CREATIVITY RESEARCH JOURNAL, *24*(2–3), 208–219, 2012

ISSN: 1040-0419 print/1532-6934 online
DOI: 10.1080/10400419.2012.677345

Routledge
Taylor & Francis Group

Creativity in Its Social Context: The Interplay of Organizational Norms, Situational Threat, and Gender

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Past research has frequently made the assumptions that creativity is an individual, rather than social, behavior; that the factors shaping creative behavior influence everyone in the same way; and that these factors always have the same influence regardless of the situation. This research challenges all 3 of these assumptions. In an experiment, participants ($n = 187$) assumed the role of members of a business organization with either individualist or collectivist norms that was either under competitive threat or not. Results indicated that, when threat was absent, men exhibited more divergent thinking under individualist than collectivist norms. However, the reverse was true for women when threat was absent and for both sexes when their organization was under threat. Thus, a group norm emphasizing individuality can sometimes enhance divergent thinking performance. However, this influence is moderated by other situational factors such as competitive threat, and, possibly for reasons of differing socialization, does not appear to affect men and women equally.

Globalization has brought together peoples and organizations of all backgrounds and cultures. Especially in the context of increased global economic competition, companies are trying to generate, improve, and market new products and services. Perhaps as a result of this, there has been considerable academic focus and managerial effort regarding shaping organizational cultures to maximize creativity and innovation (George & Zhou, 2002; Hurst, Rush, & White, 1996). In the course of this, cultural and other contextual differences in individual and organizational creativity become apparent (e.g., Simonton & Ting, 2010). Specifically, research has shown that organizational norms seem to influence creative behavior (Goncalo & Staw, 2006; Woodman, Sawyer, & Griffin, 1993), and are, themselves, dynamic and reactive to cultural pressures (Balthazard, Cooke, & Potter, 2006; Cooke & Szurnal, 2000). This research recognizes that creativity occurs within a cultural and institutional context, and that the context-dependent nature of creative behavior has shaped the structure of many innovative organizations (e.g., IBM, 3M, Toyota).

Threat has been shown to have the potential to dramatically influence the effect of norms on behavior (Elder & Clipp, 1988; Rofe, 1984; Jetten, Postmes, & McAuliffe, 2002). In addition, threat shapes creative and innovative behavior, although it is not clear whether it necessarily undermines or enhances it (Amabile & Conti, 1999; Cascio, 1993). Previous research has tacitly assumed that cultural norms influence the creative behavior of all members of an organization equally across different situations. The present research, however, examines the impact of organizational norms on creative behavior as a function of whether there is an explicit threat to the organization (and, therefore, to the individual members) or not.

Another focus of our research is on the different experiences of men and women in organizational contexts (Castilla & Benard, 2010; Gherardi, 2003), which are at least in part the result of gendered socialization (e.g., Gabriel & Gardner, 1999). Gendered socialization process may have tended to orient men and women differently toward individualist or collectivist organizational norms, with important implications for creative behavior.

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THE IMPACT OF CULTURAL NORMS ON CREATIVITY

Classic research by Roethlisberger, Dickson, and Wright (1939) showed that employees' behavior was more influenced by group norms than by the physical work environment or even by monetary reward. Managers have also realized that local organizational norms are critical for the nature and productivity of an organization (Balthazard et al., 2006), often sparking extended efforts to shape organizational culture in ways that, it is hoped, will maximize the desired output (Caldwell & O'Reilly, 2003).

Previous research into organizational norms has often relied on the well-known individualism–collectivism framework (Earley & Gibson, 1998; Goncalo & Staw, 2006; Oyserman, Coon, & Kemmelmeier, 2002). Although originally developed by Hofstede (1980) and others (e.g., Triandis, 1995) to describe cross-cultural differences, it has been useful in organizational research because of the different orientations these two value sets seem to imply regarding groups and organizations (see also Oyserman et al., 2002). Specifically, the concept of individualism refers to a set of values in which autonomy, individual differences, and the pursuit of personal goals, often driven by self-interest, is emphasized. Conversely, collectivism refers to a set of values in which group unity and solidarity and the pursuit of group or team goals is valued above the pursuit of personal goals (Markus & Kitayama, 1991). Both sets of values are clearly relevant to organizational life. For instance, collectivist values foster organizational coherence and reduce social loafing (Earley, 1989, 1993). On the other hand, individualist values foster personal ambition and achievement (Locke et al., 2001; Nelson & Shavitt, 2002). Therefore, like others before us (Goncalo & Staw, 2006), one question we posed is whether individualist or collectivist norms are more likely to maximize creativity.

