12-12-2013

Transformational Leadership and Creative Problem-Solving: The Mediating Role of Psychological Safety and Reflexivity

Abraham Carmeli
Tel Aviv University

Zachary Sheaffer

Galy Binyamin

Roni Reiter-Palmon
University of Nebraska at Omaha, rreiter-palmon@unomaha.edu

Tali Shimoni

Recommended Citation

Carmeli, A., Sheaffer, Z., Binyamin, G., Reiter-Palmon, R., & Shimoni, T. (2013, December 12). Transformational Leadership and Creative Problem-Solving: The Mediating Role of Psychology Safety and Reflexivity. Journal of Creative Behavior, 48(2), 115-135. https://doi.org/10.1002/jocb.43

Transformational Leadership and Creative Problem-Solving: The Mediating Role of Psychological Safety and Reflexivity

Abraham Carmeli, Tel Aviv University and King's College London

Zachary Sheaffer,

Galy Binyamin, Ariel University

Roni Reiter-Palmon, University of Nebraska at Omaha

Tali Shimoni, Ariel University

ABSTRACT

Previous research has pointed to the importance of transformational leadership in facilitating employees' creative outcomes. However, the mechanism by which trans-formational leadership cultivates employees' creative problem-solving capacity is not well understood. Drawing on theories of leadership, information processing and creativity, we proposed and tested a model in which psychological safety and reflexivity mediate the effect of transformational leadership and creative problem-solving capacity. The results of survey data collected at three points in time indicate that transformational leadership facilitates the development of employees' creative problem-solving capacity by shaping a climate of psychological safety conducive to reflexivity processes. However, the findings also indicate that psychological safety is related both directly and indirectly, through reflexivity, to employees' creative problem-solving capacity. This study sheds further light on the ways in which trans-formational leaders help to develop and cultivate employees' capacity for creative problem-solving.

[Correction Notice: A correction to the online Early View of this article has been made. The originally published article contained errors that resulted from running different models with parcel items and without parcel items. Corrections were made to the fit indices reported in the preliminary analysis section and Table2. A clarifying note about covariates was added to Figure 2 and Table 2. Corrections were also made to the path coefficients reported in Figure 2 and Table 2. The corrected version reports on results from the entire model with the covariations. The corrections did not change the overall nature of the findings or the conclusions.]

Work organizations in a variety of industries seek to develop and cultivate their ability to address ill-defined and complex problems creatively (Mumford, Reiter-Palmon, & Redmond, 1994). Solving problems creatively requires wide-ranging and arduous cognitive processing (Mumford, Medeiros, & Partlow, 2012). Thus, a key question is how organizations, and their leaders facilitate employees' creative behaviors and help to build their creative problem-solving capacity (Byrne, Shipman, & Mumford, 2010; Carmeli, Gelbard, & Reiter-Palmon, 2013). This is particularly challenging in highly volatile and uncertain environments where leadership plays a key role in cultivating employees' ability to think imaginatively, such that complexities are addressed creatively, both as a means to solve workplace problems and as measures aimed at enhancing competitiveness (Peele, 2006).

Research on the effects of leadership on individual creativity has revealed interesting findings regarding the various ways that leadership can enhance employee creativity (see Stenmark, Shipman, & Mumford, 2011). However, the mechanism by which leaders facilitate employee creativity is not well understood (Carmeli et al.,2013; Tierney, 2008). Some researchers have argued that leaders foster employee creativity by providing support for creativity and motivating their followers to engage in the creative process (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Shalley & Gilson, 2004; Tierney, 2008). Other studies have pointed to leader inclusiveness as vital for creating psychological conditions that are conducive to creativity (Carmeli, Reiter-Palmon, & Ziv, 2010).

The leadership literature provides ample evidence regarding the power of transformational leadership behaviors in shaping followers' work attitudes and outcomes (Bass, 1985; Bass & Avolio, 1990). Leadership and creativity scholars have thus directed efforts to examining the role of transformational leadership in facilitating creativity. Research on the relationship between leadership and creativity, however, has produced mixed findings (Elkins & Keller, 2003), which have prompted the study of potential intervening mechanisms that translate transformational leadership into enhanced employee creativity (Gong, Huang, & Farh, 2009; Shin & Zhou, 2003).

Transformational leadership theory focuses on the role of leaders as motivators and providers of support to their followers to grow and succeed in their tasks. Drawing on these theoretical foundations, researchers have noted that transformational leaders play a crucial role in providing support and engendering motivation among employees to engage and display creativity (Elkins & Keller, 2003; Gonget al., 2009; Shin & Zhou, 2003). Leaders have an even more fundamental role of creating and shaping conditions that facilitate cognitive processes deemed conducive for creativity (Carmeli et al., 2010; Mumford et al., 2012). Unfortunately, this line of research has largely remained fragmented because of the focus on either psychological conditions such as psychological safety (Carmeli et al., 2010) or cognitive processes (Ward, Smith, & Finke, 1999; Ward, Smith, & Vaid, 1997). With some notable exceptions to integrate social-psychological conditions and associated cognitive processes that facilitate

creative behaviors (e.g., West, 1996), little has been done to explore whether and why transformational leaders play a key role in the creation of these conditions and in facilitating cognitive processes that enhance creativity.
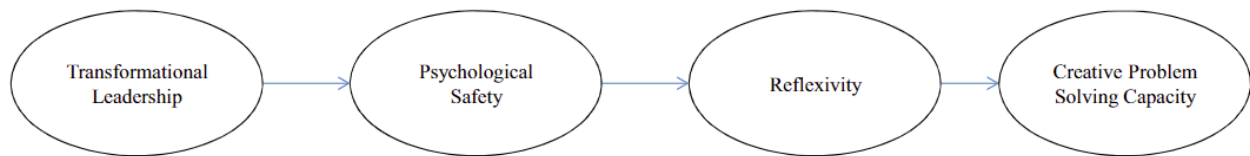

FIGURE 1. The hypothesized research model.

This study addresses these issues by proposing and testing a mediation model (presented in Figure 1) in which transformational leadership helps to develop employees' capacity for creative problem-solving by shaping perceptions of psychological safety (Edmondson, 1999) and facilitating reflexivity (West, 1996). In so doing, we contribute to the literature by demarcating a socio-psychological and cognitive pathway through which transformational leaders help to cultivate employees' capacity to solve problems creatively.

THEORY AND HYPOTHESESCREATIVE PROBLEM-SOLVING CAPACITY

Creative problem-solving is at the heart of creative behavior (although not all creative behaviors requires creative problem-solving) and it is about "deal(ing) with situations in which the individual attempts to find a creative solution to a given problem" (Simonton, 2012, p. 50). Creative problem-solving is a core process that encompasses both the generation phase and the implementation phase (Reiter-Palmon & Illies, 2004). Consistent with this conceptualization, we focus on creative problem-solving as the ways in which individuals interpret and use knowledge to solve problems creatively. While multiple models of creative problem-solving exist (e.g., Burkhardt & Lubart, 2010; Finke, Ward, & Smith, 1992), most include the following four elements: (a) problem identification and construction, (b) information search and encoding, (c) solution or alternatives generation, and (d) idea evaluation and selection. The focus in this study is on the creative problem-solving capacity; that is, behaviors that facilitate creative problem-solving and the execution of each of these four elements. We distinguish between creativity, which is an outcome measure (a creative product), and creative problem-solving capacity. Here, we do not consider creativity as an outcome, but rather as a behavior, a process whereby individuals are able to identify and construct a problem, engage in information search and encoding, discover, evaluate, and select the most novel solution. Specifically, we refer to the extent of one's ability to engage in these four elements that constitute creative problem-solving.

