features critical for creativity, domain-relevant skills, creativity-relevant skills and task motivation, and ultimately influencing the level and frequency of creative behavior (Amabile, 1996, 2012). Research suggests that transformational leaders heighten followers’ awareness of problems, directing their attention toward discovering novel and useful ideas, urging them to explore and experiment with new approaches, and instilling a sense of purpose and meaning in their work (Shin & Zhou, 2003; Shin et al., 2012).
As such, TFL may help followers develop domain- and creative-relevant skills, critical for creativity, in addition to fostering their task motivation. Thus, building on Amabile’s componential theory, I contend that TFL is an important contextual factor that is likely to encourage followers to develop domain- and creative-relevant skills and stimulate their task motivation.

Secondly, since leaders have the authority to administer rewards and sanctions, leadership behaviors are particularly salient cues that followers use in evaluating whether engaging in creative activities could be potentially beneficial or costly (Detert & Burris, 2007; George, 2007). Leadership behaviors that motivate and inspire followers to engage in creative activities such as discussing and exploring new ideas, and supports employees during times of uncertainty, characteristic of creative work, signal to followers that engaging in such behaviors is not risky. Transformational leaders by assuring followers that individuality and unique perspectives are valued (Bass, 1985), provide a context that encourages followers to attempt creative activities without the fear of being penalized (Kahai et al., 2003; Shin et al., 2012; Wang & Zhu, 2011).

**Individual-focused TFL behavior and individual creativity.** I ground my analysis of the TFL-creativity link on recent theorizing regarding the multi-level nature of leadership, and concur that leadership can have distinct effects on individual and team level processes and outcomes (Chen et al., 2007; Kark & Shamir, 2002; Wang & Howell, 2010, 1012; Wu et al., 2010). Specifically, I draw on Wang and Howell’s (2010) framework, which divides TFL behaviors into individual- and group-level focused behaviors. I start by focusing on individual-level TFL behaviors, which are aimed at influencing individual employees by addressing the
uniqueness of each follower (Wang & Howell, 2010; Wu et al., 2010). Individual-focused TFL behaviors include four distinct dimensions: communicating high expectations, follower development, intellectual stimulation and, personal recognition. Each of these behaviors may help develop the skills relevant for creativity, motivate followers to be creative, and or help reduce the ambiguity accompanying creative work and perceptions of risks inherent in creativity, (de Stobbeleir et al., 2011; Liu et al., 2012).

The first dimension, communicating high expectations, encourages followers to strive for excellence, quality and high performance, and set high goals for themselves. Since a core premise of TFL theory is that transformational leaders are themselves change-oriented (Bass, 1985), their followers are more likely to believe that their leaders are “oriented towards the future rather than preserving the status quo” (Detert & Burris, 2007 p. 871). Also, when transformational leaders encourage followers to strive for quality, excellence, high performance and set high goals for themselves, this may motivate followers to perform tasks that are challenging and involve solving various complicated problems that require acts of creativity (Hirst et al., 2011) in an attempt to meet these high expectations. Moreover, by creating a context where excellence is valued, transformational leaders may encourage followers to critically reflect on the value of their ideas to ensure that they are novel and useful, which should increase the number of high quality ideas generated (Eisenbeiss et al., 2008). Therefore, while not explicitly stated, when transformational leaders communicate high expectations to their followers, expectations to perform creative acts may be implied, enhancing their creativity. This proposition is consistent with the Pygmalion effect (Eden, 1984), according to which the expectations of a leader for his or her follower in a given domain, drives performance in that domain (Scott & Bruce, 1994). Several studies have provided evidence of the Pygmalion effect
as it relates to leaders’ creative expectations and follower creative performance. For example, Tierney and Farmer (2004) found that leader’s creative expectations, through a series of mediating processes, increased followers’ creative performance.

The second dimension, follower development, enhances followers’ skills and abilities by paying close attention to each individual’s needs and wants, and encouraging personal development and expression. Empirical evidence suggests that the acquisition of knowledge and skills increases the range of domain-relevant skills available for recombination thereby enhancing creativity (e.g., Amabile & Gryskiewicz, 1987; Gong et al., 2009). Further, by adopting a developmental orientation, transformational leaders enhance their followers’ learning, which has been found to be a prerequisite essential for creative functioning (Amabile & Gryskiewicz, 1987; Gong et al., 2009; Weisberg, 1999). In addition, when transformational leaders show support, empathy and consideration through follower development behaviors, they demonstrate to their followers that engaging in creative activities is safe and welcomed, which helps them overcome the fear of challenging the status quo or suggesting ideas that deviate from the norm, promoting creative performance (Gong et al., 2009; Shin et al., 2012).

The third dimension, intellectual stimulation, directly encourages followers to challenge the status quo, reframe problems, think critically and adopt an exploratory approach to problem-solving (Bass & Riggio, 2006). Such TFL behaviors should help develop followers’ creativity-relevant skills and enhance individual creativity. For instance, it is clear from the creativity literature that creativity often emerges from creativity-relevant skills such as the ability to re-evaluate the status quo, and try novel and creative approaches to solving problems and performing tasks (Bass & Avolio, 1994). Moreover, inherent in intellectual stimulation is delegating authority to an employee, thus granting followers the autonomy to make decisions and
implement actions (Bass, 1985; Jung et al., 2003). Thus, a work context conducive to creativity is established whereby an employee is encouraged and empowered to explore diverse creative alternatives and solutions (Amabile et al., 1996).

The fourth dimension, personal recognition, involves leaders praising and acknowledging followers for achieving specified goals and providing feedback for good performance. Ford (1996) contends that cues from others in the work environment serve as important signals for employees to form views regarding their creativity (Tierney & Farmer, 2002). Thus, when leaders acknowledge improvement in their followers’ approach to their work, they are more likely to search for new and better ways of doing things, which is likely to lead to higher creativity (Amabile, 1996; Shin & Zhou, 2003). Further, research suggests that providing developmental feedback can promote and nurture the creative performance of employees because it reduces some of the uncertainty associated with the unpredictability of creative work (Zhou, 2008). Feedback may also suggest new paths for employees to consider for pushing work forward and stimulate new ideas for improving processes (de Stobbeleir et al., 2011). Thus collectively, all four dimensions are likely to work in constellation to motivate followers to try new and different approaches to their work, to take risks, and to explore and experiment with ideas and approaches, generating novel ideas. Several empirical studies have shown support for a positive impact of TFL on employee creativity (e.g., Howell & Avolio, 1993; Jung et al., 2003; Shin & Zhou, 2003).

Hypothesis 1: Individual-focused TFL behavior is positively related to individual creativity.

However, other studies have produced contrary results (e.g., Basu & Green, 1997; Jaussi & Dionne, 2003; Kahai et al., 2003). Responding to these contradictory findings, researchers
(e.g., Gong et al., 2009; Shin & Zhou, 2003) suggest that to achieve an adequate understanding of TFL processes it is important to consider the mediator through which TFL exerts its influence. Accordingly, in the next section I examine the role of two mediators, creative self-efficacy and creative role identity that may shed light on the processes underlying the TFL-creativity relationship and may help to explain some of the discrepant findings. The idea is that when individual-focused TFL behavior fosters creative efficacy beliefs and activates creative role identities, powerful self-regulatory processes related to motivation are engaged culminating in increased creative performance.

**Mediating role of creative self-efficacy between individual-focused TFL and individual creativity.**

TFL theory suggests that to the extent that leaders exhibit more TFL behavior, their followers are likely to feel more efficacious (Zhang & Bartol, 2010). Specifically, individual-focused TFL behavior should have an effect on efficacy judgments regarding followers’ creativity for several reasons. First, researchers (e.g., Eisenbeiss et al., 2008) argue that a context where excellence is valued encourages employees to work harder and persist to overcome obstacles - behaviors that closely match individuals with high creative self-efficacy. Also, in addition to communicating high expectations, transformational leaders also demonstrate confidence in their followers’ abilities to meet these expectations, which encourages them to focus on ideas or problems longer and more persistently (Deci & Ryan, 1991; Spreitzer, 1995). This should motivate them to continue their creative endeavors even when facing difficulties and failures. Finally, as discussed earlier, because of the change-oriented nature of transformational leaders (Bass, Avolio, Jung, & Berson, 2003), followers are likely to perceive that creativity is an important component of the high expectations communicated to them by their leaders. The
Pygmalion model (Eden, 1984) suggests that supervisor behavior that signals high performance expectations in any domain, is likely to enhance followers’ efficacy beliefs in that domain. A recent study by Tierney and Farmer (2011) provides support for this assertion. They found that increases in perceived creative expectation from supervisors over a 6-month time period enhanced employees’ creative self-efficacy.

Further, Gist and Mitchell (1992) argue that to form efficacy beliefs, individuals assess their personal and situational resources and constraints. Personal resources include domain-relevant skills, such as knowledge, skills and talents, which are not only important for general efficacy beliefs but are particularly relevant to creativity. The larger the range of knowledge, skills and talents individuals have access to, the more numerous the alternatives available for exploration and experimentation to generate something new and combine ideas (Amabile 1996). Through follower development, transformational leaders encourage followers to acquire knowledge and skills, developing their domain-relevant skills and building up their confidence about their ability to be creative in their work (Amabile, 1996; Tierney & Farmer, 2002).

In addition, transformational leaders provide followers with successful enactive mastery experience through follower development. They develop followers’ capabilities, by providing them with learning opportunities, delegating tasks to encourage them to take on increasingly more responsibilities, fostering independent and critical thinking (Bass, 1985; Bass & Avolio, 1994), and giving them challenging assignments, enabling them to acquire knowledge and skills that help them learn. An abundance of prior research indicates that enactive mastery is one of the strongest sources of self-efficacy beliefs (Bandura, 1997; Brown, Jones, & Leigh, 2005).

Third, through a combination of intellectual stimulation and personal recognition, leaders encourage followers to search for novel approaches rather than simply follow the established
routines, and praise them for discovering new approaches and for their efforts in taking the initiative to tackle tasks. Because followers lack the information to evaluate their task success, feedback in the form of praise from the supervisor for example, is critical in shaping and sustaining followers’ creative efficacy beliefs which in turn spurs creativity (Gist & Mitchell, 1992; Tierney & Farmer, 2002).

Social cognitive theory also advocates self-efficacy as the central psychological mechanism for human agency, which is particularly relevant for creative performance. Because by its very nature, creativity is challenging, and fraught with obstacles and setbacks (Richter et al., 2012; Zhou & Shalley, 2008), employees need to invest significant effort and be persistent throughout the uncertainty of the creative journey. According to the agentic perspective of social cognitive theory, high efficacy beliefs in a particular domain, motivates individuals to set challenging goals in the domain and persist even when obstacles are encountered (Bandura, 1986). Thus, I propose that creative self-efficacy will mediate the relationship between individual-focused TFL and individual creativity. This proposition is supported by findings from several studies that have linked creative self-efficacy to creativity (e.g., Tierney & Farmer, 2002, 2011; Richter et al., 2011), and of particular relevance, the recent study by Gong et al. (2009) that found that creative self-efficacy mediated the relationship between TFL and learning orientation and creativity.

**Hypothesis 2:** Creative self-efficacy mediates the relationship between individual-focused TFL and individual creativity.

**Individual-focused TFL, creative role identity and creativity self-efficacy.** Another route through which individual-focused TFL can influence creative self-efficacy is through creative role identity, defined as the extent to which creativity is part of one’s self-concept
(Farmer et al., 2003). There are several reasons to expect TFL to be positively related to creative role identity. According to role identity theory (Burke, 1991; Stryker, 1980; Stryker & Burke, 2000), role identities stem from normative expectations of important “social others” such as leaders (Farmer et al., 2003). As discussed earlier, in communicating high expectations to their followers, transformational leaders are likely to implicitly convey expectations for creativity (Bass et al., 2003). For example, findings from Farmer et al., (2003) showed that creative expectations of coworkers’, deemed as “important social others”, predicted creative role identity. Second, a sense of role identity stems from feedback about the self from social relations. Through personal recognition, feedback related to creativity from transformational leaders act as relevant inputs from “others” that followers use to verify, support, and validate their creative role identity (Farmer et al., 2003; Riley & Burke, 1995).

