

Transformational Leadership and Employee Creativity: The Mediating Role of Promotion Focus and Creative Process Engagement

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Abstract

Purpose The paper aims at investigating the processes underlying the relationship between transformational leadership and employee creativity. We hypothesized that promotion focus mediates the relationship between transformational leadership and employee creativity and that creative process engagement mediates the relationship between promotion focus and employee creativity.

Design/Methodology/Approach We conducted a three-wave longitudinal study with 279 employees and used a path-modeling approach to test our hypotheses.

Findings Our results provide support for a sequential mediation model. Promotion focus mediated the relationship between transformational leadership and employee creativity. Creative process engagement partially mediated the relationship between promotion focus and employee creativity.

Implications Findings of this study help to understand how transformational leadership fosters creativity by highlighting the role of promotion focus and creative process engagement. Understanding the relationship between transformational leadership and creativity helps supervisors to create a work environment that fosters employee creativity.

Originality/Value This study contributes to the literature by identifying the mediating mechanism for the relationship

between transformational leadership and employee creativity and providing a comprehensive model that illustrates the importance of the different stages within the creative process as antecedents of employee creativity.

Keywords Transformational leadership · Creativity · Regulatory Focus Theory · Creative process engagement

Introduction

Creativity is beneficial for organizational success (Oldham and Cummings 1996; Scott and Bruce 1994). Therefore, one major concern of research on creativity is to identify factors that promote employee creativity (Baas et al. 2008; Binnewies and Wörnlein 2011; Hülshager et al. 2009). Studies have found transformational leadership to be positively related to employee creativity (Eisenbeiss et al. 2008; Wu et al. 2008; Zhang et al. 2011). Transformational leadership involves behaviors that encourage employees to take a different view on how they do their work and that challenge them to try out new approaches (Podsakoff et al. 1990). Although scholars have started to examine mediators between transformational leadership and employee creativity (Shin and Zhou 2003), underlying psychological processes that link transformational leadership and employee creativity are not fully understood. Scholars see employees' regulatory focus as a possible mediator in this relationship (Kark and Van Dijk 2007). Regulatory Focus Theory distinguishes two different foci which shape the needs a person seeks to satisfy and the goals the person wants to achieve (Brockner and Higgins 2001). According to Regulatory Focus Theory, leaders influence employee behavior by inducing either a promotion or a prevention focus (Brockner and Higgins 2001; Neubert et al. 2008).

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A promotion focus is associated with developmental needs and goals related to the ideal self (Brockner and Higgins 2001), whereas a prevention focus is linked to security needs and goals related to the ought self (Brockner and Higgins 2001). Promotion focus has been shown to be beneficial for creative behavior (Friedman and Förster 2001). In our study, we test the assumption that promotion focus serves as a mediator for the relationship between transformational leadership and employee creativity (Kark and Van Dijk 2007).

Scholars consider creativity as the outcome of a process that involves the three stages of problem identification, information search and encoding, and idea generation (Gilson and Shalley 2004; Mumford 2000). The more employees engage in the creative process, the more likely it is that they produce outcomes that can be considered as creative (Zhang and Bartol 2010). We propose that creative process engagement mediates the relationship between promotion focus and creativity as outcome.

The aim of our study is twofold. First, we investigate promotion focus as a mediator in the relationship between transformational leadership and employee creativity. Thereby, we fill a gap in the literature by examining the relationship between transformational leadership and employee promotion focus which has been proposed some time ago, but has not been empirically tested yet (Brockner and Higgins 2001; Kark and Van Dijk 2007). Second, we take a closer look at the relationship between promotion focus and employee creativity. We investigate creative process engagement as the intervening process that links promotion focus to employee creativity. Whereas previous research has pointed out the importance of engaging in the creative process as a whole (Zhang and Bartol 2010), we look at the process in more detail and examine how the three different stages of the creative process are related to employee creativity. Thus, we can specify the relative importance of the single stages of the creative process.

Transformational Leadership and Creativity

Creativity is the production of novel and useful ideas (Amabile 1988). These ideas are either related to the organization's business, such as new products, or to the organization itself, such as new procedures (Gilson and Shalley 2004). Creativity is a continuum (Amabile 1996) with minor adaptations of existing ideas at the low and radical new ideas at the high end (Perry-Smith and Shalley 2003). It is in the nature of this conceptualization that less creative ideas are more common than highly creative ideas.

Previous research has found transformational leadership to be crucial for employee creativity (Gong et al. 2009; Shin and Zhou 2003). Transformational leaders create a supportive climate for creativity (Sarros et al. 2008).

Within this climate, employees can try out creative approaches without the fear of failure. Transformational leadership encourages employees to challenge the status quo and to try new approaches that foster employee creativity (Kark and Van Dijk 2007; Shin and Zhou 2003). According to Podsakoff et al. (1990), transformational leadership comprises six key behaviors: *providing intellectual stimulation* comprises challenging subordinates to take a different perspective on things and to reconsider the way the work is done. *Articulating a vision* means that the supervisor inspires the subordinates with a compelling vision of the organization's future. *Providing an appropriate model* involves the supervisor serving as a role model for the subordinates. *Fostering the acceptance of group goals* refers to behaviors that foster the cooperation among subordinates and that lead them to work together to achieve a common goal. *Expecting high performance* addresses the expectation a supervisor has about the performance of his or her subordinates. *Providing individualized support* focuses on the subordinates' feelings. Bass (1988) states that intellectual stimulation helps employees to move "towards a creative synthesis by generating various possible solutions" (p. 29). By providing intellectual stimulation, the employees see difficulties as problems to be solved (Bass 1990), and increase their efforts on subsequent tasks (Bass 1988). Transformational leaders motivate their employees by providing a desirable vision, expressing high performance expectations, and providing individualized support (Shamir et al. 1993). This motivation should foster employees' engagement in trying to improve their performance and to bring them closer to the desired vision. They stimulate employees to question their current assumptions about their work and to figure out different ways of how it can be performed (Avolio et al. 1999; Podsakoff et al. 1990). Thus, employees with a transformational leader might look for improved ways to do their work. Moreover, transformational leaders strengthen the creative self-concept of their employees (Wang and Zhu 2011). Therefore, employees should be more confident to try out new approaches and to come up with creative ideas. Following the reasoning described above, we propose that transformational leadership is positively related to employee creativity.