Problem identification and construction is the first step of creative problem-solving in which experts tend to spend a considerable amount of time (Basadur, 1997;

Basadur, Runco, & Vega, 2000; Finke et al., 1992; Mumford et al., 2012). This not only influences the subsequent generation of creative ideas or solutions but also the originality and quality of solutions to pending problems (Mumford et al., 1994; Reiter-Palmon, Mumford, O'Conner-Boes, & Runco, 1997). In this phase, attention to multiple solutions and competing goals is needed as they may facilitate and result in original and novel solutions to problems (Reiter-Palmon & Robinson, 2009).

Information search and encoding is guided by the problem construction stage. Ward et al. (1997) argued that without information search and encoding, new ideas will resemble old ones. The availability of diverse cues and non-redundant information may lead to more creative solutions (Illies & Reiter-Palmon, 2004; Reiter-Palmon et al., 1997).

Solution or alternatives generation requires divergent thinking (Kharkhurin, 2009; Runco & Acar, 2010). Divergent thinking is fundamental to the creative process (Guilford, 1967; Lubart, 2001; Runco & Acar, 2010). Ideas can be derived from both internal sources (i.e., knowledge and expertise that individuals already possess) and external sources (i.e., other colleagues, social networks, or written sources, such as books or the internet) (Carmeli et al., 2013). Developing divergent thinking under-pins, the ability to solve problems creatively.

Idea evaluation and selection refers to the appraisal of the ideas that were generated in the previous phase, and selecting the best idea or ideas for implementation or further development (Putman & Paulus, 2009). This process identifies ideas that appear most effective to solve the problem, as well as potential modifications and idea refinement. This step requires the identification of potential pitfalls and difficulties that may arise, so as to plan accordingly. Each solution is evaluated in terms of competing goals and feasibility for both the short- and long-term consequences and requires both divergent and convergent processes (Herman & Reiter-Palmon, 2011).

Research indicates that effective application of all of these processes underlie the capacity for creative problem-solving (Mumford et al., 2012; Reiter-Palmon et al.,1997). Developing employees' capacity to solve problems creatively is a complex task and constitutes a major challenge for leadership in organizations.

TRANSFORMATIONAL LEADERSHIP AND CREATIVE PROBLEM-SOLVING

Transformational leadership, one of the key concepts in the leadership literature, has a positive impact on followers' development (Dvir, Eden, Avolio, & Shamir,2002). Transformational leaders inspire and harness followers to transcend their own self-interests in pursuing collective goals, and become more effective by performing beyond their perceived expectations (Bass & Avolio, 1990).

By engaging in a set of leadership behaviors, transformational leaders transform followers' attitudes and behaviors, thereby promoting changes and augmenting their professional growth. These leadership behaviors include idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass &Avolio, 1990). Leaders exhibiting *idealized influence* serve as role models for followers who respect and trust them and attempt to emulate their behaviors. Transformational leaders also inspire their followers by articulating an ambitious and appealing vision, and motivate others to embrace and realize this vision (i.e., *inspirational motivation*). These two components reflect charismatic leadership behaviors. Leaders who *intellectually stimulate* their followers encourage them to challenge the norm and take risks by addressing problems in a novel way (Hu, Wang, Liden, & Sun,2012). By displaying *individualized consideration*, transformational leaders encourage followers by showing consideration and support that help them grow (Hoffman, Bynum, Piccolo, & Sutton, 2011).

When transformational leaders *intellectually stimulate* their employees, they encourage them to question their assumptions and their old ways of doing things. They also encourage them to identify original approaches to problem-solving that may lead to developing new and novel ideas (Mumford, Scott, Gaddis, & Strange,2002). Transformational leaders are also likely to enhance creativity through *individualized consideration*. Given the demands and risks associated with creative efforts, leaders must be able to demonstrate support for risky new ventures, and original idea generation because leaders recognize the value of individual contributions (Amabile et al., 1996; Oldham & Cummings, 1996). In addition, leader inspirational motivation drives employees to channel their energy to tackle key challenges at work. As *inspirational motivation* helps employees to reframe challenges and see them as opportunities, this increases their willingness to try new approaches, which can lead to an adaptive problem-solving approach (Hirst, van Dick, & van Knippenberg,2009). Finally, when leaders have an *idealized influence* on their followers, they serve as role models for active engagement, which may be conducive to the creative and innovative process.

Studies have pointed to the need to consider intervening conditions and processes affecting the relationship between transformational leadership and creative behaviors and outcomes. Previous studies have examined such mediating mechanisms as intrinsic motivation (Shin & Zhou, 2003; Zhang & Bartol, 2010), self-efficacy (Gonget al., 2009; Redmond, Mumford, & Teach, 1993), and creative identity (Wang &Zhu, 2011). However, studies on the ways in which transformational leadership enhances the development of followers' creative problem-solving capacity are relatively scarce. This study examines the link between transformational leadership and employee creative problem-solving capacity. Specifically, we point to the mediating role of psychological safety and reflexivity in the relationship between transformational leadership and employees' capacity for creative problem-solving.

THE MEDIATING ROLE OF PSYCHOLOGICAL SAFETY AND REFLEXIVITY

Transformational leadership and psychological safety

Psychological safety describes the perception that 'people are comfortable being themselves' (Edmondson, 1999, p. 354), and 'feel able to show and employ one's self without fear of negative consequences to self-image, status or career' (Kahn, 1990, p. 708). Transformational leaders are instrumental in shaping the organizational climate at large (Isaksen & Akkermans, 2011). Specifically, transformational leaders cultivate a climate of psychological safety where followers are encouraged to take interpersonal risks and express themselves to realize their potential and grow. To alleviate the dependence associated with charismatic leadership (*idealized influence* and *inspirational motivation*) because followers may view leaders as extraordinary and exceptional (Kark, Shamir, & Chen, 2003; Yukl, 1998), charismatic leaders achieve "transformational effects" (Shamir, House, & Arthur, 1993) by communicating confidence in their followers' ability to meet higher performance expectations. They boost followers' self-concept, enhance their self-esteem and self-worth, and harness their motivational forces of self-expression (Shamir et al., 1993). Detert and Burris (2007) found that when leaders engage in *individualized consideration* and in *inspirational motivation* behaviors, followers report a higher level of psychological safety. As Edmondson (1999) put it: "If the leader is supportive, coaching-oriented, and has non-defensive responses to questions and challenges, members are likely to conclude that the team constitutes a safe environment" (p. 356).

