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THERE'S NO PLACE LIKE HOME? THE CONTRIBUTIONS OF WORK AND NONWORK CREATIVITY SUPPORT TO EMPLOYEES' CREATIVE PERFORMANCE

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We examined relations between creative performance and the extent to which employees received support for creativity from both work (supervisors/coworkers) and nonwork (family/friends) sources. We also examined whether (1) employees' mood states mediated the support-creativity relations and (2) creative personality characteristics moderated these relations. Results demonstrated that work and nonwork support made significant, independent contributions to creative performance. Positive mood mediated these relations, and employees with less creative personalities responded most positively to nonwork support.

Considerable evidence suggests that employee creativity makes an important contribution to organizational innovation, effectiveness, and survival (Amabile, 1996). As a result, researchers have become increasingly interested in identifying the social conditions that influence employee creativity (see Oldham & Cummings, 1996; Tierney, Farmer, & Graen, 1999). One of these conditions is support for creativity, or the extent to which individuals aid and encourage employees' creative performance (Amabile, Conti, Coon, Lazenby, & Herron, 1996). Unfortunately, the dynamics surrounding the support-creativity link are not well understood. To help address this situation, we explored three interrelated issues.

First, we examine the possibility that support from individuals both inside and outside the organization contributes to employees' creative performance at work. Although much of the previous research on the social determinants of employees' creativity has focused on the behaviors of others in their workplace (Oldham & Cummings, 1996; Tierney et al., 1999), research in social psychology suggests that the behavior of others outside employees' organization might also have an impact (Koestner, Walker, & Fichman, 1999). Second, we examine how support from these work and nonwork others influences employee creativity. Although several authors have suggested that individuals' mood states may play a role in explaining the effects of social conditions on creativity (see Isen, 1999), little work has systematically examined this topic. Drawing from the social support and mood literatures (e.g., Fusilier, Ganster, & Mayes, 1986), we argue that support from others influences creativity via its effects on employees' moods. Finally, we examine whether creative personality characteristics moderate the relations between support and creativity. Previous theory suggests that individuals' personal characteristics may influence their responses to social conditions (Amabile, 1996; Woodman, Sawyer, & Griffin, 1993); however, very few studies have tested the moderating effects of individuals' personalities.

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THEORETICAL BACKGROUND AND HYPOTHESES

Creativity and Support from Supervisors and Coworkers

We consider employee creativity to be the production of ideas, products, or procedures that are (1) novel or original and (2) potentially useful to the employing organization (Amabile, 1996). These ideas may reflect either a recombination of existing materials or an introduction of new materials to the organization. We do not equate "creative work" with "creative jobs." That is, creative work can be generated by employees in any job and at any level of the organization, not just in jobs that are traditionally viewed as necessitating creativity. Finally,

we view creativity as differing from innovation in that the former refers to ideas produced at the individual level, while the latter refers to the implementation of these ideas at the organization level (Amabile, 1996).

As noted earlier, previous research suggests that supportive behavior on the part of others in a workplace (such as, coworkers and supervisors) enhances employees' creativity (Amabile et al., 1996; Oldham & Cummings, 1996). For example, Frese, Teng, and Wijnen (1999) showed that the more supervisors were encouraging of employees, the more creative ideas they submitted to an organization's suggestion program. Oldham and Cummings (1996) demonstrated that supportive supervision made a significant contribution to the number of patent disclosures employees wrote over a two-year period. Thus, we expected that the more employees' supervisors and coworkers offer support for creativity, the higher employees' creative performance will be.

Creativity and Support from Family and Friends

Several studies suggest that support from individuals outside of the employing organization often contributes to work-related responses such as burnout, independent of the support offered by those inside the workplace. For example, Ray and Miller (1994) showed that support from family members outside an organization had an impact on the level of emotional exhaustion employees experienced at work. A few studies have also suggested that support from family members and friends has a direct impact on individuals' creative responses (e.g., Koestner et al., 1999). For example, Harrington, Block, and Block (1987) assessed parenting practices when children were 3–5 years old and obtained judgments of creativity when they were 11–14 years old. Results showed that children scored high on the creativity measures when parents were supportive. Walberg, Rasher, and Parkerson (1980) showed that individuals who were highly creative as adults had typically, as children, received support from their parents.

