

## CREATIVE CONTRIBUTION OF INDIVIDUALS IN GROUPS: EFFECTS OF GOAL ORIENTATION AND PARTICIPATIVE SAFETY

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We proposed a construct of creative contribution, which expands the existing focus on creative performance as an isolated individual effort for generating creative ideas. Creative contribution comprises 3 components: the generation of creative ideas by an individual in a group, helping the creative performance of other group members, and stimulating the creative energy of other group members. A multilevel analysis of data from 37 teams consisting of 147 individuals showed that creative contribution was increased by learning goal orientation and decreased by performance goal orientation. A significant 3-way interaction indicated that participative safety attenuated the negative effect of performance goal orientation on creative contribution, particularly when learning goal orientation was low. The significance of multilevel dynamics between individual dispositions and social context in shaping the creative contribution of group members is highlighted in this study.

*Keywords:* creative performance, goal orientation, participative safety, work groups, creative contribution, learning goal orientation, performance goal orientation.

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By conceptualizing creativity as a process generating novel and useful ideas, scholars have established a substantial body of literature on individual and environmental factors that affect the creativity of individuals (Martinaityte & Sacramento, 2013). However, because creative performance takes place in social settings and involves social processes (Lewin, 1947), it is important to conceptualize the creative performance of individuals as social behavior rather than an isolated effort to generate ideas (Hammond, Neff, Farr, Schwall, & Zhao, 2011). This will facilitate full comprehension of creative performance.

To frame individual creativity as a social phenomenon, we introduced a construct, *creative contribution*, which is defined as an individual's creative efforts, including both individual and interpersonal behavior, to enhance the creative processes of a group. We proposed that creative contribution comprises three components: (a) generation of creative ideas by the focal person, (b) facilitation of the creative performance of other group members by providing direct assistance for creativity, and (c) development of a creative climate which stimulates the creative energy of other group members. In this study, we isolated individual and contextual predictors as well as the consequences of creative contribution, to build on the concept of individual creative performance in a social setting.

We included learning goal orientation and performance goal orientation as individual-level antecedents of creative contribution (Elliott & Dweck, 1988). Because the motivational implications of learning and performance goal orientation are pertinent to creative processes (Gong, Huang, & Farh, 2009), we proposed individual goal orientation as a significant predictor of creative contribution. We employed a multilevel perspective (Choi, Price, & Vinokur, 2003), to examine both the individual- and group-level effects of goal orientation on the creative contribution of members in a group setting.

To take into account the role of the group context, we examined the effect of participative safety (Anderson & West, 1998) as a contextual moderator of the relationship between goal orientation and creative contribution. Participative safety has been demonstrated to be a significant group-level predictor of creativity and innovativeness of group members (Haaland & Christiansen, 2002).

We have contributed to the literature by offering a broad conceptualization of individual creative performance in a group setting. We presented a preliminary conceptual model which identifies individual predictors, moderating contingency factors, and the consequences of creative contribution. As summarized in Figure 1, we examined two goal orientations as potential individual characteristics that predict the level of creative contribution of members at the individual and group level. We expected this multilevel relationship between goal orientation and creative contribution to be enhanced or attenuated by the group participative safety. Finally, we proposed that creative contribution has practical significance and affects the task performance of group members.