In addition, when leaders *intellectually stimulate* their followers and encourage them to question assumptions (Zhang, Tsui, & Wang, 2011), they send a clear message that followers can feel psychologically safe and that it is legitimate and even expected to speak up and express themselves openly without fear of negative inter-personal consequences (Kahn, 1990). This is especially the case when leaders provide support, encouragement, and show empathy (Carmeli et al., 2010). For example, Schaubroeck, Lam, and Peng (2011) showed that leaders who are capable of instilling trust among followers help facilitate conditions in which members feel comfortable to express their own opinions. Popper and Mayseless (2003) argued that transformational leaders provide their followers a 'secure base' from which to explore, and serve as a 'safe haven' when a threat loom. They may help followers regain confidence and embark on a course to autonomy and self-actualization. Thus, we propose the following hypothesis:

Hypothesis 1: Transformational leadership is positively related to perceptions of psychological safety.

Psychological safety and reflexivity

Reflexivity is an information-processing activity and is referred to as the extent to which employees reflect upon the work tasks they have completed and identify ways of improving performance (West, 1996). Using reflexivity, employees develop a better

sense of what is done, why and how, and can adjust their behaviors and actions accordingly (West, 1996). Reflexivity captures a process described as "the interwoven cycle of reflection and action of professionals completing complex tasks" (Schippers, Den Hartog, Koopman, & Knippenberg, 2008, p. 1595).

Research has shown that reflexivity may be a powerful process that can drive performance (e.g., De Dreu, 2007; Schippers, Den Hartog, Koopman, & Wienk, 2003).However, reflexivity requires specific conditions to flourish (Moreland & McMinn,2010). In line with recent research (De Dreu, 2007; Schippers, Homan, & van Knippenberg, 2013), we seek to further unravel the psychological conditions conducive to reflexivity.

We suggest that psychological safety is an important psychological state vital for promoting employee engagement in reflexivity at work. When employees reflect upon their work tasks, they need to have a deeper and better understanding of what they have done, what was done well and not as well, why they engaged in these behaviors, and changes and adaptations needed to result in better performance. Oftentimes, this process requires interactions with others to receive feedback. Learning behaviors in which people receive feedback on their work requires a perception of psychological safety (Edmondson, 1999). This is because reflection is at the heart of the learning process (Edmondson, 1999, 2004) and people are not likely to engage in task reflexivity unless they feel psychologically safe to take inter-personal risks, speak up, and admit failures without feeling uncomfortable or fearful of status and image loss. Perceptions of psychological safety help to develop confidence to express highly subjective insights and intuitions concerning risk at large. Thus, the following hypothesis is suggested:

Hypothesis 2a: Perceptions of psychological safety are positively associated with reflexivity.

Transformational leadership, psychological safety, and reflexivity

Leaders seek to facilitate processes with a potential to improve employee work outcomes. Reflexivity is one process that is instrumental in improving work outcomes, and thus leaders attempt to create the conditions that can facilitate this information-processing activity (Schippers et al., 2008). Previous research has examined the effect of specific types of leadership on reflexivity at work. Gersick and Hackman (1990) emphasized that leaders prompt groups to review their habitual routines to assess their appropriateness to the task and situation. Hirst, Mann, Bain, Pirola-Merlo, and Richver (2004) found that facilitative leaders stimulate team reflexivity by promoting respect and positive relationships between team members, productive conflict resolution, and open expression of ideas and opinions. Schipperset al. (2008) argued that by encouraging a shared vision, transformational leaders ensure a shared frame of reference for followers to reflect on, and communicate about objectives, strategies, alternatives, and processes.

We suggest that by nurturing a climate of psychological safety, transformational leaders facilitate reflexivity. Specifically, through intellectual stimulation, transformational leaders encourage followers to rethink their work processes, consider new viewpoints and question old assumptions, thus promoting engagement in reflexivity. In addition, leaders who exhibit individualized consideration open up communication channels and signal their support and encouragement of questioning, reviewing, and exploring. Leaders who display inspirational motivation inspire their followers by articulating an ambitious and appealing vision, and motivate them to inculcate it. Finally, leaders who demonstrate idealized influence may serve as role models by signaling that it is safe to take interpersonal risks and that reflexivity is valued. Thus, we posit that by promoting psychological safety, transformational leaders facilitate reflexivity. This leads to the following hypothesis:

> Hypothesis 2b: Perceptions of psychological safety mediate the relationship between transformational leadership and reflexivity.

Reflexivity and creative problem-solving capacity

Organizations seek to motivate their members not merely to construct novel ideas but also to transform them into new viable products and services (Hennessey &Amabile, 2010). The basis for this process resides in people's capacity for creative problem-solving, and their capacity to deliver original, high-quality and well-designed solutions (Christiaans, 2002) to complex and ill-defined problems that necessitate creative thought (Reiter-Palmon & Illies, 2004).

We posit that reflexivity is a key process that helps to cultivate creative problem-solving capacity. In creative problem-solving, the solution is independently engendered through *reflection* rather than learned with assistance (Buijs, Smulders, &Van Der Meer, 2009). Research has indicated that conscious reflection on team functioning and task performance is central to enhancing creativity in teams and to the accomplishment of effective procedures and processes (Widmer, Schippers, &West, 2009). By reflecting on the work context and discussing how working methods can be improved to ensure an effective response to that context, people ideally acquire a deeper and more comprehensive understanding of the problem, such that the capacity to generate creative and viable solutions is enhanced (De Dreu, Nijstad,& van Knippenberg, 2008).

We further suggest that transformational leaders play a key role in facilitating reflexivity by developing a climate of psychological safety. We reason that these leaders are capable of influencing perceptions of employees, such that they will feel psychologically safe to take interpersonal risks. This psychologically safe environment is conducive to reflexivity processes that require deep-level information processing of what has occurred, how, and why. Through this information-processing activity, individuals can enhance their capacity for creative problem-solving as they become more capable of understanding the issues at hand comprehensively and are able to tackle them from different, often unique, angles. Furthermore, reflexivity requires that individuals will be

open to discuss errors and performance weaknesses and ways to correct them (West, 1996). Thus, we posit that transformational leaders shape perceptions of psychological safety, which are conducive to reflexivity, which in turn helps develop and cultivate employee creative problem-solving capacity. The following hypotheses are formulated:

> Hypothesis 3a: Reflexivity is positively related to creative problem-solving capacity.

> Hypothesis 3b: Reflexivity mediates the relationship between perceptions of psychological safety and creative problem-solving capacity.

> Hypothesis 4: Transformational leadership is related to creative problem-solving via the sequential mediating role of perceptions of psychological safety and reflexivity.

METHOD

SAMPLE AND PROCEDURE

We collected survey data from part-time students in two business school programs at two academic institutions in Israel. The sample included both BA and MBA students employed by firms in wide-ranging industries. Israeli MBA students are invariably older than their counterparts worldwide, because most complete their mandatory military service before starting college. All participants were employed either full (40 hours or above per week) or part-time (about 20 hours per week). The data were collected at three points in time with a lag of about 2 weeks between each survey wave. Data on transformational leadership were collected at Time 1. At Time 2, we collected data on employee psychological safety and reflexivity (mediators). Finally, at Time 3, data were collected on employees' creative problem-solving capacity. To be able to match the data across these three waves, we asked each participant to write the names of her or his grandfather and grandmother on each survey, or to choose a unique identification number such as a phone number. The participants were guaranteed full confidentiality and anonymity. Overall, we received 302 usable surveys, which were fully completed at all three points in time, for a response rate of 86.28 percent. Women comprised 53 percent of the sample. The average respondent age was 24.88 years (*SD* 6.97), and the mean tenure in the organization was 2.86 years (*SD* 3.81).