All of these findings suggest that support by significant others outside individuals' workplace can influence their responses at work, including their creativity. But much of the early work on creativity concerned the effects of childhood relationships, not the effects of behaviors exhibited by people with whom an individual had contact as an adult (for instance, family members and friends). Further, this earlier research did not simultaneously address the support provided by others inside a workplace. Thus, it is not yet clear that support from current family members and friends makes a contribution to employees' creativity over and above that made by support from significant actors inside their organizations.

In the current study, we examined the possibility that explicit support of creativity from an employee's family members and friends makes a unique contribution to that employee's creativity. On the basis of the arguments made above, we expected that the more employees' family members and friends offer support for creativity, the higher employees' creative performance will be.

Creativity, Mood States, and Support

In addition to exploring the effects of supportive behavior, we also examined *how* such behavior influenced employees' creative responses. The literature suggests two general perspectives that might be used to explain these effects. First, a mood state perspective (George & Brief, 1992; Isen, 1999) suggests that support from both work and nonwork sources shapes employee moods that, in turn, affect their creativity. Alternatively, an intrinsic motivation perspective (Amabile, 1996) might suggest that support affects individuals' intrinsic motivation to perform an activity, which then affects their creativity. Interestingly, this latter perspective also includes a mood component in that individuals are expected to experience positive mood states when they are intrinsically motivated (Amabile, 1996; Amabile, Goldfarb, & Brackfield, 1990). Therefore, since mood states play a central role in both perspectives, we focused directly on moods as mediating mechanisms of the support-creativity association.

"Mood" refers to a pervasive generalized affective state that is not necessarily directed at any particular object or behavior. Moods are relatively transient states that are experienced over the short run, fluctuate over time, and may be affected by contextual conditions (George & Brief, 1992). Moreover, previous work suggests that mood consists of two independent dimensions: positive (characterized by emotions ranging from high to low excitation and elatedness) and negative (characterized by feelings of distress and fear) (Burke, Brief, George, Roberson, & Webster, 1989).

Most of the theoretical work concerned with creativity focuses on *positive mood* and suggests that when employees experience it, their cognitive or motivational processes are enhanced in such a way that they exhibit high creativity (Hirt, Levine, McDonald, & Melton, 1997). Isen (1999) argued that when individuals experience positive moods, they make more connections between divergent stimu-

lus materials, use broader categories, and see more relatedness among stimuli. As a result, they may be more likely to recognize a problem and to integrate a variety of available resources, actions that yield more creative outcomes. Although a few investigations have failed to support the proposed connection between positive mood and creativity (e.g., Kaufmann & Vosburg, 1997), the vast majority of earlier studies strongly support this link (Isen, 1999; Madjar & Oldham, in press). For example, Isen, Johnson, Mertz, and Robinson (1985) showed that when individuals experienced positive moods, they gave more unusual first word associations to neutral stimulus words than individuals in control conditions. Vosburg (1998) found a positive, significant association between a measure of positive mood and performance on a creativity task.

Although less attention has focused on *negative mood,* some theorists have argued that it might facilitate creativity (Kaufmann & Vosburg, 1997). According to this position, creative problem solving requires individuals to experience negative feelings, such as tension and dissatisfaction. Alternatively, it may be that the anxiety, distress, and frustration associated with negative mood adversely affect creativity by constraining employees' divergent thinking and inhibiting them from exploring new cognitive pathways and playing with ideas. Previous research provides most support for the latter position. For example, Vosburg (1998) demonstrated that a measure of negative mood had a significant, negative relation to creative problem solving. Hirt and colleagues (1997) showed that individuals experiencing negative moods exhibited lower creativity than those in positive mood states.

Overall, then, previous research suggests that positive mood enhances creativity, while negative mood adversely affects it. How might these mood states explain the expected support-creativity association? One possibility is that supportive behavior influences the positive and negative moods of employees, which, in turn, affect their creativity (George & Brief, 1992). For example, when an individual receives encouragement from coworkers and family members, he or she is likely to experience such positive moods as excitement and enthusiasm. Alternatively, when support from others is absent, individuals may experience generally negative mood states.