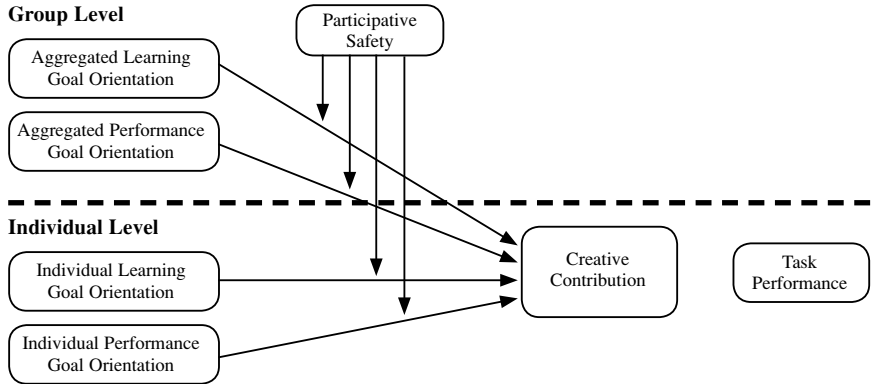


Figure 1. *Theoretical framework.*

### **Antecedents and Consequences of Creative Contribution**

The first component of creative contribution, creative idea generation, reflects the prevailing conception of individual creative performance (Choi, Anderson, & Veillette, 2009). By generating and discussing novel and useful ideas, the focal group member can contribute directly to the group's creative process. Second, members can facilitate the group's creative process by helping other members produce creative ideas, even when they themselves do not produce novel ideas. Third, a member can cultivate a creative climate that stimulates the creative energy of others. Unlike the offer of direct help, this relates to the general group climate and encourages others to think and act in creative ways and share their creative ideas. This aspect of creative contribution reflects contextual performance with regard to creativity in that it shapes a social and psychological context in which creative performance in a group setting is supported (Van Scotter & Motowidlo, 1996).

### **Learning Goal Orientation and Creative Contribution**

There are two types of goal orientation. *Learning goal orientation* refers to the desire to increase one's task competence (Dweck, 1989), whereas *performance goal orientation* reflects an eagerness "to do well and to be positively evaluated by others" (Phillips & Gully, 1997, p. 794). According to empirical evidence, learning goal orientation is positively related to creativity, whereas performance goal orientation is not a significant predictor of creative performance (Gong et al., 2009; Hirst, Van Knippenberg, & Zhou, 2009).

Because they believe that they can acquire useful knowledge and upgrade their competence by trying new things, individuals with high learning goal

orientation generate creative ideas and explore novel approaches in the conduct of their tasks (Button, Mathieu, & Zajac, 1996). In addition, on the basis of this belief that trying new things is not necessarily bad but rather leads to heightened competence (Elliott & Dweck, 1988), these individuals are also likely to induce creativity in their colleagues, thus enhancing mutual task competence. Therefore, other group members may be freed from the self-imposed restriction on creativity when interacting with a member with high learning goal orientation. This interaction would eventually raise the level of creative effort through the latter's proactive learning-oriented behavior based on his or her open attitude toward new challenges. We therefore proposed the following hypothesis:

**Hypothesis 1a:** Individual learning goal orientation will be positively related to the creative contribution of a group member.

Learning goal orientation of one group member may create a social context for other members and, at the same time, this member's creative contribution will be affected by the learning goal orientation of other members (Choi et al., 2003). Taking this multilevel process into account, we therefore proposed the following hypothesis:

**Hypothesis 1b:** Group-level aggregated learning goal orientation of group members will be positively related to the creative contribution of each member (i.e., cross-level effect).

### **Performance Goal Orientation and Creative Contribution**

Because creative contribution is a broader construct than creative performance, which is mostly concerned with individual task efforts, performance goal orientation was proposed as a negative predictor. Individuals with high performance goal orientation focus their efforts on the tasks through which they can achieve good performance, thus proving their ability (Button et al., 1996; Dweck, 1989). Therefore, they rarely challenge routines or the status quo because of the accompanying risk of failure, which may reveal their incapability (Phillips & Gully, 1997). This strong motivation to prove their mastery and ability to achieve successful task completion may predispose them to avoid risky options and exploratory or experimental approaches. Thus, those with high performance goal orientation are less likely to offer fresh ideas, help the creative thinking of others, or inculcate a creative spirit among group members. We therefore proposed the following hypothesis:

**Hypothesis 2a:** Individual performance goal orientation will be negatively related to the creative contribution of each group member.

Performance goal orientation aggregated at the group level may also exert a cross-level effect on the creative contribution of members (Choi et al., 2003). In a group composed mostly of individuals with high performance goal orientation, members may encounter a normative pressure to stay with existing tasks and

procedures to appear competent and thus save face. In such a group context, members may be discouraged from making creative contributions. We therefore proposed the following hypothesis:

**Hypothesis 2b:** Group-level aggregated performance goal orientation of members will be negatively related to the creative contribution of each group member.