**Hypothesis 3:** *Individual-focused TFL is positively related to creative role-identity.*

Although the literature concerning identity and efficacy suggests that the relation between the two constructs can be reciprocal, Tierney and Farmer (2011) gave strong theoretical reasons to expect creative role-identity to predict creative self-efficacy. First, role identities are conceptualized as self-views based on occupying particular roles (Farmer & Van Dyne, 2010) and how individuals see themselves influences their efficacy beliefs (Gist & Mitchell, 1992). Second, individuals use role identities as a vehicle to fulfill a critical need for self-verification (Farmer et al., 2003; Markus & Wurf, 1987). Burke and Stets (1998) suggest that successful verification of role identities increases feelings of mastery and efficacy. Third, according to identity theory, identities correspond to self-consistency motives (Swann, 1985), therefore individuals with strong creative role identities are likely to focus greater attention on identity-confirming evidence, attributing successful creative performance to internal causes thereby
increasing their creative self-efficacy. Fourth, because role identities are validated and maintained through role-consistent behavior (McCall & Simmons, 1978), individuals with strong creative role identities are more likely to devote greater time and effort to activities that will reflect their identities (Farmer & Van Dyne, 2010), fostering enactive mastery and creative efficacy. In their recent study, Tierney and Farmer (2011) found that increases in employee creative role identity enhanced employees’ creative self-efficacy over a 6-month time period.

*Hypothesis 4: Creative role identity is positively related to creative self-efficacy.*

### 3.2 Group-Level Relationships

As noted earlier, creativity usually emerges from exposure to a variety of perspectives, knowledge and skills, and the ability to combine and re-arrange them into something new and better (Farh, Lee, & Farh, 2010; Mumford & Gustafson, 1988; Shin & Zhou, 2007). Teams allow access to a heterogenous social circle, and members can capitalize on a broadened pool of idiosyncratic knowledge, skills and experience of its members (Taggar, 2002). However, it cannot be taken for granted that this increased creativity performance potential will be leveraged (Kearney & Gebert, 2009; Stewart, 2006).

On the one hand, exposure to different backgrounds, approaches and perspectives can stimulate crucial processes such as critical thinking, divergent thinking and flexible thinking (Granvotter, 1982; Pearsall, Ellis, & Evans, 2008), which may be especially beneficial for creative performance. On the other hand, exposure to a wide range of ideas and insights, can cause team process losses such as dysfunctional conflict whereby team members are less likely to engage in creative processes such as building on, experimenting with and elaborating on others’ ideas (Shin et al., 2012). For team creativity to be realized, team members must be willing to share their ideas, be aware of and be able to access other team members’ ideas, and be
willing to cooperate with one another in deliberating ideas espoused by others to process each idea critically. Only when the information and perspectives that each member possesses are shared, attended to, and actively processed, is the cross-fertilization of ideas likely to occur. This stimulates the generation of new associations in areas that were not previously considered and members’ build on others’ contributions, or combine them with their own perspectives (Baer, Leenders, Oldham, & Vadera, 2010; Shin & Zhou, 2007). In other words, team creativity requires what Shin et al. (2012) refer to as “team convergence processes” that stem from high quality interpersonal interactions with team members and foster the sharing and exchange of ideas.

Transformational leaders are likely to play a key role in facilitating these “team convergence processes” by minimizing team process losses such as conflict and lack of collaboration, and maximizing team process gains such as capitalizing on different ideas, perspectives and knowledge (Hogan & Kaiser, 2005; Kearney & Gerbert, 2009; Shin & Zhou, 2007). Specifically, TFL behaviors encouraging group members to develop a shared perception regarding the importance of group goals, values and beliefs, instills in followers a sense of the collective and pride associated with being members of their team. This context may stimulate team members to perceive that they are part of something bigger than themselves, making them more ready to discuss their ideas, and appreciate and adopt different perspectives, which should facilitate team creativity. Indeed, empirical research has shown that transformational leaders lead more innovative teams (e.g., Eisenbeiss et al., 2008; Keller, 1992).

**Group-focused TFL behavior and team creativity.** Group-focused leadership reflects “ambient group-oriented” input where leaders view and treat group members the same (Dansereau, Alutto, & Yammarino, 1984; Wu et al., 2010). Although transformational leaders
can provide differentiated behavior to individual followers as described above, they are also proposed to direct certain behaviors to a follower group as a whole. Accordingly, members of the same work unit are assumed to share similar perceptions of their group leaders’ behaviors (Yammarino & Bass, 1980), an assumption supported by prior research (e.g., Kark et al., 2003; Wang et al., 2005). However, this research has typically included individual level items confounding group-level and individual level effects (Wang & Howell, 2010). As such, this study used multi-level techniques based on Wang and Howell’s (2010) TFL framework, and examined the role of group-focused TFL behaviors on team creative performance. Wang and Howell (2010) identified three group-focused TFL dimensions: (a) *emphasizing group identity*, (b) *communicating a group vision*, and (c) *team-building*. The second dimension, *communicating a group vision* refers to behaviors that inspire followers to share the leader’s vision of the group, and as such may not be particularly relevant to creativity. In fact, some researchers, such as Mumford and colleagues (Mumford et al., 2002; Mumford & Licuana, 2004), go as far as suggesting that it may even hinder creativity by preventing followers from developing their own unique perspectives and ideas. Accordingly, only *emphasizing group identity* and *team-building* will be considered and discussed further.

The first dimension, *emphasizing group identity* involves highlighting shared characteristics among group members and stressing followers’ membership in the group (Shamir et al., 1993). This behavior promotes the internalization of the goals and values that stress the collective cause ahead of self-interest (Bass & Riggio, 2006). When followers tie their own self-interests to that of the team and internalize the team’s goals, they become more cooperative and committed to the team and accept more collective responsibility for performance outcomes (Bennis & Nanus, 1985) Therefore, they are more willing to make a positive contribution to the
work context, such as sharing their knowledge and proactively engaging with potential challenges facing the team (Hirst et al., 2011; Podsakoff, MacKenzie, Moorman, & Fetter, 1990).

As noted above, team creativity is likely to emerge when team members share their knowledge, attend to the ideas of others, and integrate others’ perspectives to generate novel ones (Baer et al., 2010; Hargadon & Bechky, 2006; van Knippenberg et al., 2004). This proposition corroborates social interdependence theory (Deutsch, 1949) that posits that fostering interdependence between individual goals is likely to promote collaboration, which includes collaborative idea generation (e.g., developing, sharing, and attending to others’ ideas) and decision-making (deciding which ideas to pursue and which to abandon; Baer et al., 2010).

According to the value-in-diversity thesis, a key advantage of team contexts for creativity lies in the range of task-related information, knowledge, skills and ideas that are available to team members for combining into new and better ideas (Richter et al., 2012; Shin & Zhou, 2007). Research suggests that while this cognitive diversity will likely result in task conflict (i.e., disagreement on job-related issues), such constructive conflict should boost creative performance (Shin et al., 2012). However, as mentioned earlier, cognitive diversity can also lead to dysfunctional conflict amongst team members such that the potential benefits of this increased pool of diverse ideas are not realized. Through team-building, which refers to behaviors aimed at promoting cooperation, resolving frictions, and facilitating mutual trust among followers, leaders ensure that novel ideas that deviate from established views of the team are considered in the interest of obtaining the best possible team results even if it incites dissent and criticism (Kearney & Gebert, 2009). In support of this view, Sosik et al., (1998) found that teams with transformational leaders generated more idea elaborations and original solutions than teams with leaders that scored low on TFL.
Hypothesis 5: Group-Focused TFL behavior is positively related to team creativity.

**Group-focused TFL, team creative efficacy and group-level creativity.** Team creative efficacy, is defined as a team’s belief in its capabilities of producing new and useful ideas (Shin & Zhou, 2007). Collective capability, in general, includes a range of constructs such as team efficacy, team potency and collective efficacy. Although there are many parallels between these constructs, there are also important distinctions between them. Team efficacy refers to perceptions of task-specific team capability, and differs from team potency in that the latter refers to broader perceptions of team capability spanning tasks and situations (Gully, Incalcattera, Joshi, & Beaubien, 2002). It also differs from collective efficacy in the unit of focus. Collective efficacy refers to teams, departments, organizations and even nations, whereas team-efficacy refers specifically to teams. In the present study, a narrower perspective of team efficacy is adopted, team creative efficacy, to indicate my specific level of interest - creativity in teams. Team creative efficacy goes beyond merely summing the creative efficacy beliefs of individual members (Bandura, 2000; Chan, 1998). It involves effective coordination and reciprocal social influence whereby members are affected by the beliefs, motivation, and performance of their coworkers. (Gully et al., 2002). As such, the construct of team creative-efficacy can be meaningfully distinguished from creative self-efficacy.

The mediating role of team creative efficacy in the relationship between TFL and team creativity is based on the idea that efficacy beliefs are key to creative performance. Social cognitive theory (Bandura, 1997) suggests that a group’s collective efficacy beliefs influence the amount of effort the group is willing to exert and how long they are willing to persevere when collective efforts fail to produce results. Such perseverance and effort are paramount to unlocking creativity in teams. For instance, Myers, Feltz, and Short (2004) found that collective-
efficacy was related to performance for collegiate football teams. Similarly, Srivastava, Bartol, and Locke (2006) found team-efficacy to be positively related to performance of hotel management teams.

Previous theory and research have suggested that teams often rely on cues from the context to form collective views of their capabilities (Bandura, 1997). Because group-focused TFL encourages team members to transcend their self-interests for the interests of the group, such teams are likely to do whatever it takes to accomplish group goals. As such, their team members are likely to perceive cues in the environment that make them think that they can work together to produce creative outcomes (Shin & Zhou, 2007; Wang & Howell, 2010). Further, through team building behaviors, transformational leaders signal that team members’ contributions are valued and appreciated fostering a climate whereby team members believe in their collective capabilities to share, process and combine ideas. Because of the potential to explore and experiment with different perspectives and ideas, coupled with the learning opportunities inherent in tackling complex problems facing their team, this context may create a positive cycle of interest and enthusiasm, encouraging higher levels of team creative efficacy that further fuels creativity (Amabile, 1996; Hirst et al., 2011). Several studies suggest that team efficacy mediates the effects of TFL behaviors on follower outcomes (e.g., Gully et al., 2002; Shin & Zhou, 2007).

Hypothesis 6: Team creative efficacy mediates the relationship between group-focused TFL behavior and team creativity.

Group-focused TFL, Team creative role identity and team creative efficacy. As depicted in Figure 1, group-focused TFL is expected to foster members’ team creative role identity, which refers to team members shared perceptions of their team’s identity as being a
creative group (Wang & Zhu, 2010). This proposition is based on Shamir et al.’s (1993) self-concept leadership theory, which suggests that certain group-focused TFL behaviors help build strong links between followers’ self-concept and the shared values and roles within a team. This collective nature of group-focused TFL activates followers’ self-categorization as team members (Kark & Shamir, 2002; Mumford & Strange, 2002; Wu et al., 2010), whereby team members define who they are in relation to their group membership and incorporate shared team values as their own guiding principles (Wang & Howell, 2012). Based on this assertion, some researchers argue that one mechanism through which transformational leaders affect their followers is by influencing their self-concept. (Kark & Shamir, 2002; Lord et al., 1999; Shamir et al., 1993; Wang & Howell, 2012). Similarly, I argue that because transformational leaders, through emphasizing a collective identity and team building behaviors, encourage team members to engage in activities that are likely to promote creativity, such as exchanging and sharing ideas, and taking pride in the uniqueness of their team, they are likely to activate followers’ collective identity as members of a creative team. This proposition is consistent with role identity theory (Burke, 1991; Stryker, 1980; Stryker & Burke, 2000), which posits that role identities stem from perceived views that significant others hold of the individual (Farmer et al., 2003). Extending this concept to the team level suggests that team members’ may perceive their leader’s group-focused TFL behaviors as expectations to be creative, thus fostering their role identity as a creative team.