Previous investigations have provided results that are generally consistent with these arguments (Cohen, 1988; Moyer & Salovey, 1999). For example, in their examination of the effects of support from supervisors, coworkers, and family/friends, Fusilier et al. (1986) showed that support from each of these sources lowered employees' depression and anxiety levels, and increased their general life satisfaction. Thus, we predicted:

Hypothesis 1. Employees positive mood states will mediate the relations between support for creativity from work and nonwork sources and employees' creative performance.

Hypothesis 2. Employees' negative mood states will mediate the relations between support for creativity from work and nonwork sources and employees' creative performance.

Creativity, Support, and Individual Differences

Research has established that individuals with creative personalities exhibit higher creativity than those with less creative personalities (see Feist, 1999). Moreover, recent theoretical work has suggested that personality characteristics can influence the effects of social conditions on individuals' creativity (Amabile, 1996; Woodman et al., 1993). Unfortunately, few previous studies have empirically examined the moderating effects of creative personality.

The current investigation addressed this issue and examined the possibility that creative personality moderates the relations between employee creativity and support from work and nonwork sources. Earlier work suggests that individuals with creative personalities may highly value contextual conditions that are supportive and nourishing of their creative potential (Oldham & Cummings, 1996). If this is the case, individuals with creative personalities may respond particularly well to circumstances that provide explicit support for creativity. When such support is provided by either work or nonwork sources, employees may realize that their creative potential and contributions are valued and respond by exhibiting higher levels of creative performance. In contrast, employees with less creative personalities may devalue supportive and nourishing contexts and may respond little to efforts to support their creative work. These employees have little in the way of creative potential and may balk at direct attempts to boost their creative contributions at work. In view of these arguments, we predicted:

Hypothesis 3. Creative personality will moderate the support-creativity relations in such a way that individuals with creative personalities will respond more positively (that is, show, higher creativity) to support from work and nonwork sources than those with less creative personalities.

It is possible that the effect of personality on support-creativity relations is a function of employee mood states. Specifically, it may be that when individuals with creative personalities receive the encouragement and support they value highly, their positive mood states are elevated (or their negative moods are lowered), changes that, in turn, enhance their creativity. In contrast, since individuals with less creative personalities may devalue supportive behavior, explicit support and encouragement are less likely to enhance their mood states and subsequent creativity. We explored this possibility in our study and assessed the extent to which positive and negative moods mediated any effects of the interactions of creative personality and support on employee creativity.

METHODS

Setting, Participants, and Procedures

We conducted our research in three organizations from the Bulgarian knitwear industry. We contacted general managers from each organization and asked them to participate in the study. The managers of organizations A (495 employees) and B (509 employees) randomly selected about 20 percent of their employees for possible participation. The manager of organization C (123 employees) agreed to allow all employees to participate as long as they were present the day the study was conducted. Employee jobs were both administrative (for instance, accountant) and nonadministrative (for instance, tailor). Managers indicated that all employees worked independently of one another and were permitted, although not required, to make creative contributions at work.

We told employees that they would be paid 3,000 Bulgarian leva ($1.50) for completing a questionnaire. A total of 265 employees (85, 101, and 79 from organizations A, B, and C) of the 302 employees contacted agreed to participate, for a response rate of 88 percent. Ninety-seven percent of the participants were women, and 77 percent were married. The mean age and mean tenure were 38.5 and 9.5 years. The modal education category was "secondary." Managers indicated that the employees selected were representative of those in the organization. Moreover, we compared the job and demographic profiles of the participants to those of all employees in the organizations and found that they were very similar. For example, our organization C sample included 99 percent women and 6 percent people in administrative positions, and the all-organizations percentages were 97 percent and 7 percent, respectively.

Before completing questionnaires, employees were assigned code numbers and were assured that all information would be kept confidential. Next, the first author met individually with the supervisors of the employees. These supervisors (n = 20) completed questionnaires assessing the creativity of each employee and were paid 5,000 leva ($3.00). Each employee had one supervisor who was in a position to observe his or her work behavior on a regular basis.

The questionnaire items were developed in English and then translated into Bulgarian by a certified translator. Another translator back-translated the Bulgarian version into English. A second round of back and forth translation was then used to correct for words and phrases that had multiple meanings. Questionnaires were administered to all participants in Bulgarian.