### **Interaction Between Learning and Performance Goal Orientation**

Given that learning goal orientation and performance goal orientation constitute independent dimensions (Button et al., 1996), and may have an opposite effect on creative contribution, it is plausible to expect a negative interaction between them. In other words, the positive effect of high learning goal orientation on creative contribution could be diminished by the simultaneous presence of high performance goal orientation. Thus, a positive association between learning goal orientation and creative contribution may be observed only when performance goal orientation is not high, and group members are relieved of a narrow focus on well-learned behavior and routines. We therefore proposed the following hypothesis:

**Hypothesis 3:** Individual level and group-aggregated levels of learning goal orientation and performance goal orientation will show a negative interaction when predicting the creative contribution of a group member.

### **Participative Safety as a Contextual Moderator**

*Participative safety* is a psychological concept in which “the contingencies are such that involvement in decision-making is motivated and reinforced while occurring in an environment which is perceived as interpersonally non-threatening” (West, 1990, p. 311). By encouraging information sharing, participation, and trust among members, participative safety increases team creativity and innovation (Anderson & West, 1998). Unlike most researchers who have focused on the main effect of participative safety on group outcomes, we examined its moderating function in a group climate. Specifically, drawing on the notion of trait activation (Haaland & Christiansen, 2002; Tett & Guterman, 2000), we suggested that participative safety may promote the effect of learning goal orientation and suppress the effect of performance goal orientation on creative contribution.

Participative safety is likely to strengthen the positive effect of learning goal orientation on creative contribution by providing a nonthreatening group climate in which members can express their ideas freely without worrying about potential penalties (Anderson & West, 1998; Hülshager, Anderson, & Salgado, 2009). In such a group context, members with high learning goal orientation are encouraged to behave according to their personal inclination toward proactive learning and to stretch the limits of existing routines (Button et al., 1996). Thus,

participative safety may activate the congruent individual disposition of learning goal orientation so that it guides individual behavior (Tett & Guterman, 2000). We therefore proposed the following hypothesis:

**Hypothesis 4:** Participative safety will moderate the positive relationships between individual and group-aggregated levels of learning goal orientation and the creative contribution of group members. The relationships will be more positive when participative safety is high than when it is low.

Conversely, participative safety may attenuate the negative relationship between performance goal orientation and creative contribution. We suggested that, in line with trait activation theory (Tett & Guterman, 2000), participative safety may effectively reduce the relevance of performance goal orientation in the given context and thus suppress its negative effect on creative contribution. Furthermore, when the group atmosphere encourages the participation of members in the decision-making process, a creative contribution may no longer be construed as risky behavior, but as legitimate or even rewarded behavior (Hirst et al., 2009). We therefore proposed the following hypothesis:

**Hypothesis 5:** Participative safety will moderate the negative relationships between individual and group-aggregated levels of performance goal orientation and the creative contribution of group members. The relationships will be more negative when participative safety is low than when it is high.

Thus far, the potential negative effect of performance goal orientation on creative contribution has been theorized to be attenuated by an alternative motive of group members (i.e., learning goal orientation in Hypothesis 3) or by a supportive group context (i.e., participative safety in Hypothesis 5). These two moderating hypotheses suggest that learning goal orientation and participative safety may perform a similar function in the relationship between performance goal orientation and creative contribution. Given this functional equivalence of the two moderating variables, the moderating effect of one variable may be more pronounced when the other variable is not present than when the other variable also performs its moderating function. For example, when learning goal orientation is low, participative safety operates as a moderator. In contrast, the presence of high learning goal orientation may substantially diminish the added value of participative safety as a driver for creative contribution, making it redundant (Button et al., 1996; Gong et al., 2009). This indicates a three-way interaction between performance goal orientation, learning goal orientation, and participative safety. We therefore proposed the following hypothesis:

**Hypothesis 6:** The moderating effect of the participative safety on the relationships between individual and group-aggregated levels of performance goal orientation and the creative contribution of group members will be stronger when individual and group-aggregated levels of learning goal orientation are low than when they are high.