Past research clearly favors individualist norms as antecedents to creativity in an organizational context (Goncalo & Staw, 2006; Kanter, 1988). For instance, Goncalo and Staw primed participants such that either individualism or collectivism was salient. Groups of participants then generated problem-solving ideas and were asked to choose either the most practical idea generated or the most creative, depending on the experimental condition. Although there were no main effects for culture or any of their measures (number of ideas generated, divergent ideas, and the creativity of ideas), they did find that individualist groups were more creative than collectivist groups when there were specific instructions to be creative.

An explanation of the idea that creative behavior is associated with individualism is that creative idea generation is assumed to require a departure from the thought patterns of other group members and, thus, represents a display of individuality. By implication, norms that encourage individuality give license to individuals to challenge the status quo. Conversely, the expectation of group solidarity inherent in collectivism is more likely to orient individuals toward consensus, cooperation, and equality among group members, thus discouraging the unique ideas that would emphasize differences between group members.

At the same time, it would be a mistake to conclude that collectivist norms encourage conformity, whereas individualist norms do not. This view, however, was put forth by Goncalo and Staw (2006) who argued that adherence to group norms was a characteristic of collectivism, whereas the absence of adherence to group norms was linked to individualism. Research on the interplay of social identity and group norms has clearly demonstrated that both members of individualist and collectivist groups exhibit conformity to their group's norms, even when these norms are fundamentally different (e.g., Jetten, Postmes, & McAuliffe, 2002; McAuliffe, Jetten, Hornsey, & Hogg, 2003). Although under individualist norms people are expected to distinguish themselves from others, there is conformity in the sense that all members of such a group behave in more or less the same way. In other words, the emphasis on personal uniqueness and *differentness* is a mass phenomenon even when the individual may not be aware that they are conforming to individualist group norms. Collectivist norms, on the other hand, require individuals to fall in line with an existing consensus and norms that emphasize group cohesion, permitting only minimal expressions of individuality. Applied to creativity, this means that individualist norms communicate to group members that the display of uniqueness is not only tolerated, but expected, whereas the opposite might be true in collectivist norm environments. Hence, it can be expected that creativity is higher under individualist norms. The notion that participants adhered to individualist norms, rather than participants in the individualist condition being liberated from, or suffering a reduced influence of, group norms reflects a reinterpretation of the findings by Goncalo and Staw.

THE IMPACT OF THREAT ON CREATIVITY: TWO COMPETING HYPOTHESES

There have been a number of different ways in which theorists have assumed that the experience of threat affects creativity. There are essentially two contrasting perspectives, which can be described in terms of their central hypotheses.

The first hypothesis states that threat undermines the cognitive flexibility and fluency that facilitates divergent

thought and, instead, promotes increased rigidity. When threatened, individuals may turn their attention to the threatening stimuli and rely on previously established responses (e.g., Easterbrook, 1959; Zajonc, 1966). This increased reliance on the use of schemas and the reduced capacity to think divergently causes individuals to be less successful in arriving at problem solutions that are new and innovative. This *threat rigidity hypothesis* has substantive support in the literature (see Staw, Sandelands, & Dutton, 1981, for a review). For example, Smith, Michael, and Hocevar (1990) showed that anxiety about taking a test disrupted cognitive fluency and reduced performance at a divergent thinking task (see also Runco, 1994). Similarly, Kruglanski and his colleagues found that stress often induces a need for closure that inhibits ideational fluency, a critical component of divergent thinking (e.g., Kruglanski & Webster, 1996).