**Hypothesis 7: Group-focused TFL behavior is positively related to team creative role identity.**

Team creative role identity is expected to have a significant positive effect on the team’s creative efficacy beliefs. The logic underlying this argument is that team creative role identity, as a
collective perception can have a profound effect on the behaviors and beliefs of team members. For example, team members whose self-concepts are based partially on the team’s identity as being creative will be motivated to support activities, engage in behaviors and seek out opportunities that contribute to the team’s creativity because such participation affirms their self-concept. Over time, such practices should develop into norms that serve to shape the shared mental model of team members regarding the team’s creative capabilities, thereby enhancing the team’s creative efficacy.

*Hypothesis 8: Team creative role identity is positively related to team creative efficacy.*

### 3.3 Cross-Level Relationships

Another important aspect of the proposed model pertains to the cross-level effects between individual- and team-level variables. As noted earlier, in considering models that span multiple levels of analysis, it is not only important to consider the extent of homology at different levels, but it is also useful to explore cross-level relationships (Lindsley et al., 1995). This view stems from the idea that individual and team level phenomena are not separate, but highly related (Chen et al., 2007; Katz & Khan, 1978). In particular, team level processes (e.g., Chen & Bliese, 2002) can have a “top-down” influence on individual-level processes (Klein & Kozlowski, 2000), therefore to better understand how phenomena such as creativity emerge at different levels, it is important to consider the creativity phenomenon across levels (Chen & Kanfer, 2006 Chen et al., 2007; Kozlowski & Klein, 2000). The cross-level relationships delineated in the model consider the interplay between individual- and team-level creativity processes and creative performance. In general, I propose that each of these team-level creative processes and performance is positively related to its individual-level counterpart.

*Team creative role identity and individual creative role identity.* I contend that team
creative role identity is positively related to creative role identity. Teams high in creative role identity are likely to exhibit higher levels of creative behavior, and as such will likely develop norms for high creativity, since behavior is the basis for the formation of norms (Thibaut & Kelley, 1959). According to role identity theory, normative expectations of important social others such as team members are integral to the development of individuals’ creative role identity (Farmer et al., 2003). Furthermore, the individual creative role identity of members of teams with a strong creative role identity is more likely to be psychologically salient, which should further enhance their creative role identity.

**Hypothesis 9:** Team creative role identity is positively related to creative role identity.

**Team creative efficacy and creative self-efficacy.** A team’s creative efficacy can be viewed as a variable that “contextualizes” individual creative efficacy beliefs by providing social information that shapes the context in which such beliefs and processes are likely to evolve (Chen et al., 2002; Lindsley et al., 1995). For example, team’s characterized by high creative efficacy are more likely to have high creative performance expectations and would be more motivated to persist in the face of obstacles, signaling to team members in general that they are all capable of being creative. Since individuals rely on cues from others to form views about their own capabilities (Ford, 1996), an individual’s belief about his or her team’s creative efficacy could shape the individual’s creative self-efficacy.

**Hypothesis 10:** Team creative efficacy is positively related to creative self-efficacy.

**Team creativity and individual creativity.** It is well recognized that besides various cognitive and motivational processes, individual creativity can also be fostered by the team context in which employees are embedded (Hirst et al., 2009; Hirst et al., 2011; Richter et al., 2012). Since creative expression relies on synthesizing ideas, insights and various perspectives
(Mumford & Gustafson, 1988), an important feature of teams that exhibit high creativity is that team members share their ideas and knowledge with each other. This pool of ideas and perspectives provided within the team context serves as an “information reservoir” stimulating individual creativity (Richter et al., 2012).

Further, because creativity often requires significant investment in time and effort with an element of risk, team members may be reluctant to engage in creative activities, unless they believe that such actions are not only appropriate, but also expected of the team. The social context of teams may provide cues to members about expectations and consequences of performing creative acts with teams high in creative performance, fostering a context where expectations to engage in creative behaviors are high. This argument is also in line with social information processing theory (Salancik & Pfeffer, 1978), which states that the social context in which people are embedded directs individuals’ attention to certain information, making that information more salient, and provides expectations regarding individual behavior and the likely consequences of such behavior.

Hypothesis 11: Team creativity is positively related to individual creativity.

3.4 Moderating Factor: Perceived Organizational Support for Creativity

Although, generally, TFL is expected to positively influence creativity at the individual and team levels, leadership is but one of many contextual factors that influence creativity (Agars et al., 2012). While the team context in which individuals are embedded can act as constraints or opportunities, the organizational context in which these teams are embedded can also have a highly significant influence on the extent to which creative potential is transferred into actual creative performance (Lindsley et al., 1995). Therefore to understand better under what conditions individuals and teams capitalize on the potential benefits of TFL behaviors, I
examined the moderating effect of perceived organizational support for creativity, in the relationship between TFL and individual and team creativity.

The central argument is that individuals and teams with leaders that exhibit TFL behaviors will likely reciprocate with higher levels of creativity in contexts that support creativity. For example, individuals inspired by transformational leaders to be creative, in organizational contexts they perceive supports, values, and rewards their actions and attempts to initiate creative behavior, are more likely to take risks and try new approaches without fearing negative consequences to their self images, statuses or careers as a result of failure (Rich al., 2010). Such contexts may stretch individuals to perform above and beyond expectations, enhancing their creative performance.

Similarly, at the team level, when transformational leaders encourage their teams to share and use information provided by others, teams that experience their organizations as supportive of their creative endeavors, may be stimulated to process information from diverse sources and to build broad networks (West & Richter, 2008), beyond their immediate work groups, giving them access to more diverse information from which to derive creative ideas (de Stobbeleir et al., 2011). Several studies in related areas provide evidence for the above proposition. For instance employees have been found to respond to perceived organizational support by seeking organization-relevant information, learning important work skills beneficial to the organization and offering constructive suggestions (Rhoades & Eisenberger, 2002), which are all behaviors likely to enhance creativity at the individual and team levels. In addition, the proposition is also consistent with findings that show a supportive context neutralized employees’ image concerns
about: creative “voice” (Zhou & George, 2001), raising issues in organizations (Ashford, Rothbard, Piderit, & Dutton, 1998), and engaging in innovative behavior (Yuan & Woodman, 2010).

Hypothesis 12: Perceived organizational support for creativity moderates the positive relationship between (a) individual-focused TFL behavior and individual creativity, and (b) group-focused TFL behavior and team creativity such that the relationship is stronger when perceived organizational support for creativity is high.
4. METHOD

4.1 Participants and Procedures

I conducted this study at an independent nonprofit organization located in the U.S. Survey data were collected from 49 teams and 152 employees. The organization provides consulting services that help those in government and independent agencies make informed decisions about health. This often requires applying innovative research approaches to address difficult and challenging health issues. Unlike most creativity studies that focus on product-oriented organization such as research and development units of manufacturing firms (e.g., Oldham & Cummings, 1996), collecting data from a service-oriented organization, expanded the range of social contexts that creativity is studied. The organization was divided into nine different boards that focused on a particular area of public health. Each board director supervised three to eight project teams and each project team leader supervised three to eight team members. Prior to collecting data, I sent an e-mail to each board director to inform them about the research and invited them to participate. Eight board members agreed to participate and they sent me the contact information of their project team leaders.

I sent e-mails summarizing the study, and assuring confidentiality and voluntary participation to all employees within each board. Specifically, employees were assured that their managers and organization would not know their individual responses to survey questions. The data were collected via web-based surveys. An e-mail with a unique link to the survey was sent to each employee who agreed to participate in the study. The surveys were coded so that team members could be matched with their respective project team leaders. There were three types of surveys administered: team members’, project team leaders’ and board directors’ surveys. In
line with previous group-level research (e.g., Liden, Erdogan, Wayne, & Sparrow, 2006), only
groups with at least sixty percent response rate were analyzed. In other words, groups with
response rates lower than sixty percent were eliminated. In addition, I eliminated two groups
that had less than three members. Thus my final sample was 42 teams with 139 employees,
which represented 82% response rate.

Of the final sample, the average number of respondents per leader was 3.76 (SD = 1.32).
Fifty-three percent of the team members were male. The mean age of the team members was
43.16 years (SD = 8.55) and they had been with the organization for 7.93 years (SD=8.45) on
average. Seventy-three percent of the leaders were male with an average age of 52.74 years (SD
= 3.92). Leaders’ average organizational tenure was 10.83 years (SD = 2.48). Team members
had worked with their leaders for an average of 3.33 years (SD=2.47), and their teams for an
average of 3.14 years (SD=2.15). All the participants held a bachelor’s degree and over 89% of
them had a Masters degree or higher.

4.2 Survey Measures

Team members’ surveys included measures of the individual-focused and group-focused
transformational leadership behavior of their supervisor, perceived organizational support for
creativity, creative self-efficacy, creative role identity, team creative efficacy and team creative
role identity. Project team leaders’ surveys included measures of their subordinates’ creative
performance and board directors rated their project teams’ creative performance. All surveys
included demographic variables, such as age, sex, organizational and leader-member tenure, and
education. In addition, the team members’ surveys included other control variables as discussed
below. Unless otherwise noted, responses to all items were measured on 7-point Likert-type
scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The scales used are provided in the appendix.

4.3 Team Members’ Survey Measures

Dual-level Transformational Leadership: I selected Wang and Howell’s (2010) dual-level TFL scale to use in this study for several reasons. First, recent theory and research have suggested levels of analysis issues in TFL research. For example, Schriesheim and colleagues (2009) argue that the most common measure of TFL, the Multifactor Leadership Scale (MLQ(5X); Avolio & Bass (2004), has ambiguous items that do not distinguish between levels of analysis. For instance, respondents could use an individual, group, or organization as a frame of reference when responding to the MLQ item “Expresses confidence that goals will be achieved”. As such, depending on the respondent’s frame of reference, we may be capturing processes at a different level of analysis from our level of theory. Wang and Howell’s (2010) dual-level TFL scale addresses this issue since it contains an appropriate referent for each item to ensure that the level of the theory and the level of the measure align. See Appendix1 for scale items. Second, one of the aims of the study is to distinguish the distinct effects of TFL on individual and group level processes involved in creativity. The dual-level TFL scale is ideal for this purpose since it allows for the effects of individual and group level TFL behaviors to be analyzed separately. Third, the researchers developed the dual-level TFL scale from an integrated conceptual review of existing scales using rigorous construct validation methods, providing support for construct and discriminant validity of the individual-focused and group-focused TFL behaviors. Moreover, both dimensions had high reliabilities (α=0.92 and α=0.94) for individual and group-focused TFL behaviors respectively.
As mentioned in the introduction, one way in which I sought to extend the research on multilevel TFL was to follow Wang and Howell’s (2010) conceptualization of TFL that divides TFL into individual and group-focused behaviors and extend it to the creativity domain. To confirm that indeed there were two distinct factors, I conducted a series of Confirmatory Factor Analyses (CFAs) at the individual level using LISREL. Results showed that in the baseline model, all items loaded on the six hypothesized factors, representing 6 (of the 7) TFL dimensions used in the study. In addition, the analysis supported two second-order factors representing individual-focused and group-focused TFL behavior. The hypothesized model fit ($\chi^2$(62) =94.822, CFI-0.91; RMSEA =.07) yielded a good fit with the data, in contrast with an alternative model tested where leadership items were set to load on a single construct, which yielded a poor fit with the data, ($\chi^2$=(65)= 52.626, CFI=0.87 RMSEA=.12). Thus, the CFA results supported the discriminant validity of the dual-level leadership scale.