### **Task Performance as a Consequence of Creative Contribution**

There is a prevailing assumption in the current business environment that creativity is related to task performance. This assumption has, however, rarely been put to an empirical test, particularly at the individual level (Martinaityte & Sacramento, 2013). We proposed, in this study, that the creative contribution of a group member will relate positively to his/her task performance according to the three components of creative contribution. First, in many work-group settings, suggesting original and useful ideas is becoming critical to the completion of the task (Choi et al., 2009). Second, helping other group members to generate creative ideas should be positively recognized by others and improve a person's overall performance. Third, given that the interpersonal facilitation construct of contextual performance is positively related to performance evaluation in the shaping of a constructive social and psychological work climate (Van Scotter & Motowidlo, 1996), stimulating the creative energy of other group members will be positively appraised as being beneficial for the entire group. Thus, similar to organizational citizenship behavior and other extrarole behaviors, creative contribution has practical significance as a positive predictor of individual task performance. We therefore proposed the following hypothesis:

**Hypothesis 7:** Creative contribution will be positively related to individual task performance.

## **Method**

### **Participants and Procedure**

Data were collected from undergraduate business students from a major university in North America. The data were collected in three waves: at the 4th week (T1), the 8th week (T2), and the 12th week (T3) of the semester. We used temporal separation to reduce the threat of same method variance. Of the 174 students comprising 39 teams, 151, 128, and 173 students participated in the survey at T1, T2, and T3 respectively. When we had removed groups with fewer than three participants, the final analysis sample comprised 147 students from 37 teams, of whom 60.5% were women. The response rates were 84.5% and 94.9% at the individual- and group-level analysis, respectively. The average age and time at the university were 19.6 years and 2.3 years (1 = freshmen, 2 = sophomore, 3 = junior, 4 = senior), respectively.

### **Measures**

The study variables were measured at three time points. At T1, participants reported demographic characteristics and goal orientations that reflected their trait-like, personal dispositions. At T2, participants, reflecting on their interaction with other team members over the previous eight weeks, rated the participative

safety of the team, the creative contribution of each teammate, and the frequency of their interaction with each teammate. At T3, after all team projects had been completed, participants evaluated the overall task performance of each member of their group in completing team assignments.

**Individual goal orientation (T1).** Participants' goal orientation was measured by two scales developed by Button et al., (1996). A sample item in the four-item learning goal orientation scale ( $\alpha = .82$ ) is "The opportunity to do challenging work is important to me." A sample item in the three-item performance goal orientation scale ( $\alpha = .72$ ) is "I like to work on tasks that I have done well on in the past." Each item was rated on a 7-point scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. Individual responses on the two scales were aggregated to the group level using the mean to capture the overall inclination toward either learning or performance goals among the members.

**Participative safety (T2).** Four items were adopted from Anderson and West's (1998) Team Climate Inventory ( $\alpha = .87$ ) to measure team participative safety. Sample items are "We have a 'we are in it together' attitude" and "We feel understood and accepted by each other." Items were rated on the same 7-point scale used for goal orientation. The ICC(1) and ICC(2) coefficients were .34 and .67, respectively, indicating acceptable between-group variance and group-level reliability.

**Creative contribution (T2).** We developed a three-item scale ( $\alpha = .93$ ) to measure creative contribution. Items are "This member generates original ideas that are valuable toward the team goal" (i.e., creative idea generation), "I tend to come up with new and valuable ideas when I interact with this member" (i.e., facilitation of creativity of other members), and "When I work with this member, I feel that my creative energy is stimulated" (i.e., stimulation of creative energy). Each team member independently evaluated the creative contribution of other members on a 10-point scale ranging from 1 = *never* to 10 = *almost always*. Ratings of each member's teammates were averaged to obtain a single score of creative contribution. The upped Spearman-Brown reliability index, which determines interrater agreements (Rosenthal & Rosnow, 1991), was .60 for peers' ratings of the creative contribution of the focal member.