Hypothesis 1 Transformational leadership is positively related to employee creativity.

Promotion Focus

To understand why transformational leadership is linked to employee creativity, it is important to investigate the mechanisms which mediate this relationship (Wang and Zhu 2011). Kark and Van Dijk (2007) proposed

employees' promotion focus as a possible mediator between transformational leadership and employee creativity. Promotion focus is one of the two regulatory foci defined in the Regulatory Focus Theory. The two foci stem from the hedonistic principle (Higgins 1997). People are motivated to approach pleasure when they are promotion-focused or to avoid pain when the prevention focus—the other regulatory focus—is activated (Higgins 1997). A promotion focus is associated with the motivation to achieve desired end-states, whereas a prevention focus is associated with the motivation to avoid undesired end-states (Higgins 1997). Both foci refer to the behaviors and self-conceptions people apply to align themselves with appropriate goals or standards (Higgins 1997; Kark and Van Dijk 2007).

Promotion and prevention focus differ in terms of the needs people wish to satisfy, the goals and standards they try to achieve, and the perceived situations that matter to them (Brockner and Higgins 2001). When people are promotion-focused, they seek to satisfy their growth and developmental needs. They are motivated to achieve goals representing their belief of their ideal self. Thus, situations critical for these goals are especially salient when people are promotion-focused (Brockner and Higgins 2001). When people are prevention-focused, their security needs become most salient, they follow goals representing how they ought to be; and situations with possible negative outcomes become salient for them (Brockner and Higgins 2001). In this regard, the basic underlying motivation of promotion focus is change and the underlying motivation of prevention focus is stability (Kark and Van Dijk 2007). Depending on a person's regulatory focus, the person interprets a situation as challenging or threatening.

In the context of creativity, promotion focus is particularly relevant because promotion focus is associated with eagerness and risk-taking (Brockner and Higgins 2001; Kark and Van Dijk 2007), and thus is beneficial for individual creativity (Amabile 1988; Friedman and Förster 2001). Promotion-focused employee should be more willing to take the risk of failure and to try out creative approaches, and be more eager to put creative ideas into practice. A promotion focus broadens the attentional scope and fosters the accessibility of cognitive representations (Baas et al. 2008). These effects of a promotion focus should be beneficial for employee creativity. In laboratory settings, promotion focus fostered idea generation and creative insight (Crowe and Higgins 1997; Higgins 1997). In a field study, Neubert et al. (2008) showed that employees' promotion focus was related to creative behavior. In line with this previous research, we propose a positive relation between promotion focus and creativity.

Hypothesis 2 Promotion focus is positively related to employee creativity.

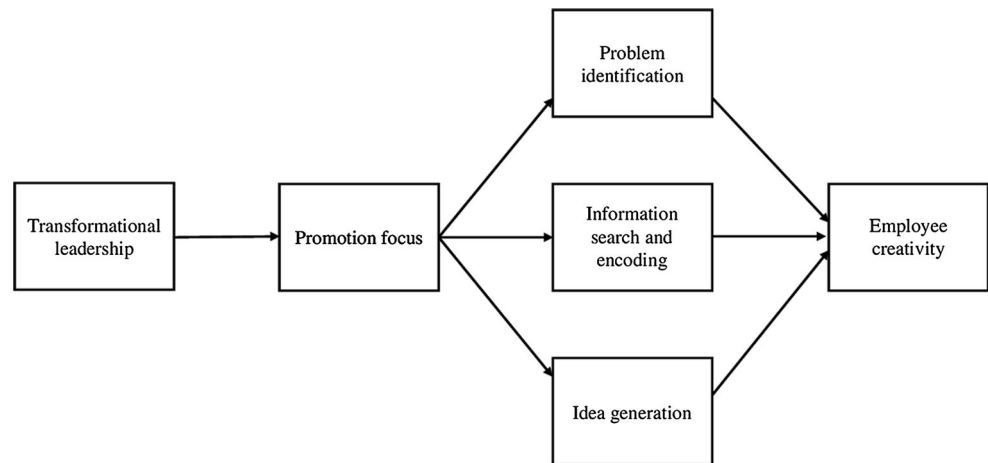
The regulatory focus has both a stable (trait-like) and a situational (state-like) component (Stam et al. 2010a, b). The stable component describes a person's general tendency to be promotion- or prevention-focused. This general tendency is shaped by interactions with significant others during childhood (Higgins and Silberman 1998). For instance, when parents encourage their children to pursue their dreams and ambitions, the children should be more likely to develop a general tendency to be promotion-focused. In addition, experimental research has demonstrated that contextual variables shape a person's situational regulatory focus (Higgins et al. 1997). Thus, a person's environment can induce a specific regulatory focus. For instance, when a person works in an environment that cues a promotion focus, the person should be more likely to be promotion-focused during work.