Measures

Support for creativity from supervisors and coworkers. We developed seven items to measure this construct. Items were rated on a scale that ranged from "strongly disagree" (1) to "strongly agree" (7). The items were: "My supervisor discusses with me my work-related ideas in order to improve them"; "My coworkers other than my supervisor are almost always supportive when I come up with a new idea about my job"; "My supervisor gives me useful feedback about my ideas concerning the workplace"; "My supervisor is always ready to support me if I introduce an unpopular idea or solution at work"; "My coworkers other than my supervisor give me useful feedback about my ideas concerning the workplace"; and "My coworkers other than my supervisor are always ready to support me if I introduce an unpopular idea or solution at work."

Support for creativity from friends and family members. We developed six items to measure this construct. Items were rated on a "strongly disagree" (1) to "strongly agree" (7) scale. The items were: "My family and friends outside this organization discuss with me my work-related ideas in order to improve them"; "My family and friends outside this organization give me useful feedback about my ideas concerning the workplace"; "My family and friends outside this organization are really critical every time I come up with a new idea or suggestion about my work" (reverse-scored); "My family and friends outside this organization are always ready to listen to my ideas or thoughts about my workplace"; "My family and friends outside this organization value my ideas and suggestions about my workplace"; "My family and friends outside this

organization are almost always supportive when I come up with a new idea about my job."

Positive mood. We measured positive mood using the Job Affect Scale (JAS; Brief, Burke, George, Robinson, & Webster, 1988). This instrument is a widely used and accepted measure of mood (George, 1991). Following the procedures used in earlier studies (Brief et al., 1988; George, 1991), for each item, employees indicated how they had felt during the past week on a scale that ranged from "very slightly or not at all" (1) to "extremely" (5). The items were "active," "strong," "enthusiastic," "peppy," "elated," and "sluggish" (reverse-scored).

Negative mood. We also measured negative mood using the JAS. The items were "distressed," "scornful," "hostile," "fearful," "at rest" (reverse-scored), "nervous," and "jittery."

Creative personality. We used 15 items from Gough's (1979) Creative Personality Scale (CPS). Participants placed a check mark next to each of the adjectives that they thought described them. Using scoring procedures suggested by Gough (1979), we assigned a +1 to the items that described creative people and a −1 to the items that described less creative people.

Creative performance. This was assessed using three items developed by Oldham and Cummings (1996: 634). Items were rated on a seven-point scale. The items were: (1) "How creative is this person's work? Creativity refers to the extent to which the employee develops ideas, methods, or products that are both original and useful to the organization"; (2) "How original and practical is this person's work? Original and practical work refers to developing ideas, methods, or products that are both totally unique and especially useful to the organization"; and (3) "How adaptive and practical is this person's work? Adaptive and practical work refers to using existing information or materials to develop ideas, methods, or products that are useful to the organization."

We conducted confirmatory factor analyses of all items described above in order to check for construct independence. We first fitted a six-factor model corresponding to that predicted to the data. The comparative fit index (CFI), the adjusted-goodness-of-fit index (AGFI), and the root-mean-square residual (RMSR) were .97, .92, and .03, respectively, suggesting that this model provides a good fit. Next, we fitted five-, four-, three-, two- and one-factor models to the data. The CFIs, AGFIs, and RMSRs (respectively, .53, .66, .19; .52/.67, .20; .41, .61, .25; .37, .56, .26; and .18, .54, .26), suggested that each alternative model provided a relatively poor fit. To determine if the six-factor model represented a significant improvement in fit over the alternative models, we calculated differences in the chi-squares ($\Delta\chi^2$s) between the six-factor model and the five-, four-, three-, two-, and one-factor models. The chi-square differences were 560.11, 574.19, 721.67, 770.93, and 1,006.07, respectively. All of these differences, evaluated using the test of differences of degrees of freedom between models, were statistically significant ($p < .01$). These results indicated that the predicted six-factor model fitted the data better than the alternative models and suggested that it was appropriate to create six separate indexes.