**Individual-level variables.** *Perceived organizational support for creativity* was measured using four items adapted from Scott and Bruce (1994). A sample item is “[Name of organization] publicly recognizes those who are creative.” ($\alpha$=0.81). Team members’ *creative self-efficacy* was assessed using a 3-item scale developed by Tierney and Farmer (2002). A sample item is “I have confidence in my ability to solve problems creatively.” ($\alpha$=0.72). Farmer et al.’s (2003) *creative role identity* scale was used to measure the extent to which team members view creativity as a central aspect of their self-identity. The scale consists of 3 items. A sample item is “I often think about being creative.” The reliability for this scale was low ($\alpha$=0.64). Further factor analysis indicated that the second item, “I do not have any clear concept of myself as a creative employee”, (a reverse-coded item) loaded poorly, therefore, I dropped this item. The reliability improved to $\alpha$=0.76.
**Team-level variables.** Team creative efficacy was measured using three items adapted from the creative self-efficacy scale developed by Tierney and Farmer (2002). This was based on Chan’s (1998) referent-shift consensus compositional construct, where the reference shifts from the individual to the team. A sample item (a ‘reference-shift’ of the sample item provided for creative self-efficacy above) is “I have confidence in my team’s ability to solve problems creatively.” The individual ratings were aggregated to the team level ($\alpha=0.84$). Similarly, team creative role identity scale was based on Chan’s (1998) referent-shift compositional model, adapted from Farmer et al.’s (2003) creative role identity scale. The scale consists of 3 items. A sample item is “My team often thinks about being creative.” ($\alpha=0.89$).

### 4.4 Project Team Leaders’ Survey Measures

**Individual Creativity:** Consistent with previous studies (e.g., Farmer et al., 2003), project team leaders assessed each team member’s creativity using 9 items from Tierney et al. (1999) on a 5-point (1 = never to 5 = always) by indicating how often team members performed certain behaviors. Sample items include: “Demonstrated originality in his/her work” and “Generated ideas revolutionary to our field.” ($\alpha=0.89$).

### 6.3 Board Directors’ Survey Measures

**Team creativity.** The team creativity scale with 4 items was adapted from Shin and Zhou’s (2007) scale. Sample items include “This team produces ideas that are novel” and “The ideas produced by this team are significant” ($\alpha=0.76$).

### 6.3 Control Variables

Consistent with previous research to reduce the likelihood that other variables may confound the findings, I considered the effect of several demographic and other variables found to be significantly related to creativity in previous studies. At the individual level, I examined:
(1) educational level since it reflects domain-specific skills and knowledge and as such could potentially shape creative performance (Amabile, 1988; Tierney et al., 1999). (2) Organizational tenure, which could indicate hierarchical position in the organization, and as such, the extent of involvement in creative activities (Tierney et al., 1999). (3) Job complexity, because it might determine the opportunities and level of creativity required for the job (Tierney & Farmer, 2002). (4) Perceived task interdependence which has been found to have significant influence on the creative process. Because task interdependence can also influence team processes that could affect creativity, it was also examined in its aggregated form at the team level (Hulsheger et al., 2009). I used Bishop and Scott’s (2000) 4-item scale. A sample item is: “I frequently must coordinate my efforts with others”, α=0.77. (5) The quality of leader member exchange (LMX) because it can influence leaders’ ratings of their followers’ performance (Liden & Maslyn, 1998). This was based on the 12-item LMX–Multidimensional (LMX-MDM) scale developed by Liden and Maslyn (1998). A sample item is: “My supervisor defends my work actions to a superior, even without complete knowledge of the issue in question.” – α=0.81. (6) Leader-member tenure, since leaders need sufficient time with their followers to influence their outcomes. (7) Job efficacy, because it is considered an important contributor to creativity (Tierney & Farmer, 2002). To assess job efficacy, I used the 4-item competence sub-scale of the psychological empowerment scale developed by Spreitzer (1995). A sample item is: “I am self-assured about my capabilities to perform my work activities” (α=0.72).

At the team level, following other researchers I also examined the potential effect of team size, average tenure of the team and task interdependence, as discussed above, to partial out their potential effects on the relationships (e.g. Shin et al., 2012). Consistent with previous studies, to
conserve power, only the control variables that were correlated with the individual and group level outcome variables were included in the analyses (Becker, 2005).

6.3 **Aggregation Tests**

To examine whether the data empirically justified the aggregation of the three shared group-level variables, (i.e., group-focused TFL, team creative role identity and team creative efficacy), I calculated within team agreement, $r_{wg}$. The results supported the aggregation to the group level for all three variables. The interrater agreement mean score, $r_{wg}$, was .82 for group-focused TFL, .85 for team creative role identity and .78 for team creative efficacy. These $r_{wg}$ values were above the conventional acceptable $r_{wg}$ value of .70 (James, Demaree, & Wolfe, 1993). However because $r_{wg}$ values could potentially overestimate within group agreement (James et al., 1993; Kozlowski & Hattrup, 1992), I conducted additional analyses regarding the validity of these shared variables following suggestions by Bliese (2000). First of all I conducted one-way analysis of variance to test whether average scores differed significantly across teams. The results showed between group differences for all three variables significant at the .01 level.

I then calculated intra-class correlation coefficients: the interrater reliability index (ICC1), and the reliability of the group mean index (ICC2) for each of the shared variables. The results indicated good support for aggregation for all three variables: Group-focused TFL, ICC1 = .29; ICC2=.40; team creative role identity, ICC1=.13; ICC2=.49; and team creative efficacy, ICC1=.19; ICC2=.53.

6.3 **Analytical Strategy**

Hypotheses 1 to 3 were amenable to testing using Hierarchical Linear Modeling (HLM; Raudenbush & Bryk, 2002) because team members are nested in work groups therefore the ratings will not be independent, since the same project leader provided the ratings for several
team members. A primary advantage of HLM is that it partitions variance into individual and group levels thereby recognizing the partial interdependence of individuals within the same group, allowing for more accurate estimations of the effects of individual-focused TFL behavior at the individual level (Gavin & Hofmann, 2002; Hofmann 1997; Raudenbush & Bryk, 2002). HLM was also used to test Hypotheses 9, 10 & 11, because these hypotheses involved cross-level effects of group variables (i.e., team creative role identity, team creative efficacy and team creativity) on individual level variables (i.e., creative role identity, creative self-efficacy and individual creativity respectively). Finally, HLM was used to test the moderation effect of perceived organizational support for creativity on the TFL-creativity link at the individual level, Hypothesis 12a, to account for the non-independence of ratings.

For these hypotheses to be supported, there must be significant between group variances in the dependent variables (Liao & Rupp, 2005). Thus, the first step in the HLM analysis was to develop null models in which no predictors were specified, to test whether there was meaningful variability in the dependent variables attributable to group membership. To estimate the between team variance in each of the dependent variable, I examined the significance level of the Level 2 residual of the intercept ($\tau_{00}$) and the Level 1 residual variance, ($\sigma^2$), and calculated ICC1. Here, the ICC1 can be interpreted as the proportion of variance that resides between groups, calculated as Level 2 variance/(Level 1 variance + Level 2 variance). For individual creativity, the individual level variance was $\sigma^2 = 0.43$ whereas the group variance was $\tau_{00} = 0.15, p<0.001$. The ratio of between group variance to total group variance (ICC1) yielded 0.26, indicating that 26% of total variance in individual creativity is due to group membership. The analyses also revealed satisfactory results for creative self efficacy: $\sigma^2 = 0.53 \tau_{00} = 0.18 p<.01$, ICC1=0.25. However, the results for creative role identity did not provide evidence of significant between
group differences $\tau_{00} = 0.01$ ns, ICC1 = 0.00. Given these results, I proceeded to test Hypotheses 1 and 9a (with individual creativity as the dependent variable) and Hypotheses 2 and 10a (with creative self-efficacy as the dependent variable) using HLM, and tested Hypotheses 3 and 9a (with creative role identity as the dependent variable) using ordinary least squares (OLS) regression.

Second, preliminary models were developed with control variables, which were all grand mean centered in the Level 1 model. Their corresponding residual variances were set to zero in the Level 2 model (i.e., fixed effects). Third, random Level 1 coefficients were developed for the independent variables (e.g., individual-focused TFL) to test whether significant between-group variance resided in the intercept term. Following the procedure recommended by Hofmann and Gavin (1998), I group-mean centered the Level 1 predictors and grand-mean centered Level 2 predictors, because it helps to reduce the covariance between intercepts and slopes, and hence the potential problems associated with multicollinearity (Hofmann, 1997; Wang & Zhu, 2011).

In addition, to compare models and calculate effect size, I performed deviance tests using HLM with maximum likelihood estimation, because deviance tests consider the multi-level nature of errors in the HLM models and therefore provide meaningful effect size estimates (Kreft, 2000).

For hypotheses 4 to 8 since all the variables are at the same level, it would be inappropriate to use HLM, therefore, OLS regression was used to test these hypotheses. Also, as discussed above, OLS was used to test Hypotheses 3 and 9. I followed established procedures for hierarchical regression. I entered all the control variables in the first step, then I added the
predictor variables in the subsequent steps. To test moderation, I added the interaction term in the final step. Effect sizes were estimated by comparing $R^2$ changes between the models.
5. RESULTS

5.1 Descriptive Statistics

Table I summarizes the individual- and team-level descriptive statistics: means, standard deviations, reliabilities and correlations of the measures and variables in the study. To identify control variables, I first examined the correlations between the control variables and outcome variables. At the individual level, creativity was significantly related to three control variables, job efficacy, \((r=0.38, p<.01)\), LMX \((r=0.36, p<.01)\) and task interdependence \((r=0.23, p<.01)\). At the team level, team size \((r=-0.21, p<.05)\) and the aggregated task interdependence \((r=0.27 p<.01)\) were significantly correlated with team creative efficacy and team creativity. As such, these variables were entered as control variables in hypotheses testing.

Insert Table I about here –

5.2 Individual-Level Hypotheses

Figure 2 summarizes the results of each of the hypothesized paths of the proposed model.

Insert Figure 2 about here –

Table II shows the results of HLM analyses. To test Hypothesis 1 for the relationship between individual-focused TFL and individual creativity, I created two models – Model1 and Model 2. Model 1 is the preliminary model that contained only the control variables as Level 1
predictors. This model served as the basis for calculating model fit improvement as a result of adding individual-focused TFL in the hypothesized model, Model 2. As shown in Table II, the coefficient for individual-focused TFL ($\gamma_{40}=0.05$, $ns$) was not significant and thus failed to provide support for Hypothesis 1.

Hypothesis 2 stated that creative self-efficacy mediates the relationship between individual-focused TFL and individual creativity. According to Baron and Kenney (1986) and Mathieu and Taylor (2007), one of the criteria for mediation to be supported is that the independent variable (i.e., individual-focused TFL) must be significantly related to the dependent variable (i.e., individual creativity). However, this requirement is controversial since the independent and dependent variables can be linked by mediators such that the relationship between the independent and dependent variables is too small to detect (James, Mulaik, & Brett, 2006). Accordingly, I tested the relationship between individual-focused TFL and creative self-efficacy but this was not significant as shown in Table II ($\gamma_{40}=-0.01$, $ns$) and thus Hypothesis 2 was not supported.

As mentioned earlier, because there was no evidence of group differences in creative role identity, OLS regression was used to test Hypothesis 3, which predicts a positive relationship between individual-focused TFL and creative role identity. Table III shows the results of the hierarchical linear regression for the individual level dependent variables. The relationship between individual-focused TFL and creative role identity was not significant ($\beta=0.17$, $ns$). As such, Hypothesis 3 was not supported. However, Hypothesis 4, which proposes a positive relationship between creative role identity and creative self-efficacy was supported as shown in Table III ($\beta=0.35$, $p<0.01$).
5.3 **Team-Level Hypotheses**

Hypothesis 5 predicted that group-focused TFL would be positively related to team creativity. Since all the variables were at the same level, I used OLS regression to test this hypothesis and the other group-level hypotheses. As shown in Table IV, contrary to my prediction, group-focused TFL was not significantly related to team creativity ($\beta=0.01$, ns). For Hypothesis 6, similar to the earlier argument regarding the criteria for mediation, even though group-focused TFL was not significantly related to team creativity, I tested the relationship between group-focused TFL and team creative efficacy as suggested by James et al. (2006). As shown in Table IV ($\beta=0.23$, $p=<0.05$), group-focused TFL was positively related to team creative efficacy. However, team creative efficacy was not significantly related to team creativity, Table IV ($\beta=0.02$, ns), thus Hypothesis 6 was not supported.