Brockner and Higgins (2001) considered everyday interaction with organizational authorities as a major antecedent of the regulatory focus at work. Transformational leadership encourages growth and development of the employee and is eligible to induce a promotion focus (Kark and Van Dijk 2007). Employees who share a vision with their leader are more likely to create an ideal self, and employees with transformational leaders are assumed to focus stronger on positive outcomes (Kark and Van Dijk 2007; Stam et al. 2010a). Similarly, Shin and Zhou (2003) stated that transformational leaders provide an environment in which employees are interested and focused on their tasks instead of security concerns. Therefore, we propose that transformational leaders influence their employees by activating their ideal self and by making positive outcomes more salient (Kark and Van Dijk 2007; Stam et al. 2010a), and thereby inducing a promotion focus. As displayed in Fig. 1, we hypothesize that employees' promotion focus fosters employee creativity and serves as a mediator in the relationship between transformational leadership and employee creativity. Transformational leadership should be related to a higher level of promotion focus, which in turn will be related to a higher level of employee creativity.

Hypothesis 3 Promotion focus mediates the relationship between transformational leadership and employee creativity.

Creative Process Engagement

The majority of creativity research focuses on the creativity outcome (Amabile et al. 2005; Binnewies and Wörnlein 2011; George and Zhou 2002). Scholars have criticized this focus because it does not fully account for the activities that lead to the creative outcome (Gilson and Shalley 2004). These activities constitute the creative process and precede the creative outcome (Gilson and Shalley 2004;

Fig. 1 Conceptual model

Mumford et al. 1991). Engagement in the creative process represents a necessary first step toward creativity (Gilson and Shalley 2004; Shalley 1991, 1995).

The creative process involves three stages: (1) problem identification, (2) information search and encoding, and (3) idea generation (Zhang and Bartol 2010). The creative process starts with problem identification (Davis 2009; Zhang and Bartol 2010). At this stage, the employee defines the problem (Mumford 2000). The employee has to structure the problem and has to identify goals, procedures, restrictions, and information relevant for the solution to the problem (Reiter-Palmon and Illies 2004). Research found that the amount of time spent on this first stage of the creative process is positively related to the quality and originality of the solution (Reiter-Palmon et al. 1997). Taking more effort on problem identification enables employees to develop a more accurate representation of the problem and is positively related to more original ideas (Redmond et al. 1993; Reiter-Palmon et al. 1998). Thus, we propose that engagement in the stage of problem identification fosters creativity. In turn, problem identification benefits from considering diverse environmental input related to the problem (Reiter-Palmon et al. 1998). Promotion-focused people are more likely to consider additional, new alternatives (Liberman et al. 1999). We assume that the consideration of different views is beneficial for identifying the problem. Thus, we propose that promotion focus fosters problem identification. As displayed in Fig. 1, we hypothesize that engagement in the stage of problem identification serves as a mediator between promotion focus and creativity as outcome.

Hypothesis 4 Problem identification mediates the relationship between promotion focus and employee creativity.

After the problem is identified, the person moves toward collecting and processing relevant information (Zhang and Bartol 2010). This second stage involves the search for

information and concepts relevant for an advanced understanding of the identified problem (Mumford 2000). Information search and encoding involves both the consideration of already existing concepts and the development of new concepts by using information from the memory and external sources (Reiter-Palmon and Illies 2004). Time spent on information search and encoding is positively related to solution quality (Illies and Reiter-Palmon 2004) and, thus, is likely to increase creativity (Reiter-Palmon and Illies 2004). When employees are promotion-focused, they apply an elaboration style which allows them to see unobvious relations; and this elaboration style is associated with an integrative ideation (Zhu and Meyers-Levy 2007). Thus, even if some actual, useful information does not appear useful at first sight, promotion-focused employees are more likely to see the true value of this information and give it further consideration during the information search and encoding process. We propose that engagement in the stage of information search and encoding serves as a mediator between promotion focus and creativity as outcome.

Hypothesis 5 Information search and encoding mediates the relationship between promotion focus and employee creativity.

Considering and developing concepts related to the problem, and integrating the relevant information, triggers the final stage of the creative process: The generation of ideas and alternatives (Zhang and Bartol 2010). The combination and reorganization of the gathered information fosters a new understanding, and the exploration of applications and implications of this new understanding leads ultimately to a set of new ideas (Mumford 2000). A core feature of a strong promotion focus is an approach orientation (Higgins 1997). Promotion-focused people try out different approaches with the intent to find the approach that brings them closer to their desired end-state

(Higgins 1997). Thus, when promotion-focused employees work on a problem, they should increase their likelihood to solve the problem by producing a broad variety of different ideas. This reasoning is supported by empirical findings that have demonstrated that promotion-focused people have a stronger inclination to produce many alternatives in order to increase the chances to achieve their desired end-state (Crowe and Higgins 1997). We propose that promotion-focused employees show higher engagement in the stage of idea generation that involves the generation of different possible solutions and alternatives (Zhang and Bartol 2010), and that this increased engagement results in a higher creative outcome.

Hypothesis 6 Idea generation mediates the relationship between promotion focus and employee creativity.