We created a work support index by averaging scores for the supervisor/coworker support items ($\alpha = .70$). We averaged scores from the friends/family items to form a nonwork support index ($\alpha = .73$). The two support indexes were correlated at .30 ($p < .01$). We averaged item scores to form positive ($\alpha = .71$) and negative mood ($\alpha = .69$) indexes. The mood indexes were correlated at −.25 ($p < .01$). We summed values to form a CPS index ($\alpha = .82$). Reliability of this index was calculated using a weighted composite technique (see Lord and Novick [1968] for a description). We averaged scores to form a creative performance index ($\alpha = .99$). For this index, we standardized ratings by supervisor and used these scores in all analyses.

Control variables. To reduce the likelihood that individuals' demographic characteristics would confound relations examined in this research, five characteristics were measured and controlled in analyses: age (in years), education ("primary" = 1; "secondary" = 2; "higher" = 3), tenure (in years), sex (men were coded 1), and marital status (married individuals were coded 1). Also, to control for differences among the three organizations, we created two dummy variables (organizations 1 and 2).

RESULTS

Table 1 provides descriptive statistics and correlations for all measures. Marital status was the only demographic variable significantly correlated with a support measure ($r = -.20$, $p < .01$)—married employees received less support from nonwork others than did unmarried people. Creativity was positively, significantly correlated with personality ($r = .14$, $p < .05$), work support ($r = .20$, $p < .01$), nonwork support ($r = .18$, $p < .01$), and positive mood ($r = .20$, $p < .01$). Also, married employees exhibited higher creativity than those who were unmarried ($r = .13$, $p < .05$).

Before conducting regression analyses, we examined residual plots and Kolmogorov-Smirnov (KS) tests and verified that regression assumptions were met. For example, KS test results ranged from 1.05

TABLE 1
Means, Standard Deviations, and Correlations[a]

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	38.22	9.36												
2. Education	1.81	0.53	−.10											
3. Tenure	9.48	7.78	.42**	−.07										
4. Sex	0.03	0.16	−.02	.11	−.06									
5. Marital status	0.75	0.43	.14*	−.02	.03	−.01								
6. Organization 1	0.35	0.47	.28**	.13*	.23**	.01	−.13*							
7. Organization 2	0.28	0.45	.00	−.06	.10	−.06	.10	−.46**						
8. Creative personality characteristics	0.15	1.96	−.08	−.04	−.05	.00	−.09	.08	−.12					
9. Work support	4.78	1.33	.08	.01	.10	.12	.03	.14*	−.18**	.16**				
10. Nonwork support	5.05	1.41	−.07	−.03	−.12	.02	−.20**	.08	−.19**	.12*	.30**			
11. Positive mood	3.10	0.69	.06	−.00	.05	−.02	−.01	.04	−.03	.24**	.20**	.22**		
12. Negative mood	2.40	0.63	−.09	.05	.01	.00	−.03	−.07	.11	−.14*	−.26**	−.21**	−.25**	
13. Creative performance	−0.00	0.87	.05	−.01	−.06	.12	.13*	−.01	.00	.14*	.20**	.18**	.20**	−.07

[a] $n = 265$.
* $p < .05$
** $p < .01$

to 0.52 (all p's $> .05$). Details are available from the authors upon request.

We predicted that individuals' positive (Hypothesis 1) and negative (Hypothesis 2) moods would mediate the work/nonwork support-creativity relations. If a variable is to be considered a mediator of an outcome, four conditions should be met: (1) the independent variable involved should make a significant contribution to the outcome, (2) the independent variable should make a significant contribution to the mediator, (3) the mediator should make a significant contribution to the outcome, and (4) when the influence of the mediator is held constant, the contribution of the independent variable to the outcome should become nonsignificant (Baron & Kenny, 1986).

