

# EMPLOYEE LEARNING ORIENTATION, TRANSFORMATIONAL LEADERSHIP, AND EMPLOYEE CREATIVITY: THE MEDIATING ROLE OF EMPLOYEE CREATIVE SELF-EFFICACY

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**We examined the relationship between employee creativity and job performance. Furthermore, we identified two learning-related personal and situational variables—employee learning orientation and transformational leadership—and examined their effects on employee creativity through employee creative self-efficacy. We found that employee creativity was positively related to employee sales and to supervisor-rated employee job performance. Employee learning orientation and transformational leadership were positively related to employee creativity, and these relationships were mediated by employee creative self-efficacy. We discuss the implications of these findings for creativity theory and research, as well as for management practice.**

Researchers have suggested that creativity—the generation of novel and useful ideas (Amabile, 1988, 1996)—is critical for organizations' survival and competitiveness (e.g., George & Zhou, 2002; Oldham & Cummings, 1996; Zhou, 1998). Driven by the assumption that employee creativity is beneficial for work outcomes, researchers have devoted considerable attention to identifying its antecedents, but they have shown much less interest in its effects (Mumford, 2003; Zhou & Shalley, 2008). Creativity is of value to organizations, however, to the extent that it impacts employee job performance (Gilson, 2008). Hence, it is important to determine both the antecedents and consequences of employee creativity (Zhou & Shalley, 2008).

Some researchers believe that employee creativity will flourish when a supervisor provides transformational leadership (Jaussi & Dionne, 2003; Shin & Zhou, 2003) and when employees have a learning orientation (Redmond, Mumford, & Teach, 1993). *Transformational leadership* has been de-

defined as influencing subordinates by “broadening and elevating followers’ goals and providing them with confidence to perform beyond the expectations specified in the implicit or explicit exchange agreement” (Dvir, Eden, Avolio, & Shamir, 2002: 735). A *learning orientation* has been defined as a concern for, and dedication to, developing one’s competence (Dweck, 1986, 2000; Dweck & Leggett, 1988).

Results linking transformational leadership and a learning orientation to creativity have been inconclusive. Jaussi and Dionne (2003) found little empirical support for the notion that transformational leadership positively influences creativity in a laboratory study with student subjects. However, in the first field study of transformational leadership and employee creativity, Shin and Zhou (2003) reported that the two related positively. With respect to a learning orientation, Redmond et al. (1993) reported that when manipulated in their laboratory study, it did not relate to the originality of solutions generated for a specialized marketing task.

One possible explanation for the nonsignificant relationships reported above lies in the shortness of the experiments conducted by Jaussi and Dionne (2003) and Redmond et al. (1993). Specifically, it simply takes time for individuals to acquire and harness new knowledge for coming up with creative solutions (Weisberg, 1999). Perhaps a learning

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orientation influences performance only over the long term (Redmond et al., 1993). Similarly, it is likely to take time for the influence of transformational leaders to take hold on their followers. A study involving actual practicing managers and their employees would be much more likely to reveal the positive influence of leadership on creativity. Moreover, field studies with temporally lagged designs may be needed to uncover these effects. It is also possible that the effects of a learning orientation are less robust for North Americans than for their East Asian counterparts, for whom motivation for self-improvement is especially strong (Gelfand, Erez, & Aycan, 2007; Heine et al., 2001; Li, 2002). Hence, we drew our sample from Taiwan.

To understand the discrepant findings of past studies, it is helpful to delve into the mechanism through which transformational leadership and a learning orientation affect individual creativity. It may be that the conditions needed for mediation to develop and exert an effect were present in Shin and Zhou (2003), but not in Jaussi and Dionne (2003) or in Redmond et al. (2003). For example, the subjects in Jaussi and Dionne's (2003) experiment had limited interactions with their leader, who was an experimental confederate. The mediator through which transformational leadership exerts its influence may not have had time to develop. By examining potential mediators, we may better understand why expected influences on creativity have been observed in some studies but not in others. With the exception of Shin and Zhou (2003), prior research has not investigated the psychological mechanisms that bring forth creativity. Shin and Zhou (2003) found that intrinsic motivation (i.e., interest and enjoyment; Ryan and Deci [2000]) partially mediated the influence of transformational leadership on creativity, giving rise to the possibility of there being other mediators of this relationship (Shalley, Zhou, & Oldham, 2004). One particularly promising mediator is *creative self-efficacy*—the belief that one has the knowledge and skills to produce creative outcomes (Tierney & Farmer, 2002). Creative self-efficacy is based on a person's knowledge and skills enabling creativity. Because efficacy beliefs nourish intrinsic motivation by enhancing perceptions of self-competence (Bandura, 1986; Deci & Ryan, 1985), creative self-efficacy may also reflect intrinsic motivation to engage in creative activities. As such, it should be a powerful precursor to creativity, mediating the influence of transformational leadership and employee learning orientation.

Our study had four key goals: to test the relationship between employee creativity and job perfor-

mance in a field setting; investigate the effects of transformational leadership and employee learning orientation on employee creativity using a improved design; elucidate employee creative self-efficacy as a mediator of the influence of transformational leadership and employee learning orientation on employee creativity; and test for this mediation using a Taiwanese sample in which the motivation for self-improvement is likely to be particularly salient. Accordingly, our study goes above and beyond past studies in several respects. First, we examine transformational leadership on the part of actual leaders in the workplace (not experimental confederates) and the actual (versus manipulated) learning orientation of their employees. We also adopt a temporally lagged design for measuring transformational leadership and employee creativity rather than a cross-sectional design (e.g., Shin & Zhou, 2003). Finally, we test employee creative self-efficacy as a mediator of the influence of transformational leadership and employee learning orientation on employee creativity.