Method

Participants

The study was conducted in Germany as an online panel survey with three measurement points, each separated by 4 weeks. Employees worked within the fields of information technology, human resources, research and development, technical support, executive management, strategy, and public relations. Since we investigated the relationship with leadership behavior, participants had to have a direct supervisor. Additionally, we focused on employees working full-time in project-work settings because transformational leadership is particularly important for project teams (Keller 1992). The first questionnaire was completed by 1,173 participants. Out of these 1,173 participants, 584 completed the second questionnaire (50 %), and 332 out of these participants from Time 1 to Time 2 completed the third questionnaire (28 %).

Since inattentiveness is a problem in web-based data collection (Johnson 2005), it is recommended to take measures to detect careless responses (Huang et al. 2012). We applied the idea of semantic antonyms (Goldberg and Kilkowski 1985) to identify careless responses. This led to the exclusion of 53 participants. Previous research found careless response rates of 10–12 % for web-based surveys (Meade and Craig 2012). Considering the fact that we asked participants to fill in three questionnaires, our exclusion rate of 16 % at the third measurement occasion is slightly higher than can be considered typical for a web-based survey study.

Our final sample comprised 279 employees (24 %; 196 men and 83 women) who participated in all three waves of data collection. Participants' mean age was 39.69 years (standard deviation, $SD = 10.33$). Most participants worked

in the area of information technology (42 %), followed by human resources (16 %), research and development (13 %), technical support (10 %), executive management (10 %), strategy (8 %), and public relations (2 %). On average, participants worked 10.63 years ($SD = 8.39$) in their area and 45 % held a leadership position. As their highest educational level, 140 participants held a college degree, 63 participants held a high school degree, 70 participants held a secondary school degree, 2 participants held no degree at all, and 4 participants indicated they held a different type of degree.

Because of the considerable attrition in our sample, we tested whether the means of the study variables at Time 1 and Time 2 differed in the final sample compared to the dropouts at the respective measurement point. We found no differences for transformational leadership ($M = 3.36$ vs. 3.33 , $t = 0.58$, ns), promotion focus ($M = 3.23$ vs. 3.23 , $t = 0.11$, ns), the creative process engagement subscale problem identification ($M = 3.01$ vs. 3.11 , $t = 1.38$, ns), and information search and encoding ($M = 3.24$ vs. 3.32 , $t = 1.01$, ns). Yet participants who filled in all three questionnaires indicated significantly higher scores on job control ($M = 3.79$ vs. 3.65 , $t = 2.43$, $p < .05$) and lower scores for the third creative process engagement subscale idea generation ($M = 2.98$ vs. 3.15 , $t = 2.16$, $p < .05$); but according to Cohen (1992), the effect sizes of the differences for both job control ($d = .17$) and idea generation ($d = .18$) are small. Therefore, we assume that the dropout did not systematically bias our results.

Measures

Data collection took place at three points in time, separated by 4 weeks each. To minimize common methods variance (Podsakoff et al. 2003), we measured transformational leadership, promotion focus, and job control at Time 1; creative process engagement at Time 2; and creativity as outcome at Time 3. All measures were in German. We applied the translation/back-translation technique to ensure the validity of the translated scales (van de Vijver and Leung 1997).

Transformational Leadership

We assessed transformational leadership at Time 1 with the measure developed by Podsakoff et al. (1990). The measure included the subscales identifying and articulating a vision with five items (e.g., “My supervisor inspires others with his/her plan for the future”), providing an appropriate model with three items (e.g., “My supervisor leads by doing, rather than by telling”), fostering the acceptance of group goals with four items (e.g., “My supervisor gets the group to work together for the same goal”), high

performance expectations with three items (e.g., “My supervisor will not settle for the second best”), providing individualized support with four items (e.g., “My supervisor shows respect for my personal needs”), and intellectual stimulation with four items (e.g., “My supervisor challenges me to think about old problems in new ways”). Participants gave their responses on a five-point scale ranging from 1 (*not at all*) to 5 (*completely*).

A Confirmatory Factor Analysis for testing the fit of the overall scale with its subscales demonstrated a relatively poor fit, $\chi^2(224) = 860.46$, CFI = .88, RMSEA = .101, SRMR = .098. Since negatively coded items are not as strongly associated with the overall scale (Carlson et al. 2011) and thus might impair the model fit, we omitted the two reverse-coded items from the four-item individualized support subscale. A second Confirmatory Factor Analysis without the two reverse-coded items demonstrated a good fit, $\chi^2(183) = 492.87$, CFI = .94, RMSEA = .078, and SRMR = .061. In the following analysis, we used the reduced scale with 21 items. The correlation between the reduced scale and the full scale was $r = .99$, $p < .001$, demonstrating sufficient validity of the reduced scale. Cronbach's α for the remaining overall 21-item scale was .96.

Promotion Focus

We used the Work Regulatory Focus Scale (Neubert et al. 2008) to measure promotion focus at Time 1. The promotion focus scale includes three sub-dimensions with three items for each dimension. Example items are: “I tend to take risks at work in order to achieve success” (gains); “I focus on accomplishing job tasks that will further my advancement” (achievement); and “My work priorities are impacted by a clear picture of what I aspire to be” (ideals). A five-point scale was used to assess to what extent the statements apply, ranging from 1 (*not at all*) to 5 (*completely*). In our analyses, we used an overall promotion focus score (Cronbach's $\alpha = .90$).

Job Control

In our analyses, we controlled for the level of job control because scholars have argued that job control enables employees to incorporate their own ideas at work (Janssen 2000). Also empirically, job control has been found to be related to creativity (Ohly et al. 2006). To measure job control, we used a three-item scale developed by Spreitzer (1995). Participants reported on three items how much control they had about the way they perform their tasks at work (e.g., “I can decide by myself how to do my work”; Cronbach's $\alpha = .90$).