**Task performance (T3).** The task performance of participants was assessed through peer evaluation, in which each member distributed 100 points to the other members of the team on the basis of their performance in completing team tasks. The task performance of the focal member was computed by summing the points he/she received from the other members. Interrater agreement calculated through the upped Spearman-Brown reliability formula was .83 for the task performance scale.

**Control variables.** To avoid possible biases associated with the demographic characteristics of participants, two demographic variables were included in the



analysis. Age (in years) and gender were effect coded (-1 = male, 1 = female). In addition, when the relationship between creative contribution and task performance was tested, the potential confounding effect of personal working relationships was controlled by including a measure of interaction frequency involving the focal member.

## Results

Descriptive statistics and correlations among the variables at individual and group level are shown in Tables 1 and 2, respectively.

Table 1. *Descriptive Statistics and Bivariate Correlations at Individual Level*

Individual level variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. Age	19.56	1.38	--						
2. Gender <sup>a</sup>	.21	.98	.02	--					
3. Learning goal orientation	5.78	.82	-.02	.19*	--				
4. Performance goal orientation	5.34	1.06	.28*	-.15	-.08	--			
5. Creative contribution	6.39	1.62	.12	.19*	.23*	-.13	--		
6. Interaction frequency	6.81	1.58	.10	.21*	.13	-.08	.63**	--	
7. Task performance	99.17	11.35	-.11	.13	.20*	-.11	.36**	.36**	--

Note. *N* = 147. \*  $p < .05$ , \*\*  $p < .01$ . <sup>a</sup> Gender (-1 = male, 1 = female).

Table 2. *Descriptive Statistics and Bivariate Correlations at Group Level*

Group level variables	<i>M</i>	<i>SD</i>	1	2	3	4
1. Aggregated learning goal orientation	5.77	.43	--			
2. Aggregated performance goal orientation	5.32	.58	-.09	--		
3. Participative safety	5.47	.79	.19	.26	--	
4. Aggregated creative contribution	6.46	1.22	.22	-.15	.44**	--

Note. *N* = 37. \*\*  $p < .01$ .

Taking into account the interdependence and shared experiences among the participants in the same team, as well as the hypotheses encompassing multiple levels, we tested the hypotheses using hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002). The HLM results for the equations that predict creative contribution and task performance are reported in Tables 3 and 4, respectively.

### Goal Orientation and Creative Contribution

Multilevel analysis results indicated that the two goal orientation variables had significant implications for the creative contribution of members in a team setting. At the individual level, learning and performance goal orientation were

related to creative contribution in the expected direction ( $\beta = .29, p < .05$  and  $\beta = -.18, p < .05$ , respectively). These effects were also demonstrated in the group-level analysis, indicating that aggregated learning goal orientation and performance goal orientation were significant positive and negative predictors respectively of the creative contribution of the members of the group ( $\gamma = .99, p < .05$  and  $\gamma = -.62, p < .01$ ). As the data provided empirical support for the main effects of goal orientation on creative contribution, Hypotheses 1a, 1b, 2a, and 2b were supported.

The hypothesized interaction between the two goal orientations in predicting creative contribution was significant at the individual level ( $\beta = -.35, p < .05$ ), but not at the group level ( $\gamma = .95, ns$ ). To better interpret the result, the interaction pattern was plotted using simple slope analysis (Aiken & West, 1991). Learning goal orientation of individuals was a significant predictor of creative contribution only when performance goal orientation was low ( $b = .66, p < .01$ ), and not when it was high ( $b = -.08, ns$ ; see Figure 2). Thus, Hypothesis 3 was supported only at the individual level.