We chose transformational leadership and employee learning orientation as predictors of employee creativity because they are both related to actions intended to improve an individual's competence and hence to lead to learning (Benjamin & Flynn, 2006; Kruglanski et al., 2000), and learning has been linked to creativity (Amabile & Gryskiewicz, 1987). Other potential predictors exist; for example, Farmer, Tierney, and Kung-McIntyre (2003) discussed creative role identity in this regard; George and Zhou (2002) were concerned with mood; Oldham and Cummings (1996) discussed job complexity; and Shalley (1995) was concerned with a creativity goal. These potential predictors are, however, unrelated to actions intended to promote learning. We examine antecedents to employee creativity with a learning perspective in mind. Moreover, we study creative self-efficacy as mediator for three reasons. First, self-efficacy has been found to be a vital "driver" of performance in a variety of task domains (Bandura, 1986, 1997). Given our interest in creativity and the domain-specific nature of self-efficacy (Bandura, 1997), we examine employee creative self-efficacy as the psychological mechanism behind creativity. Second, studies have documented a positive relationship between creative self-efficacy and creativity (Tierney & Farmer, 2002, 2004); and finally, we believe that individuals' creative self-efficacy will be higher if they are high (versus low) in learning orientation and/or when they come under the influence of transformational leaders.

## LITERATURE REVIEW AND HYPOTHESES

### Effects of Employee Creativity on Employee Job Performance

Research on the link between creativity and performance is sparse and has been constrained to academic settings (for a review, see Gilson [2008]). For example, Chamorro-Premuzic (2006) found a positive relationship between creative thinking and final dissertation grades in a sample of students. Notwithstanding the lack of direct empirical evidence from the corporate world, we expect a positive relationship between employee creativity and job performance. Specifically, when employees exhibit creativity at work, they generate novel responses that are useful in dealing with the tasks at hand (Amabile, 1983, 1996). Creative responses may include devising new procedures or processes for carrying out tasks, or identifying products or services to better meet customer needs (Zhou, 1998; Zhou & Shalley, 2003). Creative responses may also take the form of refinements of existing procedures or processes to enhance efficiency (e.g., through reducing the resources needed to complete a task), or the discovery of alternative procedures or processes that are more effective. Both forms of response should enable employees to improve their personal job performance. In addition, other employees may take up a novel, useful idea and apply and develop it in their own work (Shalley et al., 2004). As a result, the performance of an entire unit or organization may improve. Additionally, although such benefits of employees' own creativity may not contribute directly to their actual work effectiveness or efficiency, supervisors may factor in such contributions when rating their employees' job performance. Preliminary evidence suggests that employee creativity enhances job performance. For example, Oldham and Cummings (1996) reported a significant, positive correlation between employee creativity and supervisor-rated employee job performance. Therefore, we predict:

*Hypothesis 1. Employees who are more rather than less creative will generally have higher levels of job performance.*

### Effects of Employee Learning Orientation and Transformational Leadership on Creativity

Research has found learning to be essential for creativity (Weisberg, 1999). This finding begets a further question: Might learning-related actions, such as those associated with leaders' transformational behaviors and with employees' learning orientation, be associated with higher levels of em-

ployee creativity? According to social cognitive theory, individuals acquire knowledge and skills through "enactive mastery experience" (i.e., direct experience of attaining a task or skill) and "mastery modeling" (i.e., observational learning from proficient models such as leaders) (Bandura, 1986, 1997). Both internal personal factors and external situational factors affect acquisition of knowledge and skills (Bandura, 1986). A learning orientation is an internal mind-set that motivates an individual to develop his or her competence (Dweck, 1986, 2000; Dweck & Leggett, 1988; VandeWalle, Brown, Cron, & Slocum, 1999); therefore, it stands out as an important *internal drive* for enactive mastery. Individuals with a learning orientation seek challenges that provide them with learning opportunities (Ames & Archer, 1988). Research suggests that a learning orientation is conducive to the acquisition of knowledge and skills (e.g., Brett & VandeWalle, 1999; Kozlowski, Gully, Brown, Salas, Smith, & Nason, 2001). A learning orientation has also been shown to enhance cross-cultural adjustment, which involves the acquisition of culturally novel skills and behaviors (Gong & Fan, 2006). Empirical evidence suggests that acquisition of knowledge and skills enhances creativity (e.g., Amabile & Gryskiewicz, 1987; Gardner, 1993; Hayes, 1989). Therefore, we hypothesize:

*Hypothesis 2. Employee learning orientation is positively related to employee creativity.*