Since we measured transformational leadership, promotion focus, and job control at the same time, we conducted a Confirmatory Factor Analysis to determine whether the three scales represented distinct constructs, modeling transformational leadership and promotion focus as higher order factors with their respective subscales. This three-factor model showed a sufficient fit, $\chi^2(483) = 999.78$, CFI = .93, RMSEA = .062, SRMR = .06, and AGIF = .79; and a better fit than the best fitting two-factor model $\chi^2(485) = 1,270.12$, CFI = .89, RMSEA = .076, SRMR = .10, and AGIF = .74; $\Delta\chi^2(2; N = 279) = 270.34$, $p < .001$; and a better fit than the one-factor model $\chi^2(487) = 1,812.17$, CFI = .81, RMSEA = .099, SRMR = .122, and AGIF = .68; $\Delta\chi^2(4; N = 279) = 812.39$, $p < .001$.¹

Creative Process Engagement

We assessed creative process engagement at Time 2 with 11 items developed by Zhang and Bartol (2010). The creative process comprises the stages of problem identification (three items, e.g., “I thought about the problem from multiple perspectives”; Cronbach's $\alpha = .88$), information searching and encoding (three items, e.g., “I consulted a wide variety of information”; Cronbach's $\alpha = .88$), and idea generation (five items, e.g., “I looked for connections with solutions used in seeming diverse areas”; Cronbach's $\alpha = .91$). Participants indicated for each item how often they engaged in this behavior over the past 4 weeks, using a five-point scale ranging from “never” to “very frequently.”

Since the three sub-dimensions of creative process engagement represent related constructs, we conducted a Confirmatory Factor Analysis to determine whether the distinction between the three constructs was valid. The three-factor model showed a fairly good model fit, $\chi^2(41) = 153.42$, CFI = .96, RMSEA = .099, SRMR = .04, and AGIF = .85, and fit the data better than the best fitting two-factor model $\chi^2(43) = 193.87$, CFI = .94, RMSEA = .112, SRMR = .04, and AGIF = .82; $\Delta\chi^2(2; N = 279) = 40.45$, $p < .001$, and a better fit than the one-factor-model $\chi^2(44) = 273.91$, CFI = .90, RMSEA = .137, SRMR = .05, and AGIF = .74; $\Delta\chi^2(3; N = 279) = 120.49$, $p < .001$.

Self-Rated Creativity

We assessed creativity as outcome at Time 3 with nine items from Tierney et al. (1999), which were adapted to a self-rating

¹ Confirmatory Factor Analyses conducted without job control demonstrated similar results and found distinct factors for transformational leadership and promotion focus $\Delta\chi^2(1; N = 279) = 270.25$, $p < .001$.

format in earlier research (Carmeli and Schaubroeck 2007). According to Shalley et al. (2009) “employees are best suited to self-report creativity because they are the ones who are aware of the subtle things they do in their jobs that make them creative” (p. 495). Minor creative approaches might pass unnoticed by external raters, but can be captured by self-report ratings (Janssen 2000). Therefore, we asked the participants to rate the extent to which they had shown creative approaches at work during the last 4 weeks. A sample item is “During my work I tried out new ideas and approaches to problems”. Cronbach’s α was .95.

Creative process engagement and creativity as outcome are conceptually similar constructs. Although measures of creative process engagement and creativity as outcome have been used at the same time in previous research (Zhang and Bartol 2010), content overlap may be inflating the relationship. To test whether the items of the different scales actually measured the intended constructs, we conducted a subject expert matter analysis. First, we gave seven raters who were not familiar with the scales a short description of the different stages of the creative process and of creativity as outcome. The raters were postgraduate and postdoctoral researchers, specialized in industrial and organizational psychology. Then, we asked them to sort the items into the four different concept categories. The raters had no information on how many items belonged to each scale. All items were sorted correctly to either the categories of creative process engagement or to the creativity as outcome category by at least five of the seven raters. Krippendorff’s α was .77.

In addition, we tested whether the three measures of creative process engagement and the measure of creativity as outcome were distinct constructs. We conducted an additional Confirmatory Factor Analysis to compare the four-factor model with the different three-factor models of the constructs. The results showed a good fit for the four-factor model $\chi^2(164) = 418.70$, CFI = .95, RMSEA = .075, SRMR = .04, and AGIF = .83 and a better fit than the best fitting three-factor model $\chi^2(167) = 814.50$, CFI = .87, RMSEA = .118, SRMR = .09, and AGIF = .78; $\Delta\chi^2(3; N = 279) = 395.80, p < .001$. Thus, creativity as outcome is distinct from creative process engagement.

Results

Descriptive Statistics

Table 1 displays the means, SDs, and correlations among all variables used in the path model.²

² In addition, we computed the path model without job control as a control variable. The significance of all reported relationships did not alter whether we included job control or not.

Table 1 Means, standard deviations, and correlations among the study variables ($N = 279$)

	Mean	SD	1	2	3	4	5
(1) Transformational leadership	3.22	0.93	–				
(2) Promotion focus	3.23	0.77	.44	–			
(3) CPE: problem identification	3.01	0.93	.27	.42	–		
(4) CPE: information searching and encoding	3.24	0.94	.33	.42	.70	–	
(5) CPE: idea generation	2.98	0.94	.32	.47	.84	.80	–
(6) Creativity	3.08	0.89	.32	.52	.65	.49	.66

$N = 279$. All correlations higher than .10 are significant at $p < .05$

CPE creative process engagement

Hypotheses Testing

We hypothesized that promotion focus mediates the relationship between transformational leadership and creativity as outcome and that the engagement in the different stages of the creative process mediates the relationship between promotion focus and creativity as outcome. We used path modeling to test the postulated model. The advantage of this approach is that it allowed us to directly estimate the indirect effect (Preacher and Hayes 2008).