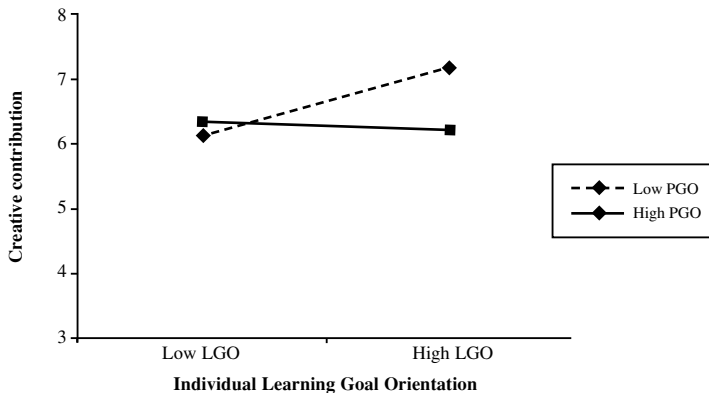


Figure 2. Effect of individual-level interaction between learning and performance goal orientation on creative contribution.

### Moderating Role of Participative Safety

Participative safety was proposed as a cross-level and group-level moderator of the relationship between goal orientation and creative contribution. Cross-level moderation by participative safety was tested (see Model 2 in Table 3). As none of the hypothesized moderating effects was significant, Hypothesis 4 was not supported. At the group level, participative safety showed a significant positive main effect on creative contribution ( $\gamma = .73, p < .01$ ; see Model 3 in Table 3).

Table 3. *Hierarchical Linear Model: Effects of Goal Orientation and Participative Safety on Creative Contribution*

Variable	Null model	Model 1	Model 2	Model 3
<b>Step 1: Individual-level analysis</b>				
Age		.25*	.24*	.24*
Gender		.33*	.29*	.24
Individual LGO		.29*	.28*	.28*
Individual PGO		-.18*	-.19*	-.19
Individual LGO × Individual PGO		-.35*	-.25	-.10
<b>Step 2: Cross-level analysis</b>				
Individual LGO × PS			-.04	-.04
Individual PGO × PS			-.25	-.26*
Individual LGO × Individual PGO × PS			.07	-.15
<b>Step 3: Group-level analysis</b>				
Participative safety (PS)			.60*	.73**
Aggregated LGO				.99*
Aggregated PGO				-.62**
Aggregated LGO × Aggregated PGO				.95
Aggregated LGO × PS				-.31
Aggregated PGO × PS				1.44**
Aggregated LGO × Aggregated PGO × PS				-2.72**
Individual-level variance ( $\sigma^2$ )	1.88	1.48	1.47	1.51
Change in variance ( $\Delta\sigma^2$ )		.40	.01	n/a
Proportion in explained variance		21.28%	.00	n/a
Group-level variance ( $\tau_0$ )	.83	1.09	.92	.61
Change in variance ( $\Delta\tau_0$ )		n/a	.17	.31
Proportion in explained variance		n/a	15.60%	33.70%

Note. PGO = Performance goal orientation; LGO = Learning goal orientation; PS = Participative safety; \*  $p < .05$ ; \*\*  $p < .01$ .

In addition, participative safety significantly moderated the relationship between aggregated performance goal orientation and creative contribution ( $\gamma = 1.44, p < .01$ ). Aggregated performance goal orientation was negatively related to creative contribution when participative safety was low ( $b = -1.76, p < .01$ ), but this negative effect disappeared when participative safety was high ( $b = .52, ns$ ; see Figure 3). Hypothesis 5 was thus supported.

The three-way interaction proposed in Hypothesis 6 was not significant at the individual level as based on the cross-level moderation of participative safety ( $\gamma = -.15, ns$ ; see Model 2 in Table 3). Group-level analysis, however, showed a significant three-way interaction ( $\gamma = -2.72, p < .01$ ), which is plotted in Figure 4. Thus, Hypothesis 6 was supported only at the group level.