Hypothesis 7 stated that group focused TFL would be positively related to team creative role identity. This hypothesis was supported as shown in Table IV ($\beta = 0.38$, $p=<0.01$). Hypothesis 8 was also supported, team creative role identity was positively related to team creative efficacy ($\beta = 0.28$, $p=<0.01$).
5.4 **Cross-Level Hypotheses**

The cross level hypotheses predicted a positive relationship between group level creative processes and performance, and individual level creative processes and performance. HLM was used to test the effect of group level variables on individual level variables. Hypothesis 9 proposes a positive relationship between team creative role identity and creative role identity. Because preliminary analysis showed no evidence of group membership effects, creative role identity was aggregated to the team level and OLS regression was used to test the proposed cross level relationship. Table III shows that the positive relationship predicted between team creative role identity and creative role identity was not supported ($\beta=0.12$ ns).

Hypothesis 10 predicted a cross level positive relationship between team creative efficacy and creative self-efficacy. The results of the HLM analysis, testing the association between team creative efficacy and creative self-efficacy, was significant as shown in Model 7 in Table II ($\gamma_{03}=0.19, p<0.05$). Hypothesis 11 predicted a positive relationship between team creativity and individual creativity. The same procedure used for testing Hypothesis 10 was followed since preliminary analysis suggested group membership effects. The results shown in Table II, Model 3, ($\gamma_{04}=0.32, p<0.01$) supported the positive relationship proposed in Hypothesis 11.

- Insert Table IV about here -
5.5 **Moderating Hypotheses**

Hypotheses 12 a and b, proposed that perceived organizational support for creativity would moderate the relationship between individual-focused TFL and group-focused TFL, and individual creativity and team creativity respectively. Model 4 in Table II shows that this hypothesis was not supported at the individual level ($\gamma_{60} = -0.01, ns$). Neither was the moderating effect of the perceived organizational support for creativity supported at the group level as shown in Table IV ($\beta=0.03, ns$). Thus, there was no evidence that perceived organizational support for creativity moderated the relationship between individual- and group-focused TFL and creative performance at the individual or team levels.
6. DISCUSSION

6.1 Overview

The current study aimed to contribute to a more comprehensive understanding of how leadership influences creativity at different levels of an organization by extending emerging multi-level TFL theorizing to the domain of creativity. Although evidence has accumulated that suggests transformational leaders can motivate both individual and team creativity, few studies have explicitly integrated multilevel models of TFL and creativity despite calls for such studies in both literatures (e.g., Shalley et al., 2004; Yammarino & Bass, 1990). Furthermore, even though researchers have called for more studies that provide insights into how (the underlying mechanisms) and when (a contingent approach) leaders influence followers’ creativity (e.g., Avolio & Yammarino, 2002; Gong et al., 2009; Yukl, 1999), little theory and research have examined the interplay between these two approaches especially from a multilevel perspective.

The present study explored the relationship between individual-focused and group-focused TFL behaviors on creativity at the individual, team and meso (cross) levels of an organization, using Wang and Howell’s (2010) dual-level TFL framework that allowed simultaneous examination of these relationships at the different levels of analysis. The findings from this study provided partial support for the model proposed, suggesting that the relationship depicted in the model advanced might not be an accurate reflection of the relationship between TFL and creativity, or that the relationship is more complex. Although not all the hypotheses were supported, the findings of this study suggest that transformational leaders have distinct effects on individual- (non-significant relationship with creative role identity) and group- (significant relationship with team creative role identity) level processes, extending Wang and
Howell’s (2010, 2012) research to the domain of creativity. Further, the results of this study showed a positive cross-level relationship between team creative efficacy and creative self-efficacy, and team creativity and individual creativity. Below I discuss in greater detail the theoretical implications of the findings of this study.

6.2 **Theoretical Implications**

Contrary to the expectation of this study, individual-focused TFL was not related to individual creativity. This finding was in contrast to previous studies (e.g., Shin & Zhou, 2003) that found a direct relationship between TFL and individual creativity but consistent with other studies (e.g., Wang & Rode, 2010) that found a non-significant relationship between the two. Several reasons could account for this non-significant finding.

First of all, despite widespread consensus that TFL is a dominant perspective in leadership research, increasingly researchers have begun to raise concerns about its conceptualization, operationalization and the validity of its effectiveness (e.g., Rafferty & Griffin, 2004; van Knippenberg & Sitkin, 2013). In a recent critique of TFL, van Knippenberg and Sitkin (2013) asserted that TFL was “riddled with major problems” (p45) that could explain some of the mixed support for its effects on creativity. They suggested that to promote more theory-driven approaches to leadership research future studies should focus on more precise elements of leadership “without the handicap of the higher order label of charismatic-transformational leadership” (p3). Thus regarding creativity, perhaps concentrating on specific dimensions of TFL such as intellectual stimulation, unconfounded with other elements of TFL, may help improve our understanding of how leadership promotes creativity. Intellectual stimulation involves leaders encouraging their followers to challenge the status quo and think
critically, which may be more relevant to creativity than other dimensions of TFL, such as communicating high expectations that could potentially discourage creativity as discussed below.

A second and related reason is emerging research that suggests that while some TFL behaviors promote individual creativity others may in fact be dysfunctional for follower creativity (Osborn & Marion, 2009). For example, to explain their surprising strong negative relationship between TFL and follower innovative behavior, Basu and Green (1997) suggested that transformational leaders might have encouraged follower dependency, limiting creativity. This argument is consistent with previous work by Kark and colleagues (2003) who found that while TFL fostered followers’ empowerment, it also increased followers’ dependency. Recently, Eisenbeiss & Boerner (2013) extended this view to creativity, contending that TFL could result in followers’ dependency by encouraging followers’ uncritical acceptance of their leaders’ ideas as they seek their leaders’ recognition and approval. Consequently, followers may be less likely to offer “non-conformal viewpoints and ideas” that contradict their leaders’ perspective, potentially stifling creativity (Eisenbeiss & Boerner, 2013). Results from their study showed that while TFL promoted followers’ creativity, it also increased followers’ dependency, which in turn attenuated the positive influence of TFL on individual creativity. Thus when studying TFL, focusing solely on its positive effects, without regard for its negative effects, can potentially result in drawing misleading inferences. To fully understand the relationship between TFL and followers’ outcomes such as creativity, future research can profit from a better understanding of the negative effects of TFL on these outcomes.

Third, another explanation for the non-significant finding draws from the substitutes for leadership theoretical perspective. According to this perspective, certain leader behaviors could have functional effects in some situations but no, or even dysfunctional, effects in other
situations because certain aspects of the context may ‘substitute for’ or ‘neutralize’ the effects of leadership (Wang & Rode, 2010). Regarding employee creativity, one possible neutralizer or substitute that may influence TFL effectiveness is the individual characteristics of the participants. As noted earlier, 89% of these individuals had at least a Masters degree. Further, the nature of their work was very “meaningful” with many of them working on projects that “made a difference” to the local or international community. Thus, these employees may already be highly motivated intrinsically, which may act as a substitute for the influence of TFL on their creativity. This idea parallels arguments that have led researchers like Mumford and colleagues (Mumford et al., 2002; Mumford & Licuana, 2004) to question the value of TFL in motivating creativity. They contend that because creative people, by virtue of their curiosity and achievement motivation tend to be intrinsically motivated, TFL behaviors that foster followers intrinsic motivation by expressing an energizing vision may be redundant or even detrimental to creativity by preventing followers from developing their own unique ideas and perspectives (Mumford & Licuana, 2004). While this study did not include the vision dimension of TFL behavior, it is still possible that because of the high intrinsic motivation the participants possessed, the effect of other TFL behaviors on their creativity was attenuated. Notwithstanding, one should note that in addition to motivating followers to develop novel and unique ideas, transformational leaders could also play a role in creating a psychological safe environment that is conducive to creativity for all employees irrespective of their educational level and the extent of their intrinsic motivation.

Fourth, another reason that might have resulted in a non-significant finding is that transformational leaders may create a context that is intimidating and stressful for their followers, stifling innovation (Basu & Green, 1997). For example, as noted previously,
transformational leaders encourage their followers to strive for excellence, quality and high performance, and to set high goals for themselves. These high expectations may create “achievement-oriented” contexts, which on the one hand may foster creativity by motivating followers to come up with innovative solutions to meet these high expectations as discussed earlier. However, on the other hand, such contexts may create excessive pressure for followers as they try to achieve these high expectations, which could be detrimental to creativity. For instance, creativity researchers argue that high stress may undermine creativity by requiring cognitive resources from individuals that are then not available for critical and creative thinking (Byron, Khazanchi, & Nazarian, 2010). Future research could benefit from exploring the impact of TFL on followers’ stress and the subsequent effect this has on their creative performance.

At the team level, the relationship between group-focused TFL and team creativity was also not significant. Similar to arguments made for the lack of support for the relationship between individual-focused TFL and individual creativity, it is possible that the very TFL behaviors that promote team creativity may also discourage creative performance at the team level. For example, while emphasizing a team identity may foster an environment that is conducive to creativity by encouraging team members to exchange ideas, it may also promote “collectivistic values”, where team members feel pressured to conform to majority view. As such, team members are reluctant to share or accept ideas that depart radically from group consensus, or to challenge each other’s views, for fear of alienating their fellow team members (Goncalo & Staw, 2006). To support this view, in their 2006 study, Goncalo and Staw showed that collectivistic groups were less creative than individualistic groups. Similarly, while team building may facilitate team convergence processes, encouraging team members to share and consider each other’s perspectives, it may also promote “conformity pressures” (Rafferty &
Griffin, 2004; Goncalo & Staw, 2006), limiting opportunities to share unique and unconventional ideas that are critical for team creativity. Future studies should explore not only the negative influence of TFL on individual level creativity but also on team level creativity.

Amabile’s (1988) componential model of creativity, the framework for this study, proposes that creativity emerges from a combination of individual attributes and the work context. However, the model does not depict the relationship between individual- and group-level creativity and creative processes. The results of this study provided evidence for a cross-level relationship between team creative efficacy and creative self-efficacy, and between team creativity and individual creativity. Accordingly, this study extends Amabile’s (1988) model by providing a cross-level component for understanding how creativity unfolds across different levels. Interestingly, this finding complements very recent work by Chen et al., (2013) that found that support for innovation climate, a team level process, positively influenced role breadth self-efficacy, an individual level innovative process. However, unlike the current study, Chen et al.’s study viewed TFL solely as a group level phenomenon influencing individual innovative performance indirectly through the mediating role of team- and individual-level innovative processes. Given the positive effect of TFL on individual-level processes and innovative performance, Chen et al. (2013) suggested that future studies should examine the effect of TFL on innovative behavior across multiple levels. For instance, regarding the present study, it is possible that group-focused TFL influences some of the creative processes at the individual level. To investigate this possibility, I conducted post-hoc analyses that examined the relationship between group-focused TFL and creative role identity. Through group-focused behaviors, transformational leaders emphasize shared goals and a collective identity, which may be critical to developing creative identity not only at the team level but also at the individual
level. The results of this analysis provide support for this proposition ($\gamma=0.13$, $p<0.05$). Thus, future studies should explore additional cross level relationships that might help provide a better understanding of the interplay between creativity and creative processes at different levels of analysis.