The second hypothesis is diametrically opposed to the first one. The *threat mobilization hypothesis* argues that it is precisely under conditions of urgency and threat that individuals are motivated to explore novel solutions to solve pressing problems. For example, in times of war or impending disaster, and with access to limited resources, people have often generated technologies and ad-hoc solutions that proved to be highly successful. A case in point is the invention of radar and the optimization of the jet engine during WWII (Warsitz, 2009), or the rescue of Apollo 13, which would have perished along with the crew had it not been for the timely invention and repurposing of devices (Goldberg, 2004).

Although the preponderance of the literature suggests adverse effects on creative performance, other research demonstrates the potential of stress to enhance it. Runco (1994) found that threat may increase sensitivity to, or salience of, a problem and provide the motivation to seek an innovative solution. This increased focus can result in enhanced creative performance. Also, in the Jungian framework for considering creativity developed by Smith and Van der Meer (1994), stress is considered beneficial to the creative process. Further, in a meta-analysis, Matthews (1986) cited three studies that show deleterious main effects of stress on creative performance (Tapasak, Roodin, & Vaught, 1978; Upmanyu, Gill, & Singh, 1982; White, 1968), and two others that do not (Di Scipio, 1971; Leith, 1972). Therefore, it appears that the issue as to whether threat mobilizes creative behaviors is, as of yet, unresolved.

THE IMPACT OF NORMS AND THREAT ON CREATIVITY: INTERACTIVE HYPOTHESES

In this research, our focus is not merely on contrasting the two *main effects* hypotheses of norms and threat, but rather to ask how the experience of threat moderates the influence of different organizational or cultural norms on creativity. A central insight in this regard is that groups and, by extension, organizations help buffer individuals against some of the potentially adverse psychological consequences of threat, which Baumeister and Leary (1995) argued is at the center of why people need to belong. Moreover, being a member of a group can also be empowering and allow individuals to deal with a competitive situation collectively with much better results than they could hope to achieve alone (e.g., Hertel, Kerr, & Messé, 2000). As a result, people under threat should likely turn to their in-groups, which not only mitigates stress, but also enables them to act with and in favor of their in-group, thereby reducing the threat itself. The literature regarding experiencing threat in group contexts suggests that this may take two different forms.

The *group norm amplification hypothesis* specifies that the presence of external threat to the group renders group boundaries highly salient (Christian, Gadfield, Giles, & Taylor, 1976), with individuals experiencing heightened awareness of their group and its norms. Based on Turner, Hogg, Oakes, Reicher, & Wetherall's (1987) self-categorization model, greater salience of in-group norms should promote greater adherence to those norms. As a result, differences in norms should become more evident in the behavior of group members under threat, which is precisely what Jetten et al. (2002) found.

If it is the case that individualist norms promote divergent thinking and collectivist norms inhibit it, the group norm amplification hypothesis would predict that people in individualist groups are more creative than those in collectivist groups when both groups are under threat—more so than when threat is absent. Note that for this prediction to hold, it is critical that the analyst be able to not only predict the influence of norms on creativity ahead of time, but also that the threat itself does not alter the effect of norms on creative behavior. Both assumptions may appear plausible, but for creative behavior, they are far from established. In contrast to the aforementioned group norm amplification hypothesis, the *group affiliation hypothesis* does not assume that threat simply renders preexisting tendencies stronger, but rather that the experience of threat reshapes individuals' relationships with their group and its norms. When a group is under threat, there might be a tendency to pull together and support the group in the face of the treat. As a consequence, threat should have a highly mobilizing effect on individuals' creative efforts to support their group's success and survival, and, by implication, the success of every individual within the group. However, groups with existing collectivist norms are more likely to support this group-oriented behavior on the part of their members. In other words, when individuals orient themselves toward the collective, this is most

likely to result in creative behavior when such collectivist action has been embraced by the group all along; that is, when the situationally triggered behavior is congruent with preexisting norms. Note that the group affiliation hypothesis does not assume that there is a stable relationship between group norms and creativity such that individualist norms always promote greater creativity. Rather, the group affiliation hypothesis draws attention to the fact that creative behavior is embedded within a group context, and the fact that creative tendencies might be most successful when individual motivation and goals are congruent with those of the group.