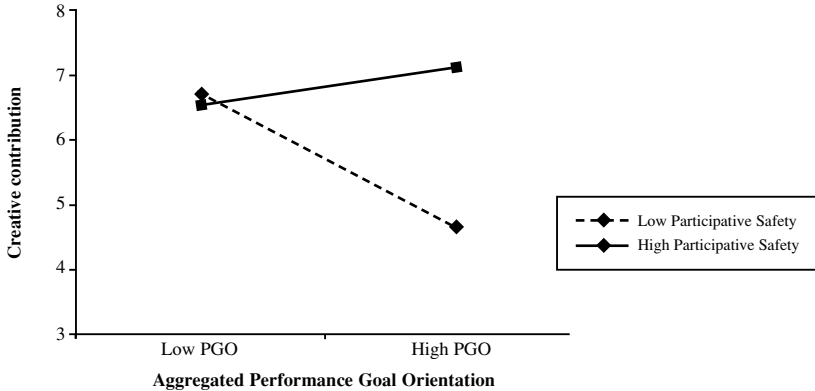


Figure 3. Group-level moderation effect of participative safety on the relationship between aggregated performance goal orientation and creative contribution.

As expected, under the condition of high aggregated learning goal orientation, the effect of aggregated performance goal orientation on creative contribution did not change when participative safety was high ( $b = .00$ ,  $ns$ ) as it did when it was low ( $b = -.43$ ,  $ns$ ; slope difference test,  $p > .47$ ). In contrast, under the condition of low aggregated learning goal orientation, participative safety manifested its effect as a contextual moderator. Specifically, in groups with low aggregated learning goal orientation, performance goal orientation was negatively related to creative contribution when participative safety was low ( $b = -3.09$ ,  $p < .01$ ). This relationship became slightly positive when participative safety was high ( $b = 1.03$ ,  $p < .10$ ; slope difference test,  $p < .01$ ). Similarly, the moderating role of aggregated learning goal orientation in the relationship between aggregated performance goal orientation and creative contribution was more salient when participative safety was low (slope difference test,  $p < .05$ ) than when it was high (slope difference test,  $p = .10$ ). These patterns clearly demonstrate the complementarity of the context (participative safety) and the individual property (learning goal orientation) in buffering the negative effect of performance goal orientation.

### Creative Contribution and Individual Performance

Hypothesis 7 was also tested by HLM. As reported in Table 4, age and gender were not significant predictors of task performance. However, participants received high performance ratings when they had frequent interactions with other members ( $\beta = 2.69$ ,  $p < .01$ ). As creative contribution was a significant predictor of task performance ( $\beta = 1.68$ ,  $p < .01$ ) even after controlling for the effect of interaction frequency, Hypothesis 7 was supported. This pattern offers evidence

that creative contribution has substantive value in the performance of members in work teams.

Table 4. *Hierarchical Linear Model: Main Effect of Creative Contribution on Task Performance*

Variable	Null Model	Model 1	Model 2
Age		-1.17	-1.48*
Gender		.52	-.07
Interaction frequency		2.69**	1.88**
Creative contribution			1.68**
Individual-level variance ( $\sigma^2$ )	128.71	101.45	84.12
Change in variance ( $\Delta\sigma^2$ )		27.26	17.33
Proportion in explained variance		21.18%	17.08%

Note. \*  $p < .05$ ; \*\*  $p < .01$ .

## Discussion

In this study we introduced a construct of creative contribution to the social domain as an expansion of individual creative performance. This broad conceptualization of individual creative performance may adequately capture group members' contribution related to creativity, in various settings that require the collective and coordinated efforts of multiple individuals to complete a task.

Our findings are consistent with those in recent studies (Gong et al., 2009; Hirst et al., 2009), by indicating that learning goal orientation is positively related to the expanded notion of individual creative efforts and creative contribution. On the other hand, performance goal orientation was negatively related to creative contribution. Strong performance orientation, which may reflect group members' egocentric performance desire, seems to reduce creative contribution. The multilevel analysis showed that goal orientation variables had a stronger effect on creative contribution when they were conceived of as a group context variable and aggregated to the group level, rather than when they were treated as individual dispositions.