We tested hypotheses using hierarchical regression analyses. We first introduced into the equation the block of control variables and creative personality, followed by the appropriate independent and mediating variables. As shown in column I of Table 2, both support measures made significant contributions to creativity (work, $\beta = 2.14$, $p < .05$; nonwork, $\beta = 2.08$, $p < .05$), thereby meeting condition 1. We next examined whether the two support measures contributed to the mediators (positive and negative moods). The results shown in columns 2 and 3 indicate that both work and nonwork support made positive, significant contributions to positive mood (work, $\beta = 2.54$, $p < .05$; nonwork, $\beta = 2.79$, $p < .01$), and negative, significant contributions to negative mood (work, $\beta = -2.76$, $p < .01$; nonwork, $\beta = -2.23$, $p < .05$). These results meet condition 2 for mediation and suggest that support from work and nonwork sources boosts positive and lowers negative moods. To examine condition 3, we entered the controls and two mood states into an equation predicting creativity. As shown in column 4, only positive mood made a significant contribution to creativity (positive mood, $\beta = 2.66$, $p < .01$; negative mood, $\beta = 0.05$, $p > .05$) and remains a potential mediator. Hypothesis 2, positing negative mood as a mediator, was therefore rejected. To examine condition 4, we introduced the controls, positive mood, and the work/nonwork measures into an equation predicting creativity. The results in column 5 show that condition 4 is met—when positive mood is controlled for, the coefficients for work and nonwork support become nonsignificant (work, $\beta = 1.94$, $p > .05$; nonwork, $\beta = 1.67$, $p > .05$). In total, these results support Hypothesis 1 and indicate that positive mood mediates the relations between work/nonwork support and creativity.

Hypothesis 3 predicts that creative personality will moderate the support-creativity relations in such a way that individuals with high CPS scores will respond more positively to work and nonwork support than individuals with low scores. To test this hypothesis, we entered the controls, support measures, CPS, and interactions of the CPS with work support and nonwork support into a regression equation predicting creativity. The coefficients for marital status and for work and nonwork support are significant (βs = 0.15, 0.15, 0.14, respectively; p's $< .05$) as is the overall equation ($F = 2.84$, $R^2 = .13$, $p < .01$). Moreover, in line with the hypothesis, results show one significant interaction, the one between nonwork support and CPS ($\beta = -0.53$, $\Delta R^2 = .02$, $p < .05$).

TABLE 2
Summary of Regression Analysis Results

Variable	Creative Performance		Positive Mood		Negative Mood		Creative Performance		Creative Performance	
	β	t	β	t	β	t	β	t	β	t
Step 1										
Age	0.08	1.05	0.06	0.95	−0.11	−1.54	0.06	0.92	0.06	0.92
Education	−0.00	−0.03	0.02	0.33	0.03	0.50	−0.01	−0.20	−0.01	−0.09
Tenure	−0.08	−1.13	0.02	0.25	0.06	0.78	−0.09	−1.25	−0.08	−1.20
Sex	0.10	1.60	−0.04	−0.66	0.03	0.44	0.12	1.92	0.10	1.69
Marital status	0.15	2.37*	−0.01	−0.11	−0.05	−0.87	0.13	2.08*	0.15	2.32*
Organization 1	0.00	0.01	−0.02	−0.33	0.00	0.05	0.01	0.12	0.00	0.06
Organization 2	0.07	0.89	0.01	0.14	0.04	0.59	0.02	0.33	0.06	0.85
Creative personality characteristics	0.12	1.88	0.22	3.42**	−0.10	−1.56	0.11	1.67	0.09	1.42
R^2	.06		.06		.04		.06		.06	
Step 2										
Positive mood							.17	2.66**	.14	2.13*
ΔR^2							.03		.03	
Step 3										
Negative mood							.00	0.05		
ΔR^2							.00			
Step 4										
Work support	0.14	2.14*	0.16	2.54*	−0.19	−2.76**			0.13	1.94
ΔR^2	.03		.03		.05				.02	
Step 5										
Nonwork support	0.14	2.08*	0.18	2.79**	−0.15	−2.23*			0.12	1.67
ΔR^2	.02		.03		.02				.01	
R^2 for total equation	.11		.12		.11		.09		.12	
F for total equation	2.87**		3.16**		2.99**		2.29**		2.98**	

*$p < .05$
**$p < .01$

To interpret the interaction, we used procedures suggested by Aiken and West (1991). We centered the nonwork support and CPS measures on the mean. Next, we used the unstandardized beta coefficients and constants from the saturated regression equation to plot the relation between nonwork support and creative performance at different levels of CPS ratings (that is, one standard deviation above the mean represented a highly creative personality, and one standard deviation below the mean, a less creative personality).