Leadership is an important aspect of the work environment for employees (e.g., Oldham & Cummings, 1996; Scott & Bruce, 1994). Transformational leadership describes a class of behaviors enacted by a leader composed of four dimensions: intellectual stimulation (i.e., challenging the status quo and taking novel approaches to problems), charisma or idealized influence, inspirational motivation (i.e., energizing followers by articulating a compelling vision), and individualized consideration (i.e., supporting, mentoring, and developing followers) (Bass, 1985). From the perspective of social cognitive theory (Bandura, 1986, 1997), transformational leadership represents a critical *external factor* in employee learning. Transformational leaders, by engaging in *intellectual stimulation*, set the expectation for creativity and serve as creative role models for employees. Because transformational leaders are *charismatic* and *inspirational*, employees are likely to attend to and learn from such leaders. Through the influence of behavioral modeling, transformational leaders enhance followers' ability to develop new ideas and question outmoded operating rules (Bass & Avolio, 1990). Through *individualized consideration*, transforma-

tional leaders show empathy, consideration, and support for employees, which should help overcome the fear of challenging the status quo, leading to higher creativity. Finally, transformational leaders delegate and encourage follower autonomy and use their greater knowledge and experience to develop their protégés (Avolio & Gibbons, 1988; Bass, 1985; Dvir et al., 2002). Such a developmental orientation should enhance employee learning, and thus creativity. As research has shown the four dimensions of transformational leadership to be highly correlated and to thereby reflect a higher-order construct of leadership (e.g., Avolio, Bass, & Jung, 1999), we expect all dimensions to work together as whole to impact employee creativity (Shin & Zhou, 2003).

*Hypothesis 3. Transformational leadership is positively related to employee creativity.*

### Employee Creative Self-Efficacy as a Mediator

Why might employee learning orientation and transformational leadership increase employee creativity? Such a question suggests that a mediator must account for each of these relationships. As we explained briefly at this article's outset, we believe this mediating variable is employee creative self-efficacy. We base this view on research that has shown that employees tend to be more creative when they have higher levels of creative self-efficacy (Tierney & Farmer, 2002, 2004) and our belief that increased employee self-efficacy results from employee learning orientation and transformational leadership.

Employee learning orientation seems conducive to the formation and maintenance of employee creative self-efficacy for several reasons. First, a learning orientation is grounded in an incremental conception of ability—that is, the idea that ability is malleable (Dweck, 1986; Dweck & Leggett, 1988)—and such a conception builds efficacy beliefs (Bandura, 1997). Second, a learning orientation leads to a focus on competence development (e.g., Dweck, 1986, 2000). Employees with a learning orientation are likely to accumulate experience of successful mastery over time. With this repertoire of skills and experiences, these employees should be more self-efficacious when it comes to producing creative outcomes. Third, the attribution pattern associated with maintaining a learning orientation in the face of setbacks helps to maintain creative self-efficacy. Employees with a learning orientation do not attribute setbacks in creative endeavors to ability factors but instead attribute them to such factors as insufficient effort or ineffective strategies (e.g.,

Dweck & Leggett, 1988). As a result, they are less likely to experience aversive arousal and therefore are more likely to maintain their self-efficacy in creative endeavors. Finally, a focus on the improvement of self-competence characterizes employee learning orientation. Creative endeavors are necessarily challenging and risky (Bandura, 1997). A focus on self-improvement rather than on external approval shields employees from others' negative reactions that may arise during the creative process. In other words, by focusing their attention on how to improve their competence, learning-oriented individuals are able to maintain efficacy beliefs throughout the uncertainty of the creative journey. Thus,

*Hypothesis 4. Employee creative self-efficacy mediates the positive relationship between employee learning orientation and employee creativity predicted by Hypothesis 2.*

We expect transformational leadership to have an effect on the four sources of efficacy judgments previously identified by Bandura (1986, 1997): observational learning, verbal persuasion, enactive mastery, and physiological arousal. Transformational leaders are proactive in thinking and generating new ideas (Bass, 1985). They expect their employees to exhibit similar qualities rather than to simply follow established routines. Transformational leaders therefore serve as role models in this respect. Employees may become more confident in their ability to develop new ideas through *observational learning* from such leaders (Bass & Avolio, 1990). Through a combination of intellectually stimulating (e.g., encouraging novel approaches) and charismatic leadership behaviors (e.g., contagious communication and compelling visions) (Bass, 1985), transformational leaders can powerfully *persuade* employees that they too can be creative. Through individualized consideration, transformational leaders show support and encouragement. Previous research supports the contention that supervisory support can persuade employees that they are capable of producing creative outcomes (Tierney & Farmer, 2002).

Through their mentorship, transformational leaders help employees to develop themselves (Bass, 1985) and make it more likely that the employees will have successful *enactive mastery* experiences, which in turn increase their creative self-efficacy over time. Transformational leaders delegate responsibilities to followers, which can foster employees' capacity for independent and critical thinking (Bass, 1985; Bass & Avolio, 1990). Indeed, research has shown that transformational leadership enhances followers' independent and

critical thinking (e.g., Dvir et al., 2002). Employees are therefore more likely to view themselves as being capable of producing creative outcomes. Finally, transformational leaders show their empathy, appreciation, consideration, and support for employees' efforts to take the initiative in tackling tasks. With such support and encouragement, employees are less likely to experience aversive *physiological arousal*, and this helps to sustain their creative self-efficacy. Therefore:

*Hypothesis 5. Employee creative self-efficacy mediates the positive relationship between transformational leadership and employee creativity predicted by Hypothesis 3.*