MEASURES

Creative problem-solving capacity

We used Carmeli et al.'s (2013) eight-item scale developed based on the Reiter-Palmon and Illies (2004) conceptualization. Respondents were asked to indicate on a five-point scale (ranging from 1 = 'not at all' to 5= 'to a very large extent') the extent to which their direct manager/supervisor thinks that they possess capabilities to solve problems creatively using the following four dimensions: problem identification and construction, idea generation, idea evaluation, and implementation. Sample items

include: To what extent your manager/supervisor thinks that you possess the "Capability to define work problems creatively (*problem definition and construction*)" and" Ability to generate novel ideas to solve work problems (*Idea generation*)," "Capability to appreciate what ideas are best for solving work problems," and "Capability to effectively implement novel ideas chosen to solve a specific work problem (*Idea implementation*)." The results of a factor analysis indicated that all eight items loaded onto one factor with an eigenvalue of 4.15 and explained 51.92% of the variability, with item loadings ranging from .54 to .80. The Cronbach's alpha for this measure was .86,slightly lower than the reliability of .94 reported in Carmeli et al.'s (2013) study.

Reflexivity

We adapted three items from the scale employed by De Dreu (2007), which was derived from previous research (Carter & West, 1998; De Dreu, 2002; Schippers et al., 2003). Respondents were asked to assess on a five-point scale, ranging from 1=not at all to 5 =to a very large degree, the extent to which they: (a) "Conduct deep-level conversation regarding the desired ends at my work and the ways to attain them," (b) "Reflect on the ways by which I do my work," and (c) "Ask questions as to why I have adopted certain ways to do things at work and whether rthere are better alternatives." The results of factor analysis indicated that all three items loaded onto one factor with an eigenvalue of 1.88 and explained 62.58% of the model variance, with item loadings ranging from .74 to .84. The Cronbach's alpha for this measure was .70.

Psychological safety

We used Edmondson's (1999) seven-item scale to assess the extent to which respondents feel psychologically safe to take interpersonal risks, speak up, and discuss issues openly. Sample items are as follows: "It is difficult to ask other members of my organization for help" (reversed), and "Members of my organization are able to bring up problems and tough issues." Items were all anchored on a 5-point scale ranging from 1 = not at all to 5 = to a very large degree. The Cronbach's alpha for this measure was .71, lower than the reliability of .82 reported by Edmondson (1999).

Transformational leadership

We used Rafferty and Griffin's (2004) 15-item scale to assess transformational leadership behaviors manifested by five dimensions: vision, inspirational communication, intellectual stimulation, supportive leadership, and personal recognition. Respondents were asked on a 5-point scale ranging from 1=not at all to 5=to a very large degree to assess the extent to which their managers exhibit transformational leadership behaviors. Sample items are as follows: The manager "Has a clear understanding of where we are going" (vision), "Says things that make employees proud to be a part of this organization" (inspirational communication), "Challenges me to think about old problems in new ways" (intellectual stimulation), "Considers my personal feelings before acting" (supportive leadership), and "Commends me when I do a better than average job" (personal recognition). We used item parcel s to accommodate for

our sample size, such that each set of subscale items was averaged into an observed variable for the SEM analysis. The Cronbach's alphas for the subscales ranged from .81 to .91, and the alpha for the entire scale was .89,similar to the reliabilities reported by Rafferty and Griffin (2004).

Control variables

Following previous research (Carmeli & Schaubroeck, 2007), we controlled for gender differences (1=Female, 0=Male) for their potential to account for variation in employee creative behaviors. In addition, organizational tenure was con-trolled for because the work domain expertise that comes with tenure (Oldham &Cummings, 1996; Tierney & Farmer, 2004) may account for variance in creativity. We also controlled for education (ranging from 1=high school diploma to 4=MA degree or above) for its potential positive effect on creativity.

TABLE 1.   Means, Standard Deviations (SD), and Correlations

	Mean	SD	1	2	3	4	5	6	7
1. Age	24.88	6.97	—						
2. Education	2.92	1.09	.36**	—					
3. Organizational tenure	2.86	3.82	.64**	.31**	—				
4. Transformational leadership	3.15	.71	−.02	.00	−.01	(.89)			
5. Psychological safety	3.42	.58	−.01	−.01	−.02	.22**	(.71)		
6. Reflexivity	3.66	.65	.14*	.05	.11*	.11*	.23**	(.70)	
7. Creative problem-solving capacity	3.57	.63	.22*	.11*	.14*	.14*	.30**	.26**	(.86)

Note. N = 302, Alpha reliabilities appear in parentheses.
*$p < .05$, **$p < .01$.

RESULTS

PRELIMINARY ANALYSES

The means, standard deviations, and correlations among the research variables are presented in Table 1. We took a latent-variable approach in our analyses, and thus first computed the composite reliabilities and variance extracted (construct validity) estimates for each construct in our model (as suggested by Fornell &Larcker, 1981;

Werts, Linn, & Jöreskog, 1974). All estimates were generated through a maximum likelihood technique; the results indicated that the composite reliabilities were all above .70, and all variance extracted estimates were above .50 (Fornell & Larcker, 1981).

Next, we performed a series of confirmatory factor analyses (CFA) to further test our measurement model. Transformational leadership and creative problem-solving capacity were represented as item parcels of three items and two each, respectively; the other variables were represented as latent constructs. The hypothesized four-factor model was tested to assess whether each of the measurement items would load significantly onto the scales with which they were associated. The results of the overall CFA showed acceptable fit with the data: x^2(129) = 209.2; CFI = .949; TLI = .940; RMSEA =.045. Standardized coefficients from items to factors ranged from .46 to .89. In addition, the CFA indicated that the relationship between each indicate or variable and its respective construct was significant (p<.01), establishing the posited relationships among indicators and constructs and thus, convergent validity (Hair, Anderson, Tatham, & Black, 1998). We compared the fit of our measurement model with a two-factor, common-method model with the transformational leadership, psychological safety, and reflexivity items loading onto one factor and the creative problem-solving capacity items loading onto a second factor. The fit of this model was poor and significantly worse than our proposed four-factor model: x^2/df = 4.68; CFI = .682; TLI = .642; RMSEA = .111.

MODEL COMPARISONS AND HYPOTHESIS TESTS

In what follows, we present the results of the hypothesized mediating relation-ships through a series of nested models (see Table 2). In each model, with the exception of age, education, and tenure, all analysis constructs are represented by latent variables with multiple indicators. The indicators are the respective items in each case. The results in Table 2 show that the baseline model fit the data reason-ably well. All paths, except for those from the age and education to creative problem-solving capacity, were significant. We also tested four related models (Models 1, 2, 3, and 4). Model 1 was identical to the baseline model, except that a direct path from transformational leadership to creative problem-solving capacity was added. Model 2 was identical to the baseline model, except that direct path from psychological safety to creative problem-solving capacity was added. Model 3was identical to the baseline model except that two direct paths were added: from transformational leadership to creative problem-solving capacity, and from psycho-logical safety to creative problem-solving capacity. Model 4 was identical to the baseline model except that three direct paths were added: from transformational leadership to creative problem-solving capacity; from psychological safety to creative problem-solving capacity; from transformational leadership to reflexivity.