This interaction is displayed in Figure 1. The interaction pattern is not consistent with Hypothesis 3. Specifically, individuals in the low CPS subgroup showed increasing levels of creativity as support from family and friends increased. In contrast, nonwork support had little effect on the creativity of employees with relatively high CPS scores.

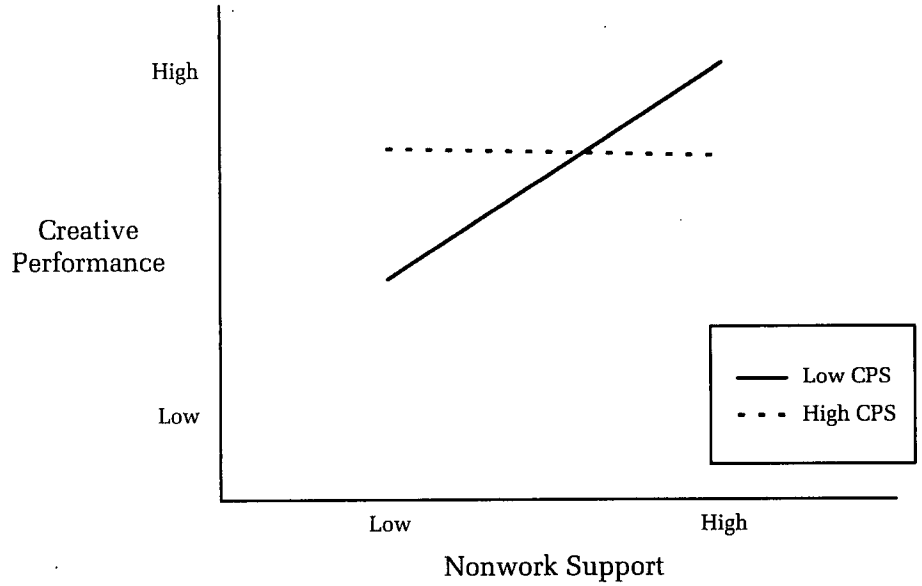
We also explored the possibility that positive mood mediated the effects of the nonwork support-by-CPS interaction on creativity. The controls, CPS, nonwork support, and the nonwork support–CPS interaction were entered into an equation predicting positive mood. The interaction failed to make a significant contribution ($\beta = 0.35$, $p > .05$), suggesting that positive mood did not mediate the effects of this interaction on creativity.

DISCUSSION

Our study showed that explicit support for creativity from work (supervisors/coworkers) and nonwork (family/friends) others made independent contributions to employees' creative performance. The findings involving support from others at work are consistent with earlier research (e.g., Amabile et al., 1996; Frese et al., 1999). However, our study was the first to show (1) that support from an adult individual's family members and friends contributed to his or her creativity at work and (2) that this support made a contribution to creativity over and above that made by support from people inside the workplace who were not family or friends.

We also explored the contributions of employees' positive and negative moods to their creativity and the extent to which these moods mediated the as-

FIGURE 1
Interaction of Nonwork Support and Creative Personality Characteristics (CPS) for Creative Performance



sociation between work/nonwork support and creativity. Consistent with results obtained in previous studies (see Isen [1999] for a review), our results showed that positive mood made a positive, significant contribution to creativity. In addition, our research was the first to empirically establish that positive mood was effective in explaining the support-creativity association. Specifically, results showed that when the influence of positive mood was controlled, the previously described statistically significant "main effects" occurring between work/nonwork support and creativity became nonsignificant.

In contrast to positive mood, in our study negative mood failed to make a significant contribution to creativity. These findings are consistent with those obtained in a few previous studies (Kaufmann & Vosburg, 1997) but inconsistent with those obtained in others (e.g., Vosburg, 1998). This pattern suggests that negative mood may have an impact on creativity only under certain conditions. Vosburg (1998) suggested one possibility. She argued that negative mood should boost creativity only when an individual's task requires an optimal solution. Research that investigates this possibility is needed.