We computed a path model to estimate the indirect effects in the model, using Mplus software (Muthén and Muthén 2007). Since our sample size was relatively small, we used the scale means as indicators of the respective constructs. In this path model, we computed regression coefficients for the postulated relationships. To test the mediation hypotheses, we specified an indirect model. Moreover, we took into account that the creative process does not follow a strict sequential order (Reiter-Palmon and Illies 2004). For instance, a person at the stage of idea generation might realize that she or he does not have sufficient information and goes back to the stage of information search and encoding. Therefore, we added correlational relationships among each stage of the creative process to the path model, which estimated the residual covariance between these variables. This model showed a moderate fit $\chi^2(5; N = 279) = 34.69$, CFI = .96, RMSEA = .15, and SRMR = .05.

In line with Hypotheses 1 and 2, creativity as outcome was positively related to transformational leadership ($\beta = .25, p < .001$) and employee promotion focus ($\beta = .29, p < .001$). The indirect effect of transformational leadership through promotion focus on creativity as outcome was significant ($\beta = .12, p < .001$), supporting Hypothesis 3. To test whether the engagement at the different stages fully mediated the relationship between promotion focus and creativity as outcome, we compared the fit of two different models (Howard and Cordes 2010). The

Fig. 2 Path estimates of the final model. *** $p < .001$; ** $p < .01$; * $p < .05$

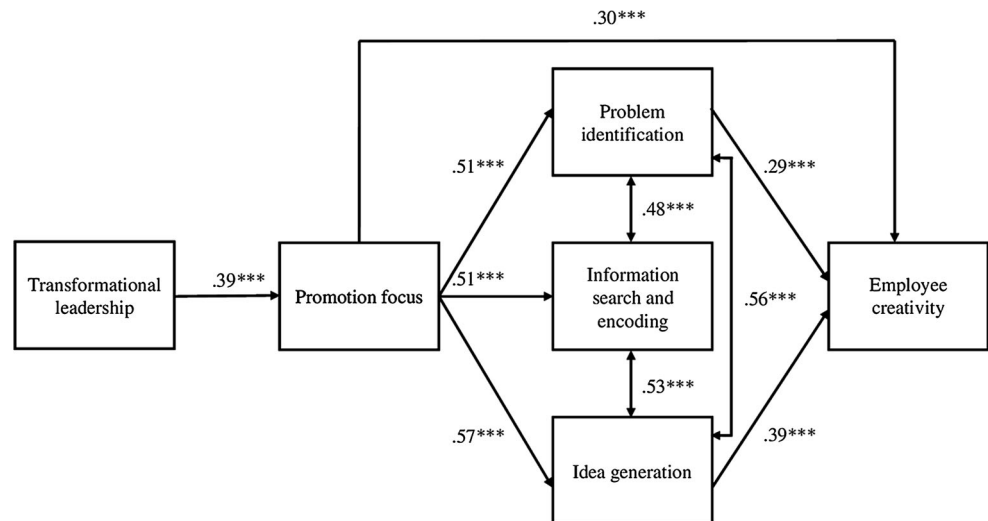


Table 2 Indirect effects on creativity as outcome ($N = 279$)

Paths	β	95 % Confidence interval	
		Lower end	Upper end
TF $\rightarrow$ PF $\rightarrow$ Creativity	.12***	.06	.19
PF $\rightarrow$ PI $\rightarrow$ Creativity	.15***	.07	.24
PF $\rightarrow$ Search $\rightarrow$ Creativity	-.08	-.17	.01
PF $\rightarrow$ IG $\rightarrow$ Creativity	.22***	.11	.35
TF $\rightarrow$ PF $\rightarrow$ PI $\rightarrow$ Creativity	.06**	.02	.10
TF $\rightarrow$ PF $\rightarrow$ Search $\rightarrow$ Creativity	-.03	-.07	.01
TF $\rightarrow$ PF $\rightarrow$ IG $\rightarrow$ Creativity	.09**	.04	.15

TF transformational leadership, PF promotion focus, Creativity creativity as outcome, PI problem identification, Search information search and encoding, IG idea generation

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

first model did not include a direct path between promotion focus and creativity as outcome, indicating a full mediation, whereas the second model included a direct path. The results for the full-mediation model demonstrated a moderate fit (see above), where the partial mediation model demonstrated a good model fit and a significantly better fit than the full-mediation model $\chi^2(4; N = 279) = 4.41$, CFI = 1, RMSEA = .019, and SRMR = .02; $\Delta\chi^2(1; N = 279) = 30.28$, $p < .001$. Thus, our results support a partial mediation model (Howard and Cordes 2010). The indirect effects of promotion focus on creativity as outcome through problem identification ($\beta = .15$, $p < .001$) and idea generation ($\beta = .22$, $p < .001$) were significant, but the indirect effect through information search and encoding ($\beta = -.08$, ns) was not significant. These findings support Hypotheses 4 and 6 and contradict Hypothesis 5. Additionally, we found sequential indirect effects of

transformational leadership on creativity as outcome through promotion focus and problem identification and through promotion focus and idea generation. Figure 2 displays the model and the estimates. The results for the indirect effects are shown in Table 2.