TABLE 2. Comparisons and Path Coefficient of Structural Equation Models

Model	Path Coefficient/Fit indices	Model 1	Path Coefficient/Fit indices	Model 2	Path Coefficient/Fit indices	Model 3	Path Coefficient/Fit indices	Model 4	Path Coefficient/Fit indices
Baseline Model									
TFL→ PS	.39**	TFL→ PS	.29**	TFL→ PS	.39**	TFL→ PS	.39**	TFL→ PS	.39**
PS→ RF	.43**	PS→ RF	.40**	PS→ RF	.35**	PS→ RF	.35**	PS→ RF	.36**
RF→ CPS	.38**	RF→ CPS	.33**	RF→ CPS	.13#	RF→ CPS	.13#	RF→ CPS	.13#
		TFL→ CPS	.21*	PS → CPS	.49**	PS → CPS	.47**	PS → CPS	.47**
						TFL→ CPS	.04	TFL→ CPS	.04
								TFL→ RF	−.01
χ²	355.8	χ²	345.1	χ²	314	χ²	313.6	χ²	313.6
df	185	df	184	df	184	df	183	df	182
RMSEA	.055	RMSEA	.054	RMSEA	.048	RMSEA	.049	RMSEA	.049
CFI	.904	CFI	.910	CFI	.927	CFI	.927	CFI	.926
TLI	.88	TLI	.887	TLI	.908	TLI	.908	TLI	.906
IFI	.907	IFI	.910	IFI	.929	IFI	.929	IFI	.928

TFL: Transformational Leadership; PS: Psychological Safety; RF: Reflexivity; CPS: Creative Problem-Solving Capacity. Each model also tested the control variables of employee age, education, and tenure in the organization; only tenure was significantly related to creative problem-solving. We allowed age and tenure to covariate.

*p < .05, **p < .01, #p = .08

While all models fit the data reasonably well, Model 2 was the only one in which all paths were statistically significant. The results of Model 2 support the hypothesized relationships between transformational leadership and perceptions of psychological safety, between perceptions of psychological safety and reflexivity, and also lend support to the mediating role of perceptions of psychological safety in the link between transformational leadership and reflexivity. In addition, the findings of Model 2 support the link between reflexivity and creative problem-solving capacity. However, the results also indicate a direct path from perceptions of psychological safety and creative problem-solving capacity, and show that perceptions of psychological safety are related directly and indirectly, via reflexivity, to creative problem-solving capacity. Finally, the findings support our hypothesis that transformational leadership is associated with creative problem-solving capacity through perceptions of psychological safety and reflexivity. The findings are illustrated in Figure 2.
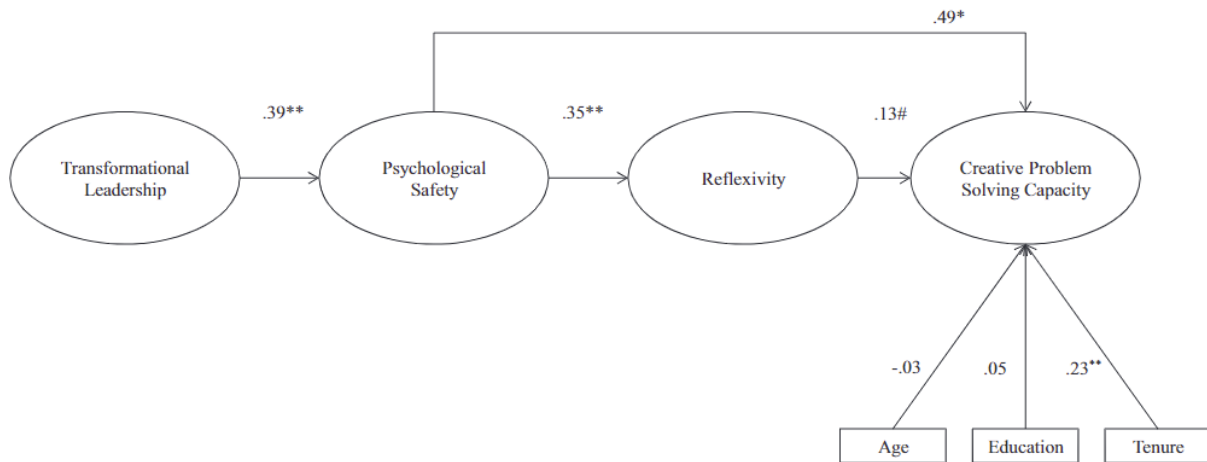

FIGURE 2. Results of model 2.

Note: Ovals show variables. For clarity, the indicators(items) of all variables are not shown. Statistics are standardized coefficients. We allowed age and tenure to covariate. *$p < .05$, **$p < .01$, #$p = .08$.

To further test the robustness of our hypotheses, we compared the fit of Model 2 with an alternative model that changed the sequential order of the mediators (i.e., transformational leadership →reflexivity → perceptions of psychological safety → creative problem-solving capacity). The overall fit was less adequate than the results of Model 2 (see Table 2). Collectively, the results support our hypotheses.

DISCUSSION

In this study, we sought to contribute to the literature by unraveling the processes by which leaders can help cultivate employees' capacity to solve problems creatively. Specifically, we hypothesized that by pointing to the importance and facilitating perceptions of psychological safety and engagement in a reflexivity process,

transformational leaders play a critical role in enhancing creative problem-solving capacity. In doing so, we make several contributions to theory and research on leadership, information processing, and individual creative problem-solving in the workplace.

This study extends theory about the positive role that transformational leaders play in followers' development at work (Dvir et al., 2002; Popper & Mayseless,2003). Our findings suggest that transformational leadership behaviors are an important mechanism in the development of employees' capacity for creative problem-solving. Furthermore, this study helps to disentangle some inconsistent findings as regards transformational leadership and creativity (Jaussi & Dionne, 2003; Shin &Zhou, 2003), and deepens our understanding regarding potential intervening pathways that translate leadership into creativity (Carmeli et al., 2013; Gong et al.,2009; Zhang & Bartol, 2010). The findings of this study point to a more complex pathway. They suggest that transformational leaders, by facilitating a perception of psychological safety and reflexivity processes, have an influential role in cultivating employees' creative problem-solving capacity. By highlighting these mechanisms, we also contribute to a relatively fragmented body of literature by integrating and examining both psychological safety and cognitive processes (Carmeli et al., 2010; Ward et al., 1997, 1999).