There was no evidence that perceived organizational support for creativity influenced the relationship between TFL and creativity at the individual and team levels. It is possible that other factors, especially given the nature of the sample, could interact with TFL to jointly influence creativity at the individual and team levels. Of special significance is psychological empowerment, which has received considerable attention in the literature and has been found to be an important source of creativity in several studies (e.g., Gumusluoglu & Islev, 2009; Pieterse et al., 2010). For example, Gumusluoglu and Islev (2009) found that psychological empowerment significantly mediated the relationship between TFL and creativity, while Pieterse et al.’s (2010) study found that the effectiveness of TFL on followers’ innovative behavior was contingent on their psychological empowerment. In light of these findings, I conducted post-hoc analyses to examine the moderating role of the impact (the sense that work makes a difference; Thomas & Velthouse, 1990) dimension of psychological empowerment on the TFL-creativity link at the individual level. Preliminary results showed that the non-significant relationship between individual-focused TFL and creativity became positive when psychological empowerment was added ($\gamma=0.11$, $p<0.05$). Thus, this might be a promising direction for future studies.

Also, because at the team level, team members willingness to share and use each other’s ideas and perspectives is instrumental to team creativity, I examined, post-hoc, the moderating role of aggregated interpersonal organizational citizenship behavior (OCB-I), which reflects the
level of helping behavior directed at other team members (Organ, 1988). Such behaviors are likely to promote high quality interpersonal relationships fostering “team convergence processes” that could enhance team creativity as discussed earlier. Preliminary findings from this analysis support this proposition ($\beta=0.21$, $p<0.01$), and also offers a promising direction for future research.

6.3 **Practical Implications**

Many organizations seek to increase creativity among their employees and are increasingly relying on the managers to foster creativity. TFL is recognized as an effective leadership style and an important lever for engendering creativity (Eisenbeiss et al., 2008). As such, many organizations incorporate key aspects of TFL in developing their leadership programs. However, the results of the current study showed that TFL had a non-significant relationship with individual and team creativity, suggesting that it may not be an effective leadership style for promoting creativity.

Specifically, in light of recent theorizing suggesting that TFL might have negative effects that could be counterproductive to creativity (Eisenbeiss & Boerner, 2013), organizations should be more cautious about relying on this leadership style to foster creativity. Further, training programs that do incorporate TFL behaviors should also include sections on the possible negative side effects of TFL, such as increased dependency and conformity pressures, and how managers can address these potential issues to optimize the benefits of TFL.

Also, given the significant financial investment organizations make on leadership development initiatives (Avolio et al., 2010), managers should follow closely new research developments on the effectiveness of TFL on various followers’ outcomes and their implications for leadership development.
6.4 **Strengths, Limitations and Future Research**

This study had several strengths. First, I reduced common source bias by collecting data from three sources: team members, project team leaders and board directors. Second, this study was conducted in a service-oriented industry. To date, most studies on creativity have focused on product-oriented firms and research and development personnel. In today’s competitive and turbulent business environment, creativity is important for *all* employees in *all* industries. Moreover, given the unique context of the organization, it is possible that other factors such as the meaningfulness of work done plays a significant role in the creative process, suggesting that creativity may unfold differently in such contexts.

The current study also had several limitations. While conducting this study using data from a service-oriented organization extended the external validity of the relationships supported to the service sector, one could also argue that it is possible that other factors that were unique to this context played a role in the findings and as such the results may not be generalizable to other contexts. More studies on creativity should be conducted in a wide range of contexts to determine which relationships are generalizable across all contexts including different cultural contexts. Furthermore, given that various factors could moderate the relationship between TFL and creativity, it is important for more studies to explore different factors that could enhance or inhibit the TFL-creativity relationship at both levels of analysis.

Also, a cross-sectional research design was used, which precluded making causal inferences, and does not capture the dynamic nature of the relationship between leader and follower behavior (Gumusluoglu & Islev, 2009). For example, one may argue that the cross-level effects might have been a spurious finding and not causal. Future studies should use longitudinal designs to rule out alternate causes for the positive relationships found in this study.
Finally, I depended only on supervisor ratings for creative performance and this might have led to artificially inflated ratings especially for those with high quality relationships with their leaders. While LMX was used as a control to reduce this potential bias, future studies should include objective measures of creativity where possible.

6.5 Conclusion

The goal of this study was to provide a better understanding of the relationship between TFL and creativity at the individual and team levels. While the findings of this study provided evidence of cross level relationships between team creative efficacy and creative self-efficacy and team creativity and individual creativity, the relationship between TFL and creativity was not supported at the individual and team levels. These non-significant findings raise the issue of whether TFL is an effective leadership style especially for creativity, an issue that has been the focus of recent TFL and creativity scholarship. More research that further explores this issue is needed, especially given the widespread reliance on TFL in today’s organizations.
REFERENCES


TABLE I
MEANS, STANDARD DEVIATIONS, AND INTERCORRELATIONS AMONG STUDY VARIABLES

<table>
<thead>
<tr>
<th>Individual Variables</th>
<th>Mean</th>
<th>s.d.</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>
</tr>
</thead>
<tbody>
<tr>
<td>1. Individual-focused TFL</td>
<td>5.43</td>
<td>0.97</td>
<td>(0.92)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Creative self- efficacy</td>
<td>5.71</td>
<td>0.83</td>
<td>0.24**</td>
<td>(0.73)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Creative role identity</td>
<td>5.92</td>
<td>0.82</td>
<td>-0.08</td>
<td>0.52</td>
<td>(0.76)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Individual Creativity</td>
<td>3.79</td>
<td>0.73</td>
<td>0.26**</td>
<td>-0.00</td>
<td>-0.11</td>
<td>(0.89)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Perceived Org. support for creativity</td>
<td>5.16</td>
<td>1.20</td>
<td>0.47**</td>
<td>0.24**</td>
<td>0.02</td>
<td>0.05</td>
<td>(0.81)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Education</td>
<td>3.54</td>
<td>0.86</td>
<td>0.10</td>
<td>0.01</td>
<td>0.01</td>
<td>0.05</td>
<td>-0.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Organizational tenure</td>
<td>7.93</td>
<td>8.45</td>
<td>0.11</td>
<td>0.01</td>
<td>0.00</td>
<td>0.01</td>
<td>-0.04</td>
<td>0.30**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Job complexity</td>
<td>4.19</td>
<td>1.56</td>
<td>0.15</td>
<td>0.15</td>
<td>0.13</td>
<td>0.15</td>
<td>-0.04</td>
<td>-0.01</td>
<td>0.03</td>
<td>(0.95)</td>
<td></td>
</tr>
<tr>
<td>9. Task Interdependence</td>
<td>3.39</td>
<td>2.19</td>
<td>-0.06</td>
<td>0.14</td>
<td>0.30**</td>
<td>0.23**</td>
<td>0.09</td>
<td>0.03</td>
<td>0.07</td>
<td>-0.03</td>
<td>(0.82)</td>
</tr>
<tr>
<td>10. LMX</td>
<td>5.68</td>
<td>0.95</td>
<td>0.80**</td>
<td>0.22**</td>
<td>0.06</td>
<td>0.36**</td>
<td>0.40**</td>
<td>0.40**</td>
<td>0.03</td>
<td>0.12</td>
<td>0.18</td>
</tr>
<tr>
<td>11. Leader-member tenure</td>
<td>3.33</td>
<td>2.47</td>
<td>0.14</td>
<td>-0.03</td>
<td>-0.04</td>
<td>0.00</td>
<td>0.05</td>
<td>0.21*</td>
<td>0.34**</td>
<td>0.08</td>
<td>0.10</td>
</tr>
<tr>
<td>12. Job Efficacy</td>
<td>5.89</td>
<td>1.49</td>
<td>0.20*</td>
<td>0.14</td>
<td>-0.01</td>
<td>0.38**</td>
<td>-0.02</td>
<td>-0.02</td>
<td>-0.07</td>
<td>0.03</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Team Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Group-focused TFL</td>
<td>5.43</td>
<td>1.24</td>
<td>0.44**</td>
<td>0.11</td>
<td>0.11</td>
<td>0.08</td>
<td>0.32*</td>
<td>0.15</td>
<td>-0.04</td>
<td>0.12</td>
<td>0.12</td>
</tr>
<tr>
<td>14. Team creative efficacy</td>
<td>5.66</td>
<td>0.87</td>
<td>0.56**</td>
<td>0.35</td>
<td>0.15</td>
<td>0.17</td>
<td>0.10</td>
<td>0.29</td>
<td>-0.08</td>
<td>-0.01</td>
<td>0.36*</td>
</tr>
<tr>
<td>15. Team role identity</td>
<td>5.68</td>
<td>0.97</td>
<td>0.34*</td>
<td>0.19</td>
<td>0.54**</td>
<td>0.05</td>
<td>0.11</td>
<td>-0.23</td>
<td>0.11</td>
<td>-0.08</td>
<td>0.41**</td>
</tr>
<tr>
<td>16. Team creativity</td>
<td>4.58</td>
<td>0.52</td>
<td>0.11</td>
<td>-0.04</td>
<td>0.12</td>
<td>0.51**</td>
<td>0.06</td>
<td>-0.18</td>
<td>0.08</td>
<td>0.03</td>
<td>0.04</td>
</tr>
<tr>
<td>17. Team size</td>
<td>3.76</td>
<td>1.32</td>
<td>0.23</td>
<td>-0.12</td>
<td>-0.05</td>
<td>-0.05</td>
<td>0.00</td>
<td>0.04</td>
<td>-0.05</td>
<td>0.16</td>
<td>0.16</td>
</tr>
<tr>
<td>18. Task interdependence</td>
<td>3.39</td>
<td>2.19</td>
<td>0.26</td>
<td>0.12</td>
<td>-0.04</td>
<td>0.12</td>
<td>0.01</td>
<td>0.23</td>
<td>0.15</td>
<td>0.16</td>
<td>0.08</td>
</tr>
<tr>
<td>19. Average tenure of a team</td>
<td>3.14</td>
<td>2.19</td>
<td>-0.11</td>
<td>0.27</td>
<td>0.09</td>
<td>0.24</td>
<td>-0.05</td>
<td>0.26</td>
<td>0.18</td>
<td>0.18</td>
<td>0.31*</td>
</tr>
</tbody>
</table>

Note: Reliabilities are in parentheses

N_{employees} = 139; N_{teams} = 42

*p<0.05, **p<0.01

The coefficient correlations between the DVs and members’ and leaders’ age, sex, position, tenure, were also computed. None of them were significantly correlated.
TABLE I (continued)

MEANS, STANDARD DEVIATIONS, AND INTERCORRELATIONS AMONG STUDY VARIABLES

<table>
<thead>
<tr>
<th>Individual Variables</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Individual-focused TFL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Creative self-efficacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Creative role identity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Individual Creativity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Perceived Org. support for creativity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Organizational tenure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Job complexity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Task Interdependence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. LMX</td>
<td>(0.86)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Leader-member tenure</td>
<td>0.20*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Job Efficacy</td>
<td>-0.03</td>
<td>0.28**</td>
<td>(0.76)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Team Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Group-focused TFL</td>
<td>0.78**</td>
<td>-0.02</td>
<td>0.11</td>
<td>(0.94)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Team creative efficacy</td>
<td>0.53**</td>
<td>0.27</td>
<td>0.25</td>
<td>0.69**</td>
<td>(0.84)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Team role identity</td>
<td>0.30*</td>
<td>0.25</td>
<td>0.03</td>
<td>0.54**</td>
<td>0.54**</td>
<td>(0.89)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Team creativity</td>
<td>0.17</td>
<td>0.12</td>
<td>0.05</td>
<td>0.03</td>
<td>0.05</td>
<td>0.03</td>
<td>(0.76)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Team size</td>
<td>0.08</td>
<td>0.17</td>
<td>-0.07</td>
<td>-0.04</td>
<td>-0.02</td>
<td>-0.00</td>
<td>-0.21*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Task interdependence</td>
<td>0.17</td>
<td>-0.07</td>
<td>0.19</td>
<td>0.06</td>
<td>-0.10</td>
<td>0.07</td>
<td>0.27**</td>
<td>-0.25*</td>
<td>(0.82)</td>
</tr>
<tr>
<td>19. Average tenure of a team</td>
<td>0.16</td>
<td>0.13</td>
<td>-0.12</td>
<td>-0.03</td>
<td>0.08</td>
<td>-0.03</td>
<td>0.04</td>
<td>0.17</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Note: Reliabilities are in parentheses
N employees = 139; N teams = 42
*p<0.05, **p<0.01
The coefficient correlations between the DVs and members’ and leaders’ age, sex, position, tenure, were also computed. None of them were significantly correlated.
TABLE II
RESULTS OF HIERARCHICAL LINEAR MODELING