Discussion

The aim of our study was to investigate the mediating processes of the relationship between transformational leadership and employee creativity. Results support a sequential mediation model: Transformational leadership is positively related to promotion focus, which in turn is linked to increased creativity as outcome, both directly and indirectly via engagement in the different stages of the creative process. Thus, our findings extend previous research that stressed the importance of leadership style for employee creativity (Oldham and Cummings 1996; Tierney et al. 1999), particularly transformational leadership (Shin and Zhou 2003).

Our study goes beyond previous research by examining promotion focus as a mechanism that mediates the relationship between transformational leadership and employee creativity. The results are in line with the assumption that transformational leaders evoke a promotion focus in their employees who, in turn, are more creative (Kark and Van Dijk 2007).

In our study, we extend previous research and provide a more comprehensive model by taking the different stages of the creative process into account. We showed that the relation between promotion focus and creativity as outcome is partially mediated by engagement in the different stages of the creative process. This finding is in line with the assumption of Regulatory Focus Theory that

promotion-focused employees use approach strategies to achieve their desired end-states (Brockner and Higgins 2001).

We found that promotion focus is associated with a higher engagement in the creative process. Promotion-focused employees think of a problem from multiple perspectives, they take various information into account, and they consider solutions found in other areas. Our results reveal indirect relations between transformational leadership and creativity as outcome through promotion focus and problem identification and through promotion focus and idea generation. Spending effort on identifying the problem and generating ideas are positively related to the creative outcome. Thereby, our results point to the importance of getting an accurate representation of the problem and generating a possible solution for the creative outcome.

Yet, we found no indirect relations including a path through the stage of information search and encoding. These findings contradict previous research which found that increased information search resulted in more original and more appropriate solutions (Illies and Reiter-Palmon 2004). This missing link through the information search and encoding stage might be due to the difficulty to draw an exact line between problem identification and information search and encoding on the one hand, and between information search and encoding and idea generation on the other hand. Since the creative process is not an isolated consecutive sequence, information search and encoding processes may start before the problem is completely identified and the idea generation may be triggered while the information search and encoding processes are still going on (Reiter-Palmon and Illies 2004). Moreover, extensive information search and encoding requires cognitive resources in order to integrate and modify collected information (Reiter-Palmon and Illies 2004). However, at times when the cognitive resources are limited, extensive information search and encoding might lead to an inadequate representation of the relevant information. Additionally, resources spent at the stage of information search and encoding might be lacking at the stage of idea generation. Thus, whether a strong engagement at the stage of information search and encoding is beneficial for employee creativity might depend on the available amount of cognitive resources. Still, information search and encoding might be beneficial for creativity as outcome by fostering problem identification and idea generation, as it is suggested by the positive correlation between the different stages of the creative process (see Table 1).

In addition to the indirect effects via the engagement at the different stages of the creative process, we still found a direct effect of promotion focus on creativity as outcome. Thus, our results suggest that the relationship between

promotion focus and creativity as outcome is not strictly due to an increased engagement in the creative process. Past research has demonstrated that affective experience is related to employee creativity (Amabile et al. 2005; Binnewies and Wörnlein 2011). Meta-analytic findings have demonstrated that, in particular, activating positive affect plays a role (Baas et al. 2008). Regulatory Focus Theory proposes that the affective experience of a person is shaped by the regulatory focus (Brockner and Higgins 2001). According to this theory, positive affect experienced after achieving a desired end-state is activating when the person is promotion-focused and deactivating when the person is prevention-focused (Brockner and Higgins 2001). Thus, in addition to the indirect effects via the engagement in the creative process, employee creativity might benefit from the affective experience associated with a promotion focus.

Previous research has demonstrated that intrinsic motivation has a beneficial effect on creative process engagement and creativity as outcome (Zhang and Bartol 2010). Promotion-focused employees pursue goals associated with their ideal self (Brockner and Higgins 2001). The pursuit of one's own goal can be considered as an integrated regulation which is highly autonomous and shares some qualities with intrinsic motivation (Ryan and Deci 2000). Thus, it might be possible that promotion focus fosters creative process engagement and creativity by strengthening intrinsic motivation.

In this study, we investigated promotion focus as a mediator in the relationship between transformational leadership and employee creativity. However, scholars have proposed more general leadership behaviors that might foster creativity (Reiter-Palmon and Illies 2004). This reasoning is supported by the finding that empowering leadership has a beneficial effect on creativity (Zhang and Bartol 2010). Moreover, promotion focus has been found as a mediator in the relationship between empowering leadership and creativity as well. Considering that transformational leadership and empowering leadership both emphasize the meaning of work and of high performance expectations (Ahearne et al. 2005; Podsakoff et al. 1990), it is not surprising that both leadership styles share the same mediating mechanism. To identify the key leadership behaviors that foster or impair a promotion focus and creativity, future research should test different leadership behaviors in the same study. Thereby, it can also help to understand the role of promotion focus in the relationship between creativity and flexible leadership styles, such as ambidextrous leadership (Bledow et al. 2011).

In this study, we applied a between-person design to investigate whether employees with a strong promotion focus are more creative than employees who are less promotion-focused. However, we did not specifically ask study participants to rate their creative behavior in

comparison to other employees. It might be that participants used a self-anchor and rated their behavior of the last 4 weeks in comparison to their typical behavior. In this case, our results might reflect within-person relationships. From this perspective, our findings imply that an employee is more creative during episodes with a strong promotion focus.³

Limitations and Future Research

Our study has some limitations that suggest avenues for future research. We measured both the predictor variable (transformational leadership) and the mediator (promotion focus) at the same time. One might argue that relations between these two variables could also be turned around in the way that promotion-focused employees appraise their leader as more transformational. Yet, the fact that only promotion focus becomes a significant predictor for creativity when both variables are added to the regression indicates that promotion focus—rather than transformational leadership—serves as the mediator.