Our study also enriches the literature on reflexivity (De Dreu, 2007; West, 1996). Reflexivity has been recognized as a valuable factor in the development of effective work teams. However, research has mainly focused on the implications of reflexivity processes (Schippers et al., 2013) with only a handful of attempts to explore the leadership role and the mechanisms through which reflexivity is facilitated (Schippers et al., 2008). Our study extends this emerging line of research and shows that transformational leadership helps to create a psychologically safe environment, which is conducive to reflexivity. We expand on previous research on leadership and reflexivity (Hirst et al., 2004) and more recent attempts to unravel mediating mechanisms through which leaders facilitate reflexivity at the team level (Schippers et al.,2008) by elucidating the psychological conditions shaped by transformational leaders that facilitate reflexivity at the individual level. In doing so, this study may hint at the leadership mechanisms that facilitate employees' engagement in reflexivity processes.

Finally, our study contributes to the literature on creativity by focusing on creative problem-solving capacity. The capacity for creative problem-solving is essential to creative outcomes. However, it may also be equally important for creative behaviors. Thus, our research may indicate how leadership helps to develop and cultivate employee capacity for creative problem-solving (Byrne et al., 2010; Reiter-Palmon & Illies, 2004). Specifically, by identifying the role of employee engagement in a reflexivity process, the findings suggest that to generate creative and viable solutions for problems, a deeper and more comprehensive understanding of them is required. Thus, the results of this study further confirm the power of reflexivity processes as applied in the work context and in enhancing employees' capacity for creative problem-solving.

PRACTICAL IMPLICATIONS

This study has also several practical implications. The ability of an organization to develop a competitive edge often resides on the knowledge bases and the ability of individuals to solve problems creatively. This is particularly crucial in turbulent and high-velocity settings where there is a high level of complexity and uncertainty, and frequent changes and shifts are perhaps the only constant.

Our research documents the link between reflexivity and creative problem-solving capacity. This suggests that organizations should invest considerable effort in facilitating employee reflexivity, such that people can engage in information-processing activities that have the potential to enhance the capacity for creative problem-solving. It is important to note that reflexivity is not an obvious process, but rather one that requires a substantial amount of personal resources and willingness to take interpersonal risks, especially in highly volatile markets. To engage in a process of improving one's own work processes (or that of a team) is challenging. It requires a process of seeking, receiving, and giving feedback and also entails changes in behaviors, which may be deeply rooted in the status quo. Thus, organizations should pay careful attention to building a psychologically safe environment, in which there is deliberation, feedback exchange, critical reviews, expression of dissatisfaction, and suggestions to improve the current situation. These are all keys to the capacity to solve problems creatively, and have the potential to enhance the competitiveness of the organization as a whole (Carmeli et al., 2013). One way to accomplish this is to develop transformational leaders who can facilitate such a capacity for creative problem-solving in others. Transformational leaders are attuned to individuals, create a shared vision, act as role models, and encourage followers to go beyond their cur-rent needs and expectations and realize their creative potential as it pertains to solving ill-defined problems creatively. Organizations can recruit such leaders or train them to act as transformational leaders. Finally, an investment in transformational leaders is vital as they focus on development and growth and create an environment where people need to make an effort as part of the growth process rather than stay in their comfort zone. By creating a psychologically safe environment, the organization's transformational leaders signal expectations for growth, transform behaviors, and help employees to move forward to produce better capabilities and outcomes.

Positive organizational scholars have noted the importance of employee development and growth. Employees seek mechanisms for growth particularly in contexts where there are increasing demands for displaying creativity and producing different work outcomes. Our study implies that a psychologically safe environment facilitates a reflexivity process through which people can enhance their capacity to solve problems creatively and experience growth. However, psychological safety is not about a comfort zone in which people accept norms. Our research suggests that inorganizations where transformational leaders shape such a climate of psychological

safety, employees are encouraged to move from their comfort zone and engage in reflexivity processes and thinking, and solve problems more creatively.

LIMITATIONS AND FUTURE DIRECTIONS

The findings should be interpreted against the backdrop of the limitations of the study. First, although we collected data at three points in time, our ability to infer cause-effect relationships is limited. One may intuitively assume that people with a higher capacity for creative problem-solving are more likely to report psychological safety and engagement in reflexivity processes. However, it is not theoretically sound to assume that people who are high on creative problem-solving capacity would necessarily perceive their managers as exhibiting transformational leadership behaviors. In spite of providing robust theoretical reasoning for our model, future research should pursue an experimental longitudinal design to allow for stronger causal interpretations of our model.

Second, the study used a mono-source to assess the variables, which may be associated with common method bias. In a recent work on self-report data, Chan (2009) pointed to the fact that many of the alleged problems associated with self-reports "are overstated or exaggerations." (p. 310). Nevertheless, in an attempt to alleviate problems associated with self-report data, we followed Podsakoff, MacKenzie, Lee, and Podsakoff's (2003, p. 887) suggested remedy "to separate the measurement of the predictor and criterion variables." In addition, we asked respondents not to report on their own assessment of creative problem-solving capacity, but rather to assess the extent to which their manager evaluated their capacity for creative problem-solving. This construal assessment is less likely to be inflated compared with self-assessment, because we asked individuals not to report on their own assessment of their creative problem-solving capacity, but rather how they think their direct superior assesses their creative problem-solving capacity (Carmeli et al., 2013). In addition, following Podsakoff et al. (2003), we also empirically assessed the effects of common method bias by a CFA of alternative model structures. The results of the one-factor model (i.e., Harman one-factor test) (which is a basic test for assessing common method variance) yielded poorer fit with the data, and the other two-factor and three-factor models did not show good fit with the data either in contrast to the hypothesized structure model. This set of analyses as well as the procedure adopted for the survey design (e.g., blending measurement items, using construal assessment for the dependent variable) and data collection (at different points in time) provide some indication that the common method variance may not be a severe problem.

Future research may expand on this endeavor and explore other potential pathways through which transformational leaders develop employees' creative problem-solving capacity. For instance, a pathway that integrates expectations and social norms that facilitate emotional and cognitive processes may also be informative. In addition, future studies could further examine whether there are differences in reflection on negative events vs. reflection on positive events and their impact on the ability to solve

problems creatively. Another promising avenue of research would be to examine the conditions in which employees who exhibit enhanced creative problem-solving capacity are perceived as potential transformational leaders. Future research would also benefit from the inclusion of boundary (contextual) and individual moderators to achieve a more balanced treatment of constructs. These may include transformational leaders' support, encouragement, and empathy. Trust could also be integrated as a contextual condition to enhancing creative problem-solving. Finally, this study evaluated creative problem-solving capacity, but future research should directly evaluate the link between capacity and actual creative outcomes.

CONCLUSION

This study sheds light on a pathway through which transformational leadership may help develop and cultivate employees' capacity for creative problem-solving. The results indicate that psychological safety and reflexivity are important mediating mechanisms through which transformational leadership results in enhanced employee capacity for creative problem-solving. In addition, our study indicates that psychological safety both directly and indirectly, through reflexivity, facilitates employees' creative problem-solving capacity.

THE AUTHORS

Abraham Carmeliis a faculty member at Tel Aviv University and King's College London. He received his Ph.D. from the University of Haifa. His current research interests include leadership and top management teams, relational dynamics, learning from failures, knowledge creation, and creativity and innovation in the workplace.

Zachary Sheaffer is a senior faculty at Ariel University, Department of Economics and Business Administration. His D.Phil. is from the University of Waikato, NZ. Sheaffer's research focuses on organizational crisis and decline, crisis management, leadership, and learning from failure.