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1 Preliminary model</th>
<th>Model 2 Hypothesized model (H1)</th>
<th>Model 3 Hypothesized model (H11)</th>
<th>Model 4 Hypothesized Model: H12a</th>
<th>Model 5 Preliminary Model</th>
<th>Model 6 Hypothesized Model (H2a)</th>
<th>Model 7 Hypothesized Model (H10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept (γ₀₀)</td>
<td>3.50** (41)</td>
<td>3.49**(41)</td>
<td>3.49** (41)</td>
<td>3.49** (41)</td>
<td>4.47**</td>
<td>4.47**</td>
<td>4.47**</td>
</tr>
<tr>
<td>Task Interdependence (γ₁₀)</td>
<td>-0.03 (94)</td>
<td>-0.02 (94)</td>
<td>-0.04 (93)</td>
<td>-0.02 (52)</td>
<td>0.01 (94)</td>
<td>0.03 (94)</td>
<td>0.00 (93)</td>
</tr>
<tr>
<td>LMX (γ₂₀)</td>
<td>0.07 (94)</td>
<td>0.13 (94)</td>
<td>0.10* (93)</td>
<td>0.17* (52)</td>
<td>0.14* (94)</td>
<td>0.11 (94)</td>
<td>0.12 (93)</td>
</tr>
<tr>
<td>Job Efficacy (γ₃₀)</td>
<td>0.02 (94)</td>
<td>0.00 (94)</td>
<td>0.05 (93)</td>
<td>0.01 (52)</td>
<td>0.09</td>
<td>0.03 (94)</td>
<td>0.07 (93)</td>
</tr>
<tr>
<td>Individual-focused TFL (γ₄₀)</td>
<td></td>
<td>0.05 (40)</td>
<td>0.06 (41)</td>
<td>0.10 (52)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POSC (γ₅₀)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.06 (52)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POSC x Individual-focused TFL (γ₆₀)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.01 (52)</td>
<td></td>
</tr>
<tr>
<td>Level 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team size (γ₀₁)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.01 (39)</td>
<td>0.00 (39)</td>
<td>-0.02 (39)</td>
</tr>
<tr>
<td>Task interdependence (γ₀₂)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.03 (39)</td>
<td>0.02 (39)</td>
<td>0.05 (39)</td>
</tr>
<tr>
<td>Team creative efficacy (γ₀₃)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.19 (39)</td>
</tr>
<tr>
<td>Team creativity (γ₀₄)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>σ²</td>
<td>0.44</td>
<td>0.41</td>
<td>0.38</td>
<td>0.42</td>
<td>0.53</td>
<td>0.48</td>
<td>0.50</td>
</tr>
<tr>
<td>τ₀₀</td>
<td>0.15</td>
<td>0.14</td>
<td>0.02</td>
<td>0.15</td>
<td>0.18</td>
<td>0.14</td>
<td>0.11</td>
</tr>
<tr>
<td>χ²₀₀</td>
<td>91.03** (41)</td>
<td>83.82** (41)</td>
<td>54.72 (41)</td>
<td>85.861** (41)</td>
<td>86.039** (41)</td>
<td>81.67** (41)</td>
<td>69.56 (41)</td>
</tr>
<tr>
<td>τ₁₁a</td>
<td>0.04</td>
<td>0.06</td>
<td>0.01</td>
<td>0.09</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>χ²₁₁a</td>
<td>46.52 (41)</td>
<td>48.99 (41)</td>
<td>47.37 (41)</td>
<td>44.37 (41)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model deviance</td>
<td>321.485 (3)</td>
<td>321.797 (4)</td>
<td>300.823 (4)</td>
<td>323.474 (4)</td>
<td>343.860 (4)</td>
<td>342.745 (4)</td>
<td>331.682 (4)</td>
</tr>
<tr>
<td>Decrease in model deviance</td>
<td>0.312 (2)</td>
<td>20.662 ** (2)</td>
<td>1.989 (2)</td>
<td>1.115 (2)</td>
<td>1.115 (2)</td>
<td>1.115 (2)</td>
<td>12.178* (2)</td>
</tr>
</tbody>
</table>

Note: Reliabilities are in parentheses
Nₐ =139; Nₜ =42
*p<0.05, **p<0.01
POSC – Perceived organizational support for creativity
**TABLE III**

RESULTS OF REGRESSION ANALYSIS FOR INDIVIDUAL-LEVEL DEPENDENT VARIABLES (DV)

<table>
<thead>
<tr>
<th>Variables</th>
<th>DV: Creative role identity</th>
<th>DV: Creative self-efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H3</td>
<td>H9</td>
</tr>
<tr>
<td>Individual level controls:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task Interdependence</td>
<td>-0.12</td>
<td>-0.08</td>
</tr>
<tr>
<td>LMX</td>
<td>0.10</td>
<td>0.16</td>
</tr>
<tr>
<td>Job Efficacy</td>
<td>0.05</td>
<td>0.03</td>
</tr>
<tr>
<td>Individual level predictors:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual-focused TFL</td>
<td>0.17</td>
<td></td>
</tr>
<tr>
<td>Creative role identity</td>
<td></td>
<td>0.35**</td>
</tr>
<tr>
<td>Group-level controls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team size</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Aggregate team interdependence</td>
<td>0.13</td>
<td></td>
</tr>
<tr>
<td>Group-level predictors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team creative role identity</td>
<td>0.12&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.12&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Adjusted R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0.09</td>
<td>0.08</td>
</tr>
<tr>
<td>Overall R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0.11</td>
<td>0.11</td>
</tr>
<tr>
<td>Overall F</td>
<td>2.70</td>
<td>0.33</td>
</tr>
<tr>
<td>ΔR&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0.11</td>
<td>0.00</td>
</tr>
<tr>
<td>ΔF</td>
<td>2.70</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Note: Standard coefficients reported

N<sub>employees</sub> = 139; N<sub>teams</sub> = 42

* p<0.05, ** p<0.01

<sup>a</sup> creative role identity was aggregated to the team level
<table>
<thead>
<tr>
<th>Variable</th>
<th>DV: Team creativity</th>
<th>DV: Team creative role identity</th>
<th>DV: Team creative efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Step1 β</td>
<td>Step2 β</td>
<td>Step1 β</td>
</tr>
<tr>
<td></td>
<td>H5</td>
<td>H6b</td>
<td>H12b</td>
</tr>
<tr>
<td></td>
<td>Step2 β</td>
<td>Step2 β</td>
<td>Step3 β</td>
</tr>
<tr>
<td>Group-level controls:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team size</td>
<td>0.04</td>
<td>0.06</td>
<td>0.03</td>
</tr>
<tr>
<td>Within-team interdependence</td>
<td>0.01</td>
<td>0.03</td>
<td>-0.01</td>
</tr>
<tr>
<td>Group-level predictors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group-focused TFL</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>Aggregate POSC</td>
<td>0.06</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>Group-focused TFL X Aggregate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POSC</td>
<td>0.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team creative role identity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team creative efficacy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.01</td>
<td>0.01</td>
<td>-0.02</td>
</tr>
<tr>
<td>Overall R²</td>
<td>0.01</td>
<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td>Overall F</td>
<td>0.12</td>
<td>0.08</td>
<td>0.12</td>
</tr>
<tr>
<td>ΔR²</td>
<td>0.01</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>ΔF</td>
<td>0.12</td>
<td>0.00</td>
<td>0.14</td>
</tr>
</tbody>
</table>

Note: Standard coefficients reported
N_{teams}=42
*p<0.05, **p<0.01
Figure 1: Relationships between individual-focused and group-focused TFL and individual and team creativity.
**Group Level**

![Diagram showing the relationships between Group-focused TFL, Team Creative Role Identity, Creative Role Identity, Individual-focused TFL, Perceived Organizational Support for Creativity, Team Creativity, Team Creative Efficacy, Creative Self-Efficacy, and Individual Creativity.]

**Individual level**

Figure 2: Summary of the results of hypothesized model.

*p<0.05,

* *p<0.01
APPENDIX

Items of the Dual-Level Transformational Leadership (TFL) Scale (Wang & Howell, 2010)

The Individual-Focused TFL Subscale (18 Items)

Communicating high expectations (five items):
1. Encourages me to set high goals for myself.
2. Communicates high performance expectations to me.
3. Shows confidence in my ability to meet performance expectations.
4. Demonstrates total confidence in me.
5. Encourages me to live up to my potential.

Follower development (five items):
1. Helps me develop my strengths.
2. Suggests training to improve my ability to carry out my job.
3. Provides me with developmental experiences.
4. Provides feedback to help me develop my abilities.
5. Provides coaching to help me improve my job performance.

Intellectual stimulation (four items):
1. Gets me to look at problems from many different angles.
2. Challenges me to think about old problems in new ways.
3. Challenges me to be innovative in my approach to work assignments.
4. Encourages me to be an independent thinker.

Personal recognition (four items):
1. Commends me when I achieve my goals.
2. Gives me positive feedback when I perform well.
3. Gives me special recognition when my work is very good.
4. Acknowledges improvement in my quality of work.

The Group-Focused TFL Subscale (10 Items)

Emphasizing group identity (five items):
1. Encourages team members to take pride in our team.
2. Says things that make us feel proud to be members of this team.
3. Says positive things about the team.
4. Encourages others to place the interests of the team ahead of their own interests.
5. Emphasizes the uniqueness of the team.

Team-building (five items):
1. Fosters collaboration among team members.
2. Encourages group members to be “team players.”
3. Develops a team attitude and spirit among team members.
4. Gets the team to work together for the same goal.
5. Resolves friction among team members in the interest of teamwork.

*Note: Does not include the Communicating a group vision subscale.
Team Members’ Survey Measures
Creative Role Identity (Farmer et al., 2003)
1. I often thinks about being creative.
2. I do not have any clear concept of myself as a creative employee.*
3. To be a creative employee is an important part of my identity
*Note: Item removed because of poor loading.

Creative efficacy (Tierney & Farmer 2002)
1. I feel that I am good at generating novel ideas
2. I have confidence in my ability to solve problems creatively
3. I have a knack for further developing the ideas of others.

Team creative role identity adapted from Farmer et al., 2003
1. My team often thinks about being creative.
2. I do not have any clear concept of my team as a creative team.
3. To be a creative team is an important part of my team’s identity

Team creative efficacy adapted from Tierney and Farmer 2002
1. I feel that my team is good at generating novel ideas.
2. I have confidence in my team’s ability to solve problems creatively.
3. My team has a knack for further developing the ideas of others within the team.

Perceived Organizational Support for Creativity, Scott and Bruce (1994)
1. Creativity is encouraged at [company].
2. Our ability to function creatively is respected by the leadership.
3. The reward system here encourages innovation.
4. [Company] publicly recognizes those who are innovative.

Project Team Leaders’ Survey Measures
1. Demonstrated originality in his/her work.
2. Took risks in terms of producing new ideas in doing job.
3. Found new uses for existing methods or equipment.
4. Solved problems that had caused others difficulty
5. Tried out new ideas and approached to problems.
6. Identified opportunities for new products/processes.
7. Generated novel, but operable work-related ideas.
8. Served as a good role model for creativity.
9. Generated ideas revolutionary to our field.