Second, the use of single-source data raises concerns about common method bias due to common rater effects (Podsakoff et al. 2003). Common rater effects can be caused by participants who want to maintain consistency in their answers or whose answers are systematically biased (Podsakoff et al. 2003). This concern is particularly relevant for the constructs creative process engagement and creativity as outcome, because these constructs refer to similar content. Podsakoff et al. (2003) recommend facing this issue by separating the measurement of predictor and outcome variables. We considered this recommendation by using three different measurement points. Thus, we separated the measurement of creative process engagement and creativity as outcome.

Another limitation is the use of a self-report measure of creativity. These self-ratings might be biased by participants' tendency to give socially desirable answers. Thus, participants might rate their behavior as creative although it actually is not. Despite this potential bias, Axtell et al. (2000) found that self-ratings of creativity correlated strongly with supervisor ratings ($r = .62$). Moreover, using non-self-report data does not guarantee more accurate ratings (Spector 2006). Creative process engagement is an internal process and, as such, it should be rated by the employees themselves (Zhang and Bartol 2010). In truth, self-ratings of creativity have been shown to be more valid than supervisor ratings (Janssen 2000; Shalley et al. 2009). Following this reasoning, supervisors might miss a part of employees' creative behavior and output, whereas employees' self-ratings of creativity might cover the whole

continuum of creativity. Thus, using external ratings of creativity might have led to less accurate creativity scores (Conway and Lance 2010).

Another limitation of this study is the considerable attrition in our sample. Although the differences in the means of the study variables were small and mostly non-significant, participants who do not respond to the questionnaires can, but do not need to, cause a non-response bias (Groves 2006). Participants with a low level of job control were more likely to drop out of the final sample. Since employees need a certain degree of job control to try out creative approaches at work (Ohly et al. 2006), the systematic dropout of participants with lower levels of job control might have influenced the observed relationships in our study. However, meta-analytic data show that non-response is a typical issue in survey-based research (Baruch 1999; Baruch and Holtom 2008). Baruch and Holtom (2008) found an average response rate of 54.7 % (SD = 23.9) for questionnaires distributed by email. In our study, the response rate from Time 1 to Time 2 was 49.8 and 56.9 % from Time 2 to Time 3. Thus, the response rates of this study can be considered as typical response rates for questionnaires distributed by email. Still, it is an avenue for future research to investigate our study variables with less attrition-prone methods.

Our study provided a closer look at the role of promotion focus and how it is related to the different stages of the creative process. Promotion focus is considered to foster creativity by broadening the attentional scope and facilitating the accessibility of cognitive representations (Baas et al. 2008). A task for future research is to examine whether the importance of a broad attentional scope and high accessible cognitive representations vary at different stages of the creative process. It is conceivable that a broad scope of attention is particularly beneficial at the stage of problem identification, whereas a higher access of cognitive representations might have the strongest effect while searching and encoding information.

When employees are promotion-focused, they are motivated to achieve positive outcomes (Brockner and Higgins 2001). Experimental research shows that promotion-focused participants altered an initially boring task in a way that the task became more intrinsically motivating (Smith et al. 2009). Considering these findings, our results are consistent with past research that examined intrinsic motivation as a mediator for the relationship between transformational leadership and creativity (Shin and Zhou 2003). A synthesis of our study and past research suggests a complex mediating mechanism for the relationship between transformational leadership and employee creativity: transformational leaders evoke a promotion focus in their employees, who might alter their work tasks in a way that these tasks become more intrinsically motivating and

³ We thank the editor for this insightful idea.

thereby the employees become more creative. Future research should test this more complex model.

Practical Implications

Considering the importance of employee creativity for organizational success (Oldham and Cummings 1996; Scott and Bruce 1994), it is critical for leaders to know how they can foster the creativity of their employees. Our results suggest that leaders should apply transformational leadership behaviors. It is important for employee creativity that leaders provide intellectual stimulation, encourage the employees to try out different approaches, share a vision with their employees, and show consideration for employees' individual needs. Additionally, by identifying promotion focus as a mediator in the relationship between transformational leadership and employee creativity, our results highlight the importance of employees' regulatory focus. Since leadership style is just one antecedent of employees' regulatory focus among others (Brockner and Higgins 2001), it is important for organizations to provide a beneficial context for promotion focus and to limit possible constraints. For example, organizations should establish a culture that highlights achievements instead of focusing on failure avoidance. Moreover, our results point to the importance of creative process engagement for employee creativity. In our study, we focused on the indirect relation between transformational leadership and creative process engagement via promotion focus. Yet, leaders might want to increase creative process engagement more directly. To increase creative process engagement, the leader should provide enough time for sufficient problem identification, foster information search and encoding by supplying resources, and help employees to generate ideas by providing analogies (Reiter-Palmon and Illies 2004).

In conclusion, our study adds to the body of research that demonstrates that transformational leadership is an antecedent of employee creativity (Jung et al. 2003; Shin and Zhou 2003). Our study supports the assumption that promotion focus serves as a mediator between transformational leadership and employee creativity (Kark and Van Dijk 2007) and highlights the importance of creative process engagement.

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