THE IMPACT OF GENDER ON CREATIVITY: A GENDER BY NORMS INTERACTION

People have long studied potential gender differences in creativity (Baer, 2008; Kaufman, Baer, Agars, & Loomis, 2010; Runco, Cramond, & Pagnani, 2010). This topic has been quite controversial because the apparent dominance of men in the domain of creative accomplishment in science, business, and the arts could reasonably be explained with preexisting structural disadvantages for women (e.g., Csikszentmihalyi, 1988; Kaufman & Baer, 2002; Piirto, 1991). Presently, no assumptions of one gender being inherently more or less creative than the other are made. Rather, attention is focused on long-documented socialization differences between men and women, and explores the interaction between gender and creativity in different organizational environments. There is a well-known tendency of women to be socialized to be more nurturing and more oriented toward interpersonal relationships, focusing more on the needs of others than is the case for men. By comparison, the gender-role socialization of men tends to focus more on agency and establishing themselves as separate from others (Bakan, 1966; Cross & Madson, 1997; Oyserman & Markus, 1990).

These socialization differences have implications for creative behavior under different group norm conditions. If one argues that the emergence of creativity hinges, at least in part, on the congruence between individual behavioral tendencies and existing group norms, then different genders might be more or less creative under different conditions. The finding that individualist group norms promote creative behavior is most likely to hold for men and their agentic orientation, as men might feel that these group norms foster their own individuality and creative achievement. Put differently, men's preexisting tendency toward independence and agency might more readily translate into creative action in a group environment where independence and agency are part of the norm. By contrast, for women it might be precisely social environments that foster interpersonal solidarity and cooperation that are most conducive to creativity, since women's interdependence is congruent with collectivist group norms. In other words, creativity might be, at least in part, a matter of how well a particular organizational environment supports, is congruent with, or even nurtures the mindset of the individual.

At the same time, human behavior is often shaped by situational demands, an assumption that is already inherent in our prediction that group norms and situational threat cause considerable variations in creative behavior. With regard to gender, any existing behavioral or motivational differences on the part of men and women are qualified by situational demands, as well. Specifically, men and women's behavioral differences may only emerge in the absence of overriding situational demands (e.g., Klein & Hodges, 2001). But when demands occur, for instance in an emergency or when their organization is under threat, it can reasonably be expected that gender differences are somewhat overruled or disappear altogether. That is, under threat the situation might no longer afford men and women the freedom to express preexisting motivational preferences. Rather, both men and women should pull together under stress in similar ways to save their group or organization.

THE PRESENT RESEARCH

This is an experimental study that varied individualist versus collectivist organizational norms to examine the impact on the generation of creative ideas in men and women. Crossed with the experimental manipulation of organizational norms, competitive threat to the organization was also varied; that is, whether it occupied a stable and controlling position in the marketplace or whether it was fighting for its survival. The resulting 2 (norms: individualist vs. collectivist) $\times$ 2 (threat: absent vs. present) $\times$ 2 (gender) design not only allowed for a test of the main effects hypotheses for norms and threat, as reviewed previously, but also allowed us to test our various hypotheses concerning the interplay of norms, threat and gender.

METHOD

Participants

A total of 205 undergraduate students at the University of Nevada, Reno (51% seniors, 31% juniors), participated in this study. Eleven students were eliminated because they did not follow instructions, and seven were eliminated because English was not their first language and they had lived in the United States for less than 5 years. This put our analysis sample at 70 men and 117

women (M age = 23.2 years, $SD = 6.5$; range = 18 to 67 years).

Procedure

A 2 (threat: present vs. absent) × 2 (norms: collectivist vs. individualist) between-groups design was used. This study was conducted in small groups with each participant working individually. At the beginning of the experimental session, participants were informed that the study was about creativity. Participants were asked to read each page and then wait for instructions from the experimenter before progressing to the next.