Board Directors’ Survey
Team Creativity (Adapted from Shin & Zhou, 2007).
1. Took risks in terms of producing new ideas in doing job.
2. Tried out new ideas and approaches to problems.
3. Identified opportunities for new products/processes
4. Generated novel, but operable work-related ideas.
VITA
EKUNDAYO Y. AKINLADE
University of Illinois at Chicago

EDUCATION

2013  University of Illinois at Chicago, Liautaud Graduate School of Business
Ph.D.  Human Resource Management and Organizational Behavior
Dissertation
Title: The Dual Effect of Transformational Leadership on Individual and Team Creativity
Committee: Robert C. Liden (Chair), Shelley L. Brickson, Jenny M. Hoobler, Pam Tierney, Sandy J. Wayne

1996  University of Connecticut, Storrs, Connecticut
M.B.A.  Concentration in Management and Human Resource Management

1987  Imperial College, University of London, London, England
M.S.  Biotechnology

1986  University of Reading, Reading, England
B.S.  Agriculture

RESEARCH

RESEARCH SUMMARY
My research has focused on elucidating the mechanisms underlying the relationship between leadership and creativity. My dissertation builds on this topic and tested a model that explored how leadership simultaneously influences creativity at the individual and team levels and how creativity unfolds at both levels of analysis.

Another area of research that interests me is organizational identity. My studies address organizational identity construction, how organizational identity informs the relationships between the organization and its members and the consequences of organizational identity on internal processes such as power.

OTHER RESEARCH INTERESTS
Culture
Diversity

MANUSCRIPTS IN REVIEW

CONFERENCE AND SYMPOSIUM PRESENTATIONS


Akinlade, D. & Brickson, S. 2010. The genesis and experience of power. Presented at the American Psychological Society 22nd Annual Convention, Boston, MA.


MANUSCRIPTS IN PREPARATION

Akinlade, D., Liden, R. C., & El-Akremi, A. Leader-Member-Exchange and Creativity: The Role of Intellectual Stimulation and Power Distance. (Status: 90% complete; Target journal: Journal of Applied Psychology)

Akinlade, D. & Brickson S. L. The Dynamic Relationship Between Organizational Identity and Routines. (Status: 10% complete; Target journal: Organizational Science)

FUNDED RESEARCH

Effect of culture on employees’ perception and reaction to psychological contracts

Awarded $10,000 research grant from University of Illinois Center for Human Resource Management
TEACHING EXPERIENCE

Instructor, University of Illinois at Chicago
Responsible for independently designing and teaching management courses.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Class Size</th>
<th>Evaluation Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer 2008</td>
<td>MGMT 557: International Management</td>
<td>35</td>
<td>4.53/5</td>
</tr>
<tr>
<td>Spring 2010</td>
<td>MGMT 465: Compensation &amp; Reward System</td>
<td>45</td>
<td>4.03/5</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>MGMT 453: Human Resource Management</td>
<td>37</td>
<td>3.78/5</td>
</tr>
<tr>
<td>Spring 2010</td>
<td>MGMT 465: Compensation &amp; Reward System</td>
<td>44</td>
<td>3.50/5</td>
</tr>
</tbody>
</table>

TRAINING AND CURRICULUM DEVELOPMENT EXPERIENCE

- Taught various graduate and undergraduate management courses at the University of Phoenix including: Accounting, Global Strategies, Financial Management, Operations Management.
  - Taught several hybrid courses that included online teaching
- Trained students in practical aspects of agriculture at the Nigerian Ministry of Agriculture.
- Designed course materials and facilitated instruction for an international nonprofit organization.

WORK EXPERIENCE

ACADEMIC

2013 – Present: Assistant Professor, Saint Xavier University, Graham School of Management:

Teach various undergraduate and graduate courses including: Diversity, Human Resource Management, Principles of Management and Strategic Human Resource Management.

2012-2013: Assistant Professorial Lecturer, Saint Xavier University, Graham School of Management:

Taught various undergraduate and graduate courses including: Diversity, Human Resource Management and Strategic Human Resource Management.


Member of the Talent Management group for the university. Developed, in conjunction with team members, the “Leadership Development Program” (LDP) based on research involving over 30 public and private universities, theoretical principles and empirical evidence. A component of the UIC LDP was rolled out in September 2009.
Investigated the genetic pre-disposition to IgA Nephropathy at the London Hospital
Co-authored two publications in peer reviewed journals.

1986-1987: Tate and Lyle Research Group, Reading, England: Research Assistant
Designed experiments to examine the decolorization of sugar colors using a biotechnological approach.
Published findings as M.S. thesis.

BUSINESS
1991-1993: Senior Consultant at Accenture, Lagos Nigeria
- Participated in client turnaround projects for major Nigerian bank: Saved bank about 1.2 million naira by recommending revenue generating and cost saving opportunities.
- Served as senior consultant to the Human Resource Department of an international oil and gas organization, and insurance company: Created an HR policies and procedures handbook for the Nigerian Liquefied Natural Gas (NLNG) company to integrate staff from various organizations and countries
- Provided strategic analysis for older bank interested in becoming more competitive by benchmarking with similar banks and brainstorming with management.
- Generated feasibility reports for company that provided funds for small, innovative projects.

PROFESSIONAL ACTIVITIES AND SERVICES

MEMBERSHIPS
Academy of Management
Beta Gamma Sigma Honor Society
The PhD Project
Society of Human Resource Management
Organizational Behavior Teaching Society

SERVICE
Ad hoc reviewer for Academy of Management conferences
Co-Chair Professional Development Committee, Graham School of Management
Co-Chair Teaching, Learning and Assessment Committee, Saint Xavier University

INVITED CONSORTIUM
HR Doctoral Consortium, AOM 2011 Conference
OB Doctoral Consortium, AOM 2012 Conference
March 22, 2012

Ekundayo (Dayo) Akinlade, MBA, MS, BS
Managerial Studies
2226 UH
M/C 243
Chicago, IL 60612
Phone: (847) 721-9328 / Fax: (312) 996-3559

RE: Protocol # 2012-0159
“The Dual Effects of Transformational Leadership on Creativity”

Dear Ekundayo Akinlade:

Your Initial Review (Response to Modifications) was reviewed and approved by the Expedited review process on March 22, 2012. You may now begin your research.

Please note the following information about your approved research protocol:

- **Protocol Approval Period:** March 22, 2012 - March 21, 2013
- **Approved Subject Enrollment #:** 500
- **Additional Determinations for Research Involving Minors:** These determinations have not been made for this study since it has not been approved for enrollment of minors.
- **Performance Sites:** UIC, Cengage Learning, Institute of Medicine
- **Sponsor:** None
- **PAF#:** Not Applicable

- **Research Protocol(s):**
  - a) Research Protocol: The Dual-Effect of Transformational Leadership on Individual-Level and Team-Level Creativity; Version 3.7; 02/15/2012

- **Recruitment Material(s):**
  - a) IOM HR Script; Version 1.1; 03/01/2012
  - b) Cengage HR Script; Version 1.1; 03/01/2012
  - c) Cengage Recruitment E-mail: From PI to All Employees; Version 1.1; 03/01/2012
  - d) IOM Recruitment E-mail: From PI to All Employees; Version 1.1; 03/01/2012
Informed Consent(s):
   a) Cengage Informed Consent Form; Version 1.1; 03/01/2012
   b) IOM Informed Consent Form; Version 1.1; 03/01/2012
   c) Waiver of Signed Consent Document granted under 45 CFR 46.117 for online consent
   d) Waiver of Informed Consent granted under 45 CFR 46.116(d) for recruitment purposes only

Your research meets the criteria for expedited review as defined in 45 CFR 46.110(b)(1) under the following specific category:

(7) Research on individual or group characteristics or behavior (including but not limited to research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Please note the Review History of this submission:

<table>
<thead>
<tr>
<th>Receipt Date</th>
<th>Submission Type</th>
<th>Review Process</th>
<th>Review Date</th>
<th>Review Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>02/16/2012</td>
<td>Initial Review</td>
<td>Expedited</td>
<td>02/20/2012</td>
<td>Modifications Required</td>
</tr>
<tr>
<td>03/08/2012</td>
<td>Response to Modifications</td>
<td>Expedited</td>
<td>03/22/2012</td>
<td>Approved</td>
</tr>
</tbody>
</table>

Please remember to:

➔ Use your research protocol number (2012-0159) on any documents or correspondence with the IRB concerning your research protocol.

➔ Review and comply with all requirements on the enclosure, "UIC Investigator Responsibilities, Protection of Human Research Subjects"

Please note that the UIC IRB has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.
We wish you the best as you conduct your research. If you have any questions or need further help, please contact OPRS at (312) 996-1711 or me at (312) 996-9299. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Marissa Benni, M.S.
IRB Coordinator, IRB # 2
Office for the Protection of Research Subjects

Enclosure(s):
1. UIC Investigator Responsibilities, Protection of Human Research Subjects
2. Informed Consent Document(s):
   a) Cengage Informed Consent Form; Version 1.1; 03/01/2012
   b) IOM Informed Consent Form; Version 1.1; 03/01/2012
3. Recruiting Material(s):
   a) IOM HR Script; Version 1.1; 03/01/2012
   b) Cengage HR Script; Version 1.1; 03/01/2012
   c) Cengage Recruitment E-mail: From PI to All Employees; Version 1.1; 03/01/2012
   d) IOM Recruitment E-mail: From PI to All Employees; Version 1.1; 03/01/2012

cc: Mark Shanley, Managerial Studies, M/C 243
    Robert C. Liden, Managerial Studies, M/C 243
March 12, 2013

Ekundayo (Dayo) Akinlade, MBA, MS, BS
Managerial Studies
2226 UH
M/C 243
Chicago, IL 60612
Phone: (847) 367-9833 / Fax: (312) 996-3559

RE: Protocol # 2012-0159
“The Dual Effects of Transformational Leadership on Creativity”

Dear Ekundayo Akinlade:

Your Continuing Review (Response To Modifications) was reviewed and approved by the Expedited review process on March 12, 2013. You may now continue your research.

Please note the following information about your approved research protocol:

**Protocol Approval Period:** March 21, 2013 - March 21, 2014

**Approved Subject Enrollment #:** 500 (Limited to data analysis from 200 subjects)

**Additional Determinations for Research Involving Minors:** These determinations have not been made for this study since it has not been approved for enrollment of minors.

**Performance Sites:** UIC, Cengage Learning, Institute of Medicine

**Sponsor:** None

**Research Protocol:**

b) Research Protocol: The Dual-Effect of Transformational Leadership on Individual-Level and Team-Level Creativity; Version 3.7; 02/15/2012

**Recruitment Material:**
e) N/A - Data analysis only

**Informed Consent:**
e) N/A - Data analysis only
Your research meets the criteria for expedited review as defined in 45 CFR 46.110(b)(1) under the following specific category:

(7) Research on individual or group characteristics or behavior (including but not limited to research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Please note the Review History of this submission:

<table>
<thead>
<tr>
<th>Receipt Date</th>
<th>Submission Type</th>
<th>Review Process</th>
<th>Review Date</th>
<th>Review Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>02/19/2013</td>
<td>Continuing Review</td>
<td>Expedited</td>
<td>02/21/2013</td>
<td>Modifications Required</td>
</tr>
<tr>
<td>03/07/2013</td>
<td>Response To Modifications</td>
<td>Expedited</td>
<td>03/12/2013</td>
<td>Approved</td>
</tr>
</tbody>
</table>

Please remember to:

➔ Use your research protocol number (2012-0159) on any documents or correspondence with the IRB concerning your research protocol.

➔ Review and comply with all requirements on the enclosure, "UIC Investigator Responsibilities, Protection of Human Research Subjects" ([http://tigger.uic.edu/depts/ovcr/research/protocolreview/irb/policies/0924.pdf](http://tigger.uic.edu/depts/ovcr/research/protocolreview/irb/policies/0924.pdf))

Please note that the UIC IRB has the right to seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact OPRS at (312) 996-1711 or me at (312) 355-2764. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Betty Mayberry, B.S.
IRB Coordinator, IRB # 2
Office for the Protection of Research Subjects

cc: Mark Shanley, Managerial Studies, M/C 243
    Robert C. Liden, Faculty Sponsor, M/C 243