The negative interaction between the two goal orientations as depicted in Figure 2 reflects their opposing roles in creative performance. Individuals with high performance goal orientation may experience difficulty in accruing creative benefits from their learning goal orientation because they are concerned with the evaluation of others. This directs their attention to the negative consequences of possible failure. In contrast, those with low performance goal orientation are not hampered by these defensive concerns and are, thus, able to utilize fully the creative energy and resources supplied by learning goal orientation.

Our findings confirm the positive effect of participative safety as a facilitator of creative processes in groups (Anderson & West, 1998). Participative safety also

helped the group by buffering the negative effect of performance goal orientation at the group level. Furthermore, the three-way interaction pattern suggests that, under high participative safety, group members with high performance goal orientation can actually make a greater creative contribution than can those with low performance goal orientation (see Figure 4, line 2). This counterintuitive pattern appeared when group members reported low learning goal orientation. This is consistent with the findings of Choi et al., (2009), that employees with few individual resources, such as creative ability, gain greater benefit from contextual support such as an innovative organizational climate. In this study, groups with low learning and high performance goal orientation seemed to respond most positively to participative safety. The three-way interaction pattern also suggests that a group is substantially worse off when it is characterized by high performance goal orientation, low learning goal orientation, and low participative safety than it is in any other situation. A group without any of these three undesirable conditions may be saved from havoc.

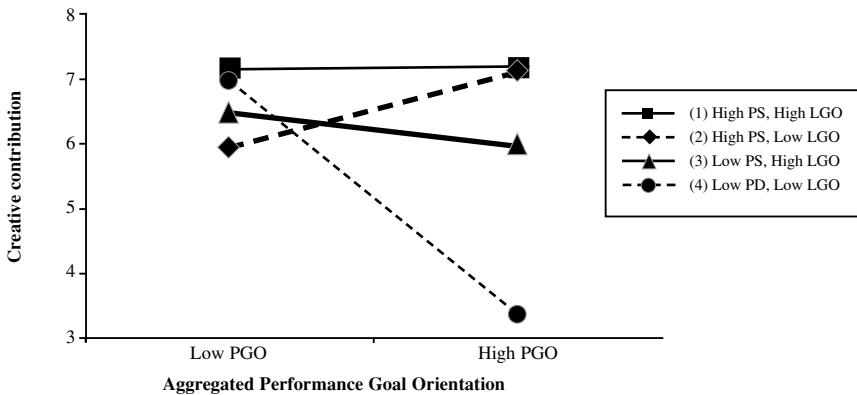


Figure 4. *Three-way interaction between participative safety, aggregated learning goal orientation, and aggregated performance goal orientation.*

Assumptions concerning the practical value of creativity for individual, group, and organizational effectiveness, tend not to be tested in the literature (Martinaityte & Sacramento, 2013). In this study we demonstrated that creative contribution had a positive implication for the task performance of an individual as rated by other group members. Future researchers should investigate further the effect of the creative contribution of a member on the creativity of others, as well as on group outcomes such as group creativity and performance.

There are several limitations in this study. First, although the sample involved intact teams with task and goal interdependence, and histories of interaction, they

were composed only of students. The results may, thus, not be generalizable to other settings such as work groups in actual organizations. Second, the validity of the creative contribution measure needs to be further examined both conceptually and empirically. Third, in relation to the construct validity of creative contribution, it is important to investigate whether or not creative contribution is significantly related to increased creativity of other group members and enhanced team creative performance.

Nevertheless, we have introduced a creative contribution construct that better captures the desirable group member behavior necessary to enhance creative processes in work teams. In addition, we proposed, and empirically demonstrated, the multilevel dynamics of learning goal orientation and performance goal orientation that operate as a group context for the members' creative efforts. A three-way interaction in which participative safety and learning goal orientation performed complementary roles in buffering the negative effect of performance goal orientation on creative contribution was also revealed. This pattern suggests an intriguing dynamic through which individual dispositions and social context work together to shape individual behavior in groups. Future researchers should investigate the multilevel mechanisms through which individual creativity, creative contribution, and group creativity are shaped and how these contribute to the shaping of one other.

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