Norms manipulation. Participants were first asked to imagine that they work for Horizon Industries, a consulting company committed to a particular corporate culture. Adopting an experimental paradigm introduced by Jetten et al. (2002), half of the participants were told that Horizon Industries adhered to individualism norms. Specifically, participants learned that:

> The workplace environment at Horizon Industries can be described as quite individualist. Employees focus on achieving their personal production goals, and it is believed that maintaining the individual's well-being is the best guarantee for success. The demands of the job require employees to rely on their individual strengths and skills. The individualist workplace at Horizon Industries has been very beneficial in helping Horizon Industries grow. Individuality and independence have undoubtedly contributed to this success.

The other half of the participants read that the group norm at Horizon Industries is highly collectivist in orientation, and that organizational success arises from cooperation with others and joint effort toward common organizational goals:

> The workplace environment at Horizon Industries can be described as quite collectivist. Employees focus on achieving their departmental production goals, and it is believed that maintaining the group's well-being is the best guarantee for success. The demands of the job require employees to combine their strengths and skills and they have to work closely with coworkers. The collectivist workplace at Horizon Industries has been very beneficial in helping Horizon Industries grow. Collectivism and cooperation have undoubtedly contributed to this success.

Subsequent to learning about the dominant norms in their organization, participants completed a three-item measure, also adopted from Jetten et al. (2002), asking them how connected they felt to Horizon Industries. Items included "I can relate to being an employee at Horizon Industries"; "I identify with my colleagues at Horizon Industries"; and, "I feel connected with others at Horizon Industries" and participants recorded their responses on 5-point Likert-type scales ($\alpha = .79$).

Threat manipulation. Next, participants read a news release characterizing the current fortunes of Horizon Industries. In the *threat* condition, participants learned that the organization was under threat from a competitor, and that, according to market analysts, only one of the two businesses will survive. In the *no threat* condition, participants read a news release stating that Horizon Industries is a leader in its field and doing well.

Divergent thinking task. Next came a frequently-used divergent thinking task (see Hocevar & Batchelor, 1989, for a review). Participants were given 7 min to list as many uses as they could think of for a common object, in this case a brick. The number of alternate uses for the brick listed by each participant served as primary measure of divergent thinking performance, as described in the following. In addition, participants were also asked to rate their own creativity using two items: "How creative do you think you were when listing alternate uses for a brick?" and "How creative a person do you think you are?" Responses were again recorded on 5-point scales, with items being significantly correlated ($r = .46$, $p < .01$).

Manipulation check. To establish the success of the experimental manipulation, participants rated the nature of the norms at Horizon Industries using a Likert-type scale, ranging from (1) *individualist* to (5) *collectivist*. To verify that participants understood the level of threat their organization was under, they selected one of the following three response alternatives regarding the current condition of Horizon Industries, as either (1) *under threat*, (2) *in a secure position*, or (3) *neither*.

Affect measure. Participants also completed Watson, Clark, and Tellegen's (1985) Positive and Negative Affect Schedule (PANAS), which uses 10 items to measure negative affect and 10 items to measure positive affect. Again, participants used 5-point Likert-type scales to indicate how they felt "right now." The reliabilities were $\alpha = .88$ for the positive affect scale, and $\alpha = .76$ for the negative affect scale.

Each experimental session took approximately 15–20 min to complete.

Objective Measure of Divergent Thinking

As part of the divergent thinking task, our 187 participants generated a total of 2,075 uses for a brick (a mean of 11.16 uses per person, $SD = 4.96$). Using the raw

number of listings may serve as a measure of the variety of an individual's responses, but it does not address an important aspect of creativity, namely, uniqueness. A participant citing five common uses for a brick (e.g., for building purposes; or, as a weight) may score the same as someone listing five highly unusual uses (e.g., put a brick in your toilet tank to reduce its volume and save water; heat and use as a bed warmer). To take into account unusualness, the score awarded was weighted to each use according to the infrequency with which it was listed by all participants. For this purpose, all responses were reviewed by two graduate student raters who were blind to the experimental conditions. Both raters