Galy Binyamin is a faculty member at Ariel University, Department of Economics and Business Administration. She received her Ph.D. from the Graduate School of Business Administration, Bar-Ilan University, and her MBA from the Hebrew University of Jerusalem Business School. She has held senior positions in leadership development and HR management in Israel. Her current research interests include structuring of HRM processes, leadership, and creativity.

Roni Reiter-Palmon is the Isaacson Professor and the Director of the Industrial/Organizational Graduate Program at the University of Nebraska at Omaha. She also serves as the Director of Research for the Center for Collaboration Science, an inter-disciplinary program at UNO. Her research focuses on the effect of personality and cognitive thought processes on creativity and innovation at the individual and team

level, as well as the intersection of leadership, teams, and innovation. Her research has been published in the Journal of Applied Psychology, Creativity Research Journal, and the Leadership Quarterly. She is an Associate Editor for the Journal of Creative Behavior and the editor of the Psychology of Aesthetics, Creativity, and the Arts.

Tali Shimoni is a faculty member at Ariel University, Department of Economics and Business Administration. She received her Ph.D. from the Faculty of Management at Tel Aviv University. Her current research interests include strategy, organizational knowledge, and creativity.

REFERENCES

Amabile, T.M., Conti, H., Coon, L., Lazenby, J., & Herron, M. (1996). Assessing the work environment for creativity. Academy of Management Journal,39, 1154–1184.

Basadur, M. (1997). Organizational development interventions for enhancing creativity in the workplace. Journal of Creative Behavior,31,59–72.

Basadur, M., Runco, M.A., & Vega, L.A. (2000). Understanding how creative thinking skills, attitudes, and behaviors work together: A causal process model. Journal of Creative Behavior,34,77–100.

Bass, B.M. (1985). Leadership and performance. New York: Free Press.

Bass, B.M., & Avolio, B.J. (1990). The implications of transactional and transformational leadership for individual, team, and organizational development. Research in Organizational Change and Development,4, 231–272.

Buijs, J., Smulders, F., & van Der Meer, H. (2009). Towards a more realistic creative problem-solving approach. Creativity and Innovation Management,18, 286–298.

Burkhardt, J.-M., & Lubart, T. (2010). Creativity in the age of emerging technology: Some issues and perspectives in 2010.Creativity and Innovation Management,19, 160–166.

Byrne, C., Shipman, A., & Mumford, M. (2010). The effects of forecasting on creative problem solving: An experimental study. Creativity Research Journal,22, 119–138.

Carmeli, A., Gelbard, R., & Reiter-Palmon, R. (2013). Leadership, creative problem-solving capacity, and creative performance: The importance of knowledge sharing. Human Resource Management,52,95–121.

Carmeli, A., Reiter-Palmon, R., & Ziv, E. (2010). Inclusive leadership and employee involvement in creative tasks in the workplace: The mediating role of psychological safety. Creativity Research Journal,22,250–260.

Carmeli, A., & Schaubroeck, J. (2007). The influence of leaders' and other referents' normative expectations on individual involvement in creative work. Leadership Quarterly,18,35–48.

Carter, S., & West, M.A. (1998). Reflexivity, effectiveness, and mental health in BBC-TV production teams. Small Group Research,29, 583–601.

Chan, D. (2009). So why ask me? Are self-report data really that bad? In C.E. Lance, & R.J. Vandenberg (Eds.), Statistical and methodological myths and urban legends: Received doctrine, verity, and fable in the organizational and social sciences (pp. 311–338). New York, NY: Routledge.

Christiaans, H.H.C.M. (2002). Creativity as a design criterion. Creativity Research Journal,14,41–54.

De Dreu, C.K.W. (2002). Team innovation and effectiveness: The importance of minority dissent and7reflexivity.European Journal of Work and Organizational Psychology,11, 285–298.

De Dreu, C.K.W. (2007). Cooperative outcome interdependence, task reflexivity and team effectiveness: A motivated information processing approach. Journal of Applied Psychology,92, 628–638.

De Dreu, C.K.W., Nijstad, B.A., & van Knippenberg, D. (2008). Motivated information processing in group judgment and decision making. Personality and Social Psychology Review,12,22–49.

Detert, J.R., & Burris, E.R. (2007). Leadership behavior and employee voice: Is the door really open? Academyof Management Journal,50, 869–884.

Dvir, T., Eden, D., Avolio, B.J., & Shamir, B. (2002). Impact of transformational leadership on follower development and performance: A field experiment. Academy of Management Journal,45, 735–744.

Edmondson, A.C. (1999). Psychological safety and learning behavior in work teams. Administrative ScienceQuarterly,44, 350–383.

Edmondson, A.C. (2004). Psychological safety, trust, and learning in organizations: A group-level lens. In R.M. Kramer, & K.S. Cook (Eds.), Trust and distrust in organizations: Dilemmas and approaches (pp. 239–272). New York: Russell Sage.

Elkins, T.K., & Keller, R.T. (2003). Leadership in research and development organizations: A literature review and conceptual framework. Leadership Quarterly,14, 587–606.

Finke, R.A., Ward, T.B., & Smith, S.M. (1992). Creative cognition: Theory, research, and applications. Cambridge, MA: MIT Press.

Fornell, C., & Larcker, D.F. (1981). Evaluating structural equation models with observable variables and measurement error. Journal of Marketing Research,18,39–50.

Gersick, C.J., & Hackman, J.R. (1990). Habitual routines in task-performing groups. Organizational Behavior and Human Decision Processes,47,65–97.

Gong, Y., Huang, J.C., & Farh, J.L. (2009). Employee learning orientation, transformational leadership, and employee creativity: The mediating role of employee creative self-efficacy. Academy of ManagementJournal,52, 765–778.

Guilford, J.P. (1967). The nature of human intelligence. New York: McGraw-Hill.

Hair, J.F., Anderson, R.E., Tatham, R.L., & Black, W.C. (1998) Multivariate data analysis. Upper Saddle River: Prentice-Hall.

Hennessey, B.A., & Amabile, T.M. (2010). Creativity. Annual Review of Psychology,61, 569–598.

Herman, A., & Reiter-Palmon, R. (2011). The effect of regulatory focus on idea generation and idea evaluation. The Psychology of Aesthetics, Creativity, and the Arts,5,13–20.

Hirst, G., Mann, L., Bain, P., Pirola-Merlo, A., & Richver, A. (2004). Learning to lead: The development and testing of a model of leadership learning. Leadership Quarterly,15, 311–327.

Hirst, G., van Dick, R., & van Knippenberg, D. (2009). A social identity perspective on leadership and employee creativity. Journal of Organizational Behavior,30, 963–982.

Hoffman, B.J., Bynum, B.H., Piccolo, R.F., & Sutton, A.W. (2011). Person-organization value congruence: How transformational leaders influence work group effectiveness. Academy of Management Journal,54,779–796.

Hu, J., Wang, Z., Liden, R.C., & Sun, J. (2012). The influence of leader core self-evaluation on follower reports of transformational leadership. Leadership Quarterly,23, 860–868.