Our study also showed that employees' creative personality (their CPS rating) moderated the relation between nonwork support and creativity but not the relation involving work support. Individuals with less creative personalities responded more positively to support from family or friends than individuals with more creative personalities. The fact that creative personality as measured by the CPS did not moderate the work support–creativity link suggests that support from individuals inside the workplace had generally positive effects—regardless of an employee's personality. Conversely, only individuals with less creative personalities received a boost from support from nonwork others. This boost was not a function of positive mood; analyses showed that the nonwork-by-CPS interaction did not affect this mood state. It may be that individuals with less creative personalities need confirmation from nonwork others that they have creative potential and that their ideas are valued. Individuals with more creative personalities may find such nonwork support redundant, given their personal qualities. Research is needed to systematically examine the mediating conditions that explain the effects of the nonwork support–CPS interaction on creativity.

We also found that the married employees in our study exhibited higher creativity, despite receiving less nonwork support than their unmarried counterparts. This result suggests that marriage may provide unique experiences or may influence psychological states conducive to creativity. For example, married employees may experience more psychological safety, which, in turn, allows them to take more risks and to be more creative at work. Research is now needed to directly investigate this and other possibilities.

Our study has two limitations involving the population included in the research. To begin, 97 percent of our participants were female. Since women may be more nurturing than men (Bem, 1981), it may be that they respond differently to support from work and nonwork others. Second, we conducted the research in Bulgaria rather than in one of the Western nations (such as the United States and Great Britain) that often serve as the context for creativity studies. It may be that different results would be obtained in different countries. On the other hand, the fact that some of our results were generally consistent with those obtained in previous studies adds weight to their generalizability and suggests that our new findings might apply cross-culturally as well.

In addition to these issues, our study is limited in a few other ways. First, we obtained only one supervisor's rating of each employee's creativity. Although it is difficult to see how systematic bias on the part of a supervisor might affect such variables as nonwork support, such bias is theoretically possible. Future research might address this issue by including objective indicators of creativity. Second, since employees provided ratings of support, mood, and personality, it is possible that relations among these constructs were inflated via common method variance. Future work should obtain independent assessments of these variables. Third, we argued throughout that support influences mood states that, in turn, affect creativity. Yet our study was not an experiment, and such causal inferences are not technically justified. It is possible that creative employees, or those in positive moods, simply received more ongoing support from others. Work is now needed that examines issues of reverse and reciprocal causality. In a related vein, although we showed that positive mood was generally effective in mediating the support-creativity link, our work does not rule out the possibility that intrinsic motivation also might have served as a mediator (Amabile, 1996). As noted earlier, although positive mood is expected to be present when individuals are intrinsically motivated, we did not include a direct measure of intrinsic motivation, which might have explained the support-creativity relations. Finally, we defined mood as a transient state that captured an individual's experience over a relatively short period of time. We followed generally accepted procedures and had employees describe moods by indicating their feelings during the past week (see George, 1991; Stokes & Levin, 1990). Our significant mood-creativity relations suggest that supervisors were reflecting upon this one-week period when rating creativity, or that employee moods extended over the time period considered by supervisors. The literature suggests that moods are less stable than affective traits but can remain relatively constant over periods of time (George, 1991). Nonetheless, it may be that our mood measures assessed permanent affective traits and that individuals with positive traits received more support from significant actors and exhibited higher creativity. Future work might address this possibility by examining the mediating effects of both affective traits and states.

Despite these limitations, results of our study have some clear implications for the management of creativity. First, they suggest that it may be possible to boost all employees' creativity if supervisors and coworkers are trained and encouraged to provide explicit support. Support from family members or friends, however, is most likely to benefit those employees with less creative personalities. This implies that organizations might consider assessing employees' personalities and encouraging those with low CPS scores to seek out support from nonwork others; or organizations might directly encourage those nonwork others to offer employees appropriate, explicit support. Our findings also suggest that employees who experience positive mood states are likely to exhibit high creativity. Thus, implementing other strategies that have been shown to enhance positive moods, such as providing informational feedback, should also have desirable effects.

In terms of future research, we suggest there is a need to examine whether support from particular individuals—a spouse or a coworker, for instance—has especially strong effects on employees' moods and creativity. Research is also needed to determine if support and encouragement of creativity from childhood families and friends have an impact on the creativity of adult employees and if this impact is independent of the impact of support from the current work and nonwork sources investigated in this study. Finally, inquiries into the possible effects on creativity of other work and nonwork conditions, including reward systems and family conflict, for instance, may also prove useful.

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