## METHODS

### Focus Group Interview

The present study was conducted in an insurance company in Taiwan. To ensure that the nature of the jobs was comparable, only insurance agents were included. Although people typically associate creative work with scientists and artists, creative work is not defined or tied to a particular occupation (Mumford, Whetzel, & Reiter-Palmon, 1997). Rather, creativity is important in a wide variety of jobs and organizations (Perry-Smith, 2006; Shalley, Gilson, & Blum, 2000). It is thus appropriate to study creativity among insurance agents because their marketing and sales function "provides a 'real-world' illustration of creative performance" (Redmond et al., 1993: 125). We conducted a focus group interview with eight insurance agents to

identify the creative aspects of their jobs. We asked the interviewees to describe what would represent creativity in their job activities. Some examples of creativity in acquiring new clients and sales included: (1) holding parties for classmates or alumni; (2) delivering seminars addressing topics of concern to clients, their relatives, and friends (e.g., changes in the retirement system and tax saving), and designing custom-made insurance products (e.g., insurance products for tax saving) as part of these seminars; and (3) deliberately choosing tour groups for sightseeing to maximize opportunities to meet potential new clients. Four items measuring employee creativity were developed on the basis of consensus among focus group participants; the "Measures" section and Table 1 present these items. These items were used to complement the employee creativity measure drawn from Oldham and Cummings (1996).

### Main Study Design

For the main study, we selected 277 insurance agents out of a total of 554 possible agents by randomly picking every other name from a list. Immediately before the start of the fourth quarter (time 1), we administered to the selected agents a survey containing questions about their learning orientation and their demographic profile. In the fourth week of the quarter (time 2), we administered another survey to the same agents to assess their creative self-efficacy. Because a small number of new agents had joined the company in the fourth quarter, we measured transformational leadership at

**TABLE 1**  
**Results of Exploratory Factor Analysis for Employee Creativity and Supervisor-Rated Employee Job Performance<sup>a</sup>**

Items	Factor 1	Factor 2
<i>Employee creativity</i>		
1. This person often develops creative custom-made product/service packages for clients.	<b>.67</b>	.11
2. This person often uses creativity to develop new clients through different means and channels.	<b>.75</b>	.01
3. This person often uses creativity to increase sales forces in different ways.	<b>.73</b>	.08
4. This person often develops creative methods for promotion and sales.	<b>.87</b>	.07
5. This person's work is creative.	<b>.89</b>	.01
6. This person's work is original and practical.	<b>.83</b>	.07
7. This person's work is adaptive and practical.	<b>.67</b>	.22
<i>Employee job performance</i>		
8. This person makes significant contributions to the overall performance of our work unit.	.28	<b>.58</b>
9. This person is one of the best employees in our work unit.	.12	<b>.77</b>
10. This person always completes job assignments on time.	.08	<b>.99</b>
11. This person's work performance always meets the expectations of the supervisor.	.02	<b>.95</b>
Percentage of variance explained	65.90	10.23

<sup>a</sup> The factor analysis was conducted using maximum-likelihood extraction and oblique rotation.  $n = 200$ . Boldface indicates significant loadings.

time 2 so that the new hires would have had enough time to observe their supervisors' transformational leadership. Since the new hires were on board at the date of the time 1 data collection, their learning orientation was assessed at that time. At the end of the fourth quarter (time 3), we asked the agents' immediate supervisors to rate each agent's creativity and overall job performance. All of the survey instruments were administered in Chinese, which was the language spoken by the respondents. A total of 200 agents and 111 immediate supervisors responded to the three surveys (a 72 percent response rate).

To supplement the rating of the agents' job performance by the supervisors, we obtained data on the fourth-quarter sales of the agents from the company archives after the main study had been completed. We also obtained data on the third-quarter sales of the same agents from the company archives. The number of agents with valid sales data was 178. The ranks of the respondents ranged from low-level agents to senior sales managers. The average age was 36.94 years; the average company tenure and insurance business experience were 46.40 and 52.65 months, respectively. Of the insurance agents, 41 percent were male and 59 percent were female. About 16 percent had middle school educations; 43 percent had high school educations; and 41 percent had university educations.

## Measures

**Employee creativity.** We adapted the three-item employee creativity measure of Oldham and Cummings (1996) for this study. Because the meaning of creativity varies in different cultures and domains (e.g., Niu & Sternberg, 2002), we conducted a focus group interview and developed four creativity items for insurance sales jobs in the company. These four items ( $\alpha = .93$ ) covered (1) custom-made product/service packages, (2) acquiring new clients, (3) increasing the sales force, and (4) developing methods for promotion and sales. A sample item was, "This person often uses creativity to develop new clients through different means and channels" (1 = "strongly disagree," to 5 = "strongly agree"). We used these items to complement the measure from Oldham and Cummings (1996). This adaptation approach is consistent with the recommendation by Farh, Cannella, and Lee (2006) on developing valid instruments for research in the Chinese context.

**Employee job performance.** We measured employee job performance in two ways. First, supervisors responded to the four-item employee job performance measure, *supervisor-rated employee job*

*performance* ( $\alpha = .93$ ; Farh & Cheng, 1997). The measure was developed in the Taiwan context. Sample items included, "This person always completes job assignments on time" and "This person is one of the best employees in our work unit" (1 = "strongly disagree," to 5 = "strongly agree"). Second, we measured objective employee job performance as the natural logarithm of the *fourth-quarter sales* of employees.

To examine whether employee creativity and supervisor-rated employee job performance were distinct from each other, we subjected the items from both constructs to a single exploratory factor analysis. The results indicated a clear two-factor structure and that the items loaded on their intended factors (see Table 1). All of the items for employee creativity and supervisor-rated employee job performance met Ford, MacCallum, and Tait's (1986) heuristic guideline: loadings of .40 or greater on the appropriate factor with no major cross loadings. To determine the fit of the two-factor model, we further conducted a confirmatory factor analysis. Results indicated that the two-factor model fit the data well ( $\chi^2 = 236.68$ ,  $df = 43$ ,  $RMSR = .03$ ,  $CFI = .96$ ,  $IFI = .96$ ,  $NFI = .95$ ,  $TLI = .95$ ).

**Employee learning orientation.** We adapted Elliot and Church's (1997) six-item learning orientation scale to the work setting studied here ( $\alpha = .87$ ). Confirmatory factor analysis indicated a satisfactory fit ( $\chi^2 = 21.86$ ,  $df = 5$ ,  $RMSR = .03$ ,  $CFI = .98$ ,  $IFI = .98$ ,  $NFI = .97$ ,  $TLI = .95$ ). Sample items included, "I prefer tasks that really challenge me so I can learn new things" and "I desire to completely master my job" (1, "strongly disagree," to 7, "strongly agree").

**Transformational leadership.** We adopted the Multifactor Leadership Questionnaire (MLQ) Form 5X-Short (Bass & Avolio, 1995) to measure transformational leadership. We asked respondents to indicate the degree to which the statements accurately described their immediate supervisors (1, "strongly disagree," to 7, "strongly agree"). The scale had the following five subscales (20 items total;  $\alpha = .98$ ) and sample items: idealized influence (attributed) (e.g., "My supervisor acts in ways that build my respect"); idealized influence (behavior) (e.g., "My supervisor talks to us about his/her most important values and beliefs"); inspirational motivation (e.g., "My supervisor expresses his/her confidence that we will achieve our goals"); individualized consideration (e.g., "My supervisor spends time teaching and coaching me"); and intellectual stimulation (e.g., "My supervisor seeks differing perspectives when solving problems"). We dropped two items that had low loadings in the exploratory factor analysis. Confirmatory factor

analysis on the remaining items indicated a satisfactory fit ( $\chi^2 = 585.91$ ,  $df = 130$ ,  $RMSR = .05$ ,  $CFI = .96$ ,  $IFI = .96$ ,  $NFI = .96$ ,  $TLI = .96$ ).

**Employee creative self-efficacy.** We used Tierney and Farmer's (2002) four-item measure of creative self-efficacy ( $\alpha = .91$ ). The insurance agents indicated the extent to which they felt that each statement described how they felt about their creative ability. Sample items included, "I have confidence in my ability to solve problems creatively" and "I feel that I am good at generating novel ideas" (1, "strongly disagree," to 7, "strongly agree"). Confirmatory factor analysis indicated a satisfactory fit ( $\chi^2 = 6.92$ ,  $df = 2$ ,  $RMSR = .02$ ,  $CFI = .99$ ,  $IFI = .99$ ,  $NFI = .99$ ,  $TLI = .97$ ).

**Control variables.** In testing the hypotheses, we controlled for age (in years), gender, education level (1 = "middle school," 2 = "high school," and 3 = "university"), rank (1 = "entry level sales agents," 5 = "senior sales managers"), company tenure (in months), and insurance business experience (in months). Research suggests that rank is related to involvement in innovation activities and the generation of creative ideas (as rated by independent judges) (e.g., Ibarra, 1993; Tierney, Farmer, & Graen, 1999). We controlled for education level and insurance business experience for two reasons. First, education and experience may affect the domain-relevant knowledge or expertise that is important for creativity (Amabile, 1988; Tierney et al., 1999). Second, we wanted to conduct a more rigorous test of the impact of employee learning orientation at time 1 on employee creativity at time 3. To do this, it was helpful to control for knowledge and experience before time 1. We controlled for age and

tenure because they were included in prior creativity research (e.g., Scott & Bruce, 1994; Tierney & Farmer, 2002) and because they may affect job performance (e.g., Sturman, 2003). Finally, in examining the relationship between employee creativity and job performance, we also controlled for the natural logarithm of the third-quarter sales of each agent because of its potential effect on agents' current job performance.

## RESULTS

Table 2 displays the means, standard deviations, and correlations of the variables included in our study. Employee creativity was positively related to supervisor-rated employee job performance ( $r = .73$ ,  $p < .01$ ) and fourth-quarter sales ( $r = .17$ ,  $p < .05$ ). Both employee learning orientation and transformational leadership were positively related to employee creativity ( $r = .20$ ,  $p < .01$ ;  $r = .18$ ,  $p < .01$ , respectively) and employee creative self-efficacy ( $r = .37$ ,  $p < .01$ ;  $r = .17$ ,  $p < .05$ , respectively). Employee creative self-efficacy was positively related to employee creativity ( $r = .24$ ,  $p < .01$ ).

### Hypothesis Testing

Because insurance agents were partially nested within supervisors, we used hierarchical linear modeling (HLM) to account for potential nonindependence of the observations. Ordinary least square (OLS) regression may not take into account the nested nature of individual-level data (Bliese & Hanges, 2004). There were no group-level vari-

TABLE 2  
Means, Standard Deviations, and Correlations<sup>a</sup>

Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	36.94	10.04												
2. Sex	0.41	0.49	-.22											
3. Education	2.25	0.71	-.23	.18										
4. Rank	2.14	1.05	.22	.06	-.13									
5. Insurance business experience	52.65	49.06	.55	-.21	-.32	.51								
6. Company tenure	46.40	41.90	.55	-.20	-.30	.52	.82							
7. Sales, third quarter <sup>b</sup>	12.57	1.81	.13	-.12	-.12	.13	.10	.13						
8. Employee learning orientation, time 1	5.28	0.63	.22	.05	.01	.20	.10	.08	.05					
9. Transformational leadership, time 2	5.97	0.88	.02	.09	-.03	.05	.03	.04	-.07	.06				
10. Employee creative self-efficacy, time 2	5.43	0.89	.11	.27	.10	.15	.04	-.08	.37	.17				
11. Employee creativity, time 3	3.99	0.68	.01	.11	-.10	.22	.16	.12	-.02	.20	.18	.24		
12. Supervisor rated employee job performance, time 3	3.98	0.79	.07	.11	-.09	.35	.20	.16	.07	.16	.23	.15	.73	
13. Sales, fourth quarter <sup>b</sup>	12.99	1.91	.18	-.13	.01	.16	.26	.28	.39	.05	-.01	-.04	.17	.18

<sup>a</sup>  $n = 178$ – $200$ . Correlations involving sales were based on  $n = 178$ , and those with absolute values  $\geq .16$  were significant at the  $p < .05$  level. The remaining correlations were based on  $n = 200$ , and those with absolute values  $\geq .15$  were significant at the  $p < .05$  level.

<sup>b</sup> Natural logarithm. For the third quarter, raw mean sales = NT\$1,774,631, s.d. = 7,600,634.89; for the fourth quarter, raw mean sales = NT\$2,651,233, s.d. = 1,159,244.04.

ables, because transformational leadership was measured in terms of the perception of each individual agent. In this case, we accounted for the nesting effect by allowing a random intercept. We conducted the analyses using hierarchical linear and nonlinear modeling, version 6 (HLM6) (Raudenbush, Bryk, & Congdon, 2004). Before we report the HLM results, we wish to note that in separate analyses using OLS regression, we obtained substantially similar results for all the hypotheses.

To test Hypothesis 1, we regressed supervisor-rated employee job performance and fourth-quarter sales separately on employee creativity, together with control variables. Table 3 summarizes the HLM results. As Hypothesis 1 predicted, employee creativity had a positive relationship with both supervisor-rated employee job performance ( $\gamma = .84$ ,  $p < .01$ ) and fourth-quarter sales ( $\gamma = .55$ ,  $p < .01$ ).

To test Hypotheses 2–5, we followed Baron and Kenny's (1986) procedure in HLM analysis. In step 1, we regressed employee creative self-efficacy on employee learning orientation and transformational leadership. In step 2, we regressed employee creativity on employee learning orientation and transformational leadership. In step 3, we regressed employee creativity on employee learning orientation, transformational leadership, and employee creative self-efficacy. In all of the above analyses, we controlled for age, gender, education level, rank, company tenure, and insurance business experience. For ease of presentation, Table 4 summarizes the main results with coefficients for control variables omitted. In step 1, employee learning orientation and transformational leadership emerged as significant predictors of employee creative self-efficacy ( $\gamma = .45$ ,  $p < .01$ ;  $\gamma = .13$ ,  $p < .05$ ,

respectively). In step 2, both employee learning orientation and transformational leadership had a significant relationship with employee creativity ( $\gamma = .18$ ,  $p < .01$ ;  $\gamma = .10$ ,  $p < .05$ , respectively). The results from step 2 thus supported Hypotheses 2–3. When employee creative self-efficacy was added to the equation in step 3, employee learning orientation and transformational leadership were no longer significant at the conventional level, but employee creative self-efficacy remained significant ( $\gamma = .09$ ,  $p < .05$ ). The combined results from steps 1–3 supported Hypotheses 4–5.

To further test Hypotheses 4–5 (the two mediation hypotheses), we performed the Sobel test, which provides a direct test of the indirect effect of an independent variable on the dependent variable through the mediator (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Preacher & Hayes, 2004; Sobel, 1982). To perform the test, we employed the bootstrapping approach, thereby making no assumption about the distribution of indirect effect and provides confidence intervals for the estimate (Preacher & Hayes, 2004; Shrout & Bolger, 2002). Results indicated that the indirect effect of transformational leadership on employee creativity was .03 ( $p < .05$ ; 95% CI: .01–.08), and that of employee learning orientation on employee creativity was .08 ( $p < .01$ ; 95% CI: .02–.15). The results again supported Hypotheses 4 and 5.

## DISCUSSION

The present study was motivated by four goals: empirically test the relationship between employee creativity and job performance in a corporate setting; investigate the effects of transformational

TABLE 3  
Results of Hierarchical Linear Modeling for Employee Job Performance<sup>a</sup>

Variables	Supervisor-Rated Employee Job Performance				Sales, Fourth Quarter			
	Estimate	s.e.	<i>t</i>	<i>p</i>	Estimate	s.e.	<i>t</i>	<i>p</i>
Intercept	−0.59	0.59	−1.01	.31	4.63	1.97	2.35	.02
Age	0.01	0.01	1.44	.16	0.00	0.02	−0.16	.87
Gender	−0.05	0.08	−0.61	.54	−0.27	0.29	−0.93	.36
Education	0.02	0.06	0.28	.78	0.46	0.19	2.42	.02
Rank	0.17	0.04	3.78	.00	−0.04	0.15	−0.28	.78
Insurance business experience	0.00	0.00	0.24	.81	0.00	0.01	0.42	.67
Company tenure	0.00	0.00	−0.82	.42	0.01	0.01	1.40	.17
Sales, third quarter	0.03	0.02	1.33	.19	0.39	0.07	5.41	.00
Employee learning orientation	−0.01	0.07	−0.12	.91	0.00	0.22	0.02	.99
Transformational leadership	0.11	0.04	2.57	.01	0.00	0.15	0.02	.98
Employee creative self-efficacy	−0.07	0.05	−1.46	.15	−0.11	0.16	−0.68	.50
Employee creativity	0.84	0.06	13.32	.00	0.55	0.20	2.70	.01

<sup>a</sup>  $n = 178$ .



**TABLE 4**  
**Results of Hierarchical Linear Modeling for**  
**Mediation Analysis<sup>a</sup>**

Variables	Estimate	s.e.	t	p
Step 1: Employee creative self-efficacy				
Employee learning orientation	0.45	0.09	4.82	.00
Transformational leadership	0.13	0.06	1.99	.05
Step 2: Employee creativity				
Employee learning orientation	0.18	0.07	2.57	.01
Transformational leadership	0.10	0.05	2.02	.04
Step 3: Employee creativity				
Employee learning orientation	0.14	0.07	1.91	.06
Transformational leadership	0.09	0.05	1.83	.07
Employee creative self-efficacy	0.09	0.04	1.99	.05

<sup>a</sup>  $n = 200$ .

leadership and employee learning orientation on employee creativity using a better design than past studies; assess creative self efficacy as a mediator of the influence of transformational leadership and employee learning orientation on employee creativity; and assess these relationships using a sample from Taiwan, where the motivation for self-improvement is stronger than in Western nations. The results we obtained lead to three conclusions. First, employees' creativity relates positively to supervisory ratings of their job performance and to their sales. Second, an employee learning orientation and transformational leadership predict employee creativity, at least in a field setting involving actual leaders and their followers. Third, an employee learning orientation and transformational leadership relate to employee creativity through their influence on employee creative self-efficacy. We now discuss how these empirically guided conclusions extend the findings of prior studies.

### **Conclusion 1: Effects of Employee Creativity on Employee Job Performance**

Whereas prior work has shown a positive relationship between creativity and performance in an academic setting (for a review, see Gilson [2008]), we demonstrated this relationship within a corporate setting. We also go beyond Oldham and Cummings's (1996) corporation-based study in three ways. First, we empirically tested the a priori hypothesis of the relationship between employee creativity and job performance, unlike Oldham and Cummings (1996). Second, we included an objective measure of employee job performance (i.e., fourth-quarter sales) in addition to the subjective

supervisor job performance ratings used by Oldham and Cummings (1996). Finally, because our study was based on a sample of Taiwanese employees, it extends past findings to a cultural sample not heretofore studied.

### **Conclusion 2: Effects of Employee Learning Orientation and Transformational Leadership on Employee Creativity**

The second of our conclusions extends the findings of Redmond et al. (1993), Jaussi and Dionne (2003), and Shin and Zhou (2003). Redmond et al. (1993) found no significant effect for learning orientation in their short-term experiment. Our study was a temporally lagged field investigation in which we found a significant effect for employee learning orientation. As noted earlier, this finding suggests that employee learning orientation is more likely to enhance employee creativity over time, because time is needed for an employee to explore, learn, and create. It may also be that an individual's actual learning orientation has a stronger effect on creativity than does an artificially derived (manipulated) learning orientation.

Jaussi and Dionne (2003) found that transformational leadership had no effect on individual creativity. Likewise, the limited amount of interaction between the student subjects and a confederate leader in Jaussi and Dionne (2003) may account for their null results, thereby limiting the generalizability of their findings. Our results are consistent with those of Shin and Zhou (2003) in their cross-sectional study and extend their conclusion to a sample of Taiwanese employees. Moreover, we improve upon Shin and Zhou's work (2003) by adopting a temporally lagged design for measuring transformational leadership and employee creativity. In short, we conclude that transformational leadership is likely to enhance individual creativity over time and within a field setting that allows for genuine and repeated leader-subordinate interactions.

### **Conclusion 3: Employee Creative Self-Efficacy as a Mediator**

The third of our conclusions extends Redmond et al.'s work (1993) by examining employee creative self-efficacy as a mediator of the influence of employee learning orientation on creativity. Redmond et al. (1993) did not provide such an examination. Conclusion three also extends the work of Jaussi and Dionne (2003) and Shin and Zhou (2003) by examining employee creative self-efficacy as a mediator between transformational leadership and creativity. Specifically, we are the first to examine

the mediating role of employee creative self-efficacy, thereby shedding light on the mechanism by which employee learning orientation and transformational leadership impact employee creativity.

Although neither Jaussi and Dionne (2003) nor Redmond et al. (1993) examined mediators, Shin and Zhou (2003) found employee intrinsic motivation to be a partial mediator between transformational leadership and employee creativity. Our results indicate that employee creative self-efficacy is a mediator. One potential explanation for this mediating effect is that creative self-efficacy reflects knowledge and skills as well as intrinsic motivation to be creative. Hence, our contribution goes beyond those of past studies by including a mediating variable that reflects all three elements in Amabile's (1988) componential model (i.e., domain-relevant knowledge, creativity-relevant skills, and intrinsic motivation). By doing so, we reinforce the veracity of the componential model. In addition to intrinsic motivation, goal-based motivation may be set in motion by employee creative self-efficacy, because those who are high in creative self-efficacy may set higher creativity goals for themselves. Goal setting for creativity relates positively to actual creativity (Shalley, 1991, 1995). Employee intrinsic motivation, on the other hand, is more narrowly focused on motivation based on interest and enjoyment (Shin & Zhou, 2003). Parsimony would suggest that Amabile's (1988) componential model be extended by treating creative self-efficacy as an overarching variable that nourishes creativity.

### Managerial Implications

We have shown that employee creativity is likely to benefit organizations, reinforcing the practical value of research examining the antecedents of employee creativity. This implies that managers can reap the benefits of employee creativity by selecting for, or developing, creative individuals. Of course, we do not yet know whether the relationship between creativity and performance holds up in more routine, lower-discretion jobs (e.g., assembly line jobs) than the one studied here (i.e., sales).

Our findings also suggest that organizations select for, and develop, a learning orientation, particularly for jobs that place a premium on creativity. Although Redmond et al.'s (1993) experimental study alluded to this idea in the absence of empirical support, our study provides that support, particularly given our corporate setting. Managers need to be mindful that selecting employees on the basis of their learning orientation alone will not guarantee creativity. It is building the creative self-efficacy of their employees that will provide the

facilitating conditions for the learning orientation to take hold and bring forth creativity. Managers can be instrumental here in terms of providing an environment that stimulates and nourishes creative self-efficacy, through, for example, applying transformational leadership principles.

Several managerial behaviors are likely to foster favorable conditions for the development of creative self-efficacy. First, managers should serve as creative role models and verbally persuade employees that they too can be creative. Second, managers may personally demonstrate, and instruct their employees on, creativity-relevant skills. This activity should be accompanied by provision of hands-on opportunities to apply these skills. These strategies should enhance employees' observational and enactive mastery, thereby building their creative self-efficacy and creativity. Third, by offering support and encouragement managers can alleviate employee fear and anxiety that may arise from the uncertainty of creative endeavors. This support also should boost employees' creative self-efficacy. Prior studies have not clearly offered these suggestions because they either did not include transformational leadership (Tierney & Farmer, 2002, 2004) or did not examine creative self-efficacy as a mediator (Jaussi & Dionne, 2003; Shin & Zhou, 2003).

### Limitations and Directions for Future Research

First, we measured transformational leadership and employee creative self-efficacy at the same time point (time 2). We did so because some new hires needed time to observe and react to their supervisors' transformational leadership, and because the company did not make it possible to use a different time point for measuring employee creative self-efficacy. This limitation precludes our making any causal interpretation of the relationship between transformational leadership and employee creative self-efficacy. Ultimately, a field experiment is needed to establish causality.

Second, our temporally lagged design for transformational leadership and employee creativity cannot rule out the possibility that creative employees bring out more transformational leadership behavior among their supervisors. Employee creativity may already have been present when transformational leadership was measured. Testing this hypothesis more rigorously would require measuring employee creativity at multiple (at least two) points in time and analyzing the effect of transformational leadership on employee creativity at time  $t$ , with the control of employee creativity at time  $t - 1$ . An interesting research question is whether the causal order between transformational leadership

and employee creativity can be reversed. The same issue of possible reverse causality also applies to the relationship between learning orientation and creative self-efficacy.

Third, we cannot conclude that employee creative self-efficacy exceeds employee intrinsic motivation in explaining unique variance because we did not measure employee intrinsic motivation. Intrinsic motivation may be a rival explanation for our findings that we cannot empirically rule out. It is also possible that the findings attributed to employee creative self-efficacy may be due at least in part to unmeasured employee intrinsic motivation. An interesting empirical question is whether employee creative self-efficacy would still serve as a mediator if employee intrinsic motivation were included in the model.

Fourth, we did not measure transactional leadership. We did not have empirical evidence to draw on as a guide in deciding whether or not to include supervisor transactional leadership. Other studies examining transformational leadership and individual creativity (Jaussi & Dionne, 2003; Shin & Zhou, 2003) have not included transactional leadership. Conceptually, transactional leadership may have some bearing on employee creativity. For example, if transactional leaders set a creativity goal and reward employees for achieving it (a contingent reward), employee creative performance may increase (Eisenberger & Rhoades, 2001; Shalley, 1991). The opposite may occur if transactional leaders reward other aspects of performance, such as product quantity. Transactional leadership theory in its current form does not clearly specify the range of reward contingencies. Future research may clarify such contingencies and examine their effects on employee creativity accordingly.

Fifth, we did not include employee performance orientation in this study. Performance orientation focuses on the judgment of existing competence (Dweck, 2000), and thus is conceptually unrelated to the *acquisition* of competence—an important factor affecting creativity. Conceptually, performance orientation has no clear implications for creative self-efficacy. It may or may not affect creative self-efficacy depending on whether creative competence is being assessed and whether the assessment is positive, negative, or neutral. Furthermore, there is considerable ambiguity and disagreement regarding the dimensionality of performance orientation (e.g., Button, Mathieu, & Zajac, 1996; Elliot & Church, 1997; Grant & Dweck, 2003; VandeWalle, Cron, & Slocum, 2001). Empirical testing may follow once the conceptual ambiguity is resolved.

Sixth, we tested our hypotheses using insurance

agents in one organization. This approach has the advantage of holding organizational and job context factors constant, but researchers should replicate our findings in other organizations and job categories. Because the theoretical ideas in this study can be broadly applied to creativity, we expect that similar results will be found in other organizational and job settings. Seventh, our study was conducted in Taiwan. Future research should replicate the findings in other cultures. Finally, the respondents in this study had relatively low levels of education. Accordingly, replication of our study should probably involve a more highly educated sample.

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