Illies, J.J., & Reiter-Palmon, R. (2004). The effects of type and level of personal involvement on information search and problem solving. Journal of Applied Social Psychology,34, 1709–1729.

Isaksen, S.G., & Akkermans, H. (2011). Creative climate: A leadership lever for innovation. Journal of CreativeBehavior,45, 161–187.

Jaussi, K.S., & Dionne, S.D. (2003). Leading for creativity: The role of unconventional leader behavior. Leadership Quarterly,14, 475–498.

Kahn, W.A. (1990). Psychological conditions of personal engagement and disengagement at work. Academy of Management Journal,33, 692–724.

Kark, R., Shamir, B., & Chen, G. (2003). The two faces of transformational leadership: Empowerment and dependency. Journal of Applied Psychology,88, 246–255.

Kharkhurin, A.V. (2009). The role of bilingualism in creative performance on divergent thinking and invented alien creatures tests. Journal of Creative Behavior,14, 211–226.

Lubart, T.I. (2001). Models of the creative process: Past, present and future. Creativity Research Journal,13,295–308.

Moreland, R.L., & McMinn, J.G. (2010). Group reflexivity and performance. In S.R. Thye, & E.J. Lawler (Eds.), Advances in Group Processes (vol.27, pp. 63–95). Bingley, UK: Emerald Group Publishing Limited.

Mumford, M.D., Medeiros, K.E., & Partlow, P.J. (2012). Creative thinking: Processes, strategies, and knowledge. Journal of Creative Behavior,46,30–47.

Mumford, M.D., Reiter-Palmon, R., & Redmond, M.R. (1994). Problem construction and cognition: Applying problem representations in ill-defined domains. In M.A. Runco (Ed.), Problem finding, problem solving, and creativity (pp. 3–39). Westport, CT: Ablex.

Mumford, M.D., Scott, G.M., Gaddis, B., & Strange, J.M. (2002). Leading creative people: Orchestrating expertise and relationships. Leadership Quarterly,13, 705–750.

Oldham, G.R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. Academy of Management Journal,39, 607–634.

Peele, H.E. (2006). Leading creative people: Orchestrating expertise and relationships. Journal of Applied Behavioral Science,42, 447–467.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.-Y., & Podsakoff, N.P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology,88,879–903.

Popper, M., & Mayseless, O. (2003). Back to basics: Applying a parenting perspective to transformational leadership. Leadership Quarterly,14,41–65.

Putman, V.L., & Paulus, P.B. (2009). Brainstorming, brainstorming rules and decision making. Journal of Creative Behavior,43,23–39.

Rafferty, A.E., & Griffin, M.A. (2004). Dimensions of transformational leadership: Conceptual and empirical extensions. The Leadership Quarterly,15, 329–354.

Redmond, M.R., Mumford, M.D., & Teach, R. (1993). Putting creativity to work: Effects of leader behavior on subordinate creativity. Organizational Behavior and Human Decision Processes,55, 120–151.

Reiter-Palmon, R., & Illies, J.J. (2004). Leadership and creativity: Understanding leadership from a creative problem-solving perspective. Leadership Quarterly,15,55–77.

Reiter-Palmon, R., Mumford, M.D., O'Conner-Boes, D., & Runco, M.A. (1997). Problem construction and creativity: The role of ability, cue consistency, and active processing. Creativity Research Journal,10,9–23.

Reiter-Palmon, R., & Robinson, E.J. (2009). Problem identification and construction: What do we know, what is the future? Psychology of Aesthetics, Creativity and the Arts,3,43–47.

Runco, M.A., & Acar, S. (2010). Do tests of divergent thinking have an experiential bias? Psychology of Aesthetics, Creativity, and the Arts,4, 144–148.

Schaubroeck, J., Lam, S.K., & Peng, A.C. (2011). Cognition-based and affect-based trust as mediators of leader behavior influences on team performance. Journal of Applied Psychology,96, 863–871.

Schippers, M.C., Den Hartog, D.N., Koopman, P.L., & Knippenberg, D.V. (2008). The role of transformational leadership in enhancing team reflexivity. Human Relations,61, 1593–1616.

Schippers, M.C., Den Hartog, D.N., Koopman, P.L., & Wienk, J.A. (2003). Diversity and team outcomes: The moderating effects of outcome interdependence and group longevity and the mediating effect of reflexivity. Journal of Organizational Behavior,24, 779–802.

Schippers, M.C., Homan, A.C., & van Knippenberg, D. (2013). To reflect or not to reflect: Prior team performance as a boundary condition of the effects of reflexivity on learning and final team performance. Journal of Organizational Behavior,34,6–23.

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

Shamir, B., House, R.J., & Arthur, M.B. (1993). The motivational effects of charismatic leadership: A self-concept-based theory. Organization Science,4, 577–594.

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

Simonton, D.K. (2012). Creativity, problem solving, and solution set sightedness: Radically reformulating BVSR. The Journal of Creative Behavior,46,48–65.

Stenmark, C.K., Shipman, A.S., & Mumford, M.D. (2011). Managing the innovative process: The dynamic role of leaders. Psychology of Aesthetics, Creativity, and the Arts,5,67–80.

Tierney, P. (2008). Leadership and employee creativity. In J. Zhou, & C.E. Shalley (Eds.), Handbook of Organizational Creativity (pp. 95–123). New York: Lawrence Erlbaum Associates.

Tierney, P., & Farmer, S.M. (2004). The Pygmalion process and employee creativity. Journal of Management,30, 413–432.

Wang, P., & Zhu, W. (2011). Mediating role of creative identity in the influence of transformational leader-ship on creativity: Is there a multilevel effect? Journal of Leadership & Organizational Studies,18,25–39.

Ward, T.B., Smith, S.M., & Finke, R.A. (1999). Creative cognition. In R.J. Sternberg (Ed.), Handbook of creativity (pp. 189–212). Cambridge, UK: Cambridge University Press.

Ward, T.B., Smith, S.M., & Vaid, J. (1997). Conceptual structures and processes in creative thought. In T.B. Ward, S.M. Vaid, & J. Vaid (Eds.), Creative thought: An investigation of conceptual structures and processes (pp. 1–27). Washington, DC: American Psychological Association.

Werts, C.E., Linn, R.L., & Jöreskog, K.G. (1974). Intraclass reliability estimates: Testing structural assumptions. Educational and Psychological Measurement,34,25–33.

West, M.A. (1996). Reflexivity and work group effectiveness: A conceptual integration. In M.A. West (Ed.), Handbook of work group psychology (pp. 555–579). Chichester, UK: Wiley.

Widmer, P.S., Schippers, M.C., & West, M.A. (2009). Recent developments in reflexivity research: A review. Psychology of Everyday Activity,2,2–11.

Yukl, G.A. (1998). Leadership in organizations. Englewood Cliffs, NJ: Prentice Hall.

Zhang, X., & Bartol, K.M. (2010). Linking empowering leadership and employee creativity: The influence of psychological empowerment, intrinsic motivation, and creative process engagement. Academy of Management Journal,53, 107–128.

Zhang, A.Y., Tsui, A.S., & Wang, X.W. (2011). Leadership behaviors and group creativity in Chinese organizations: The role of group processes. Leadership Quarterly,22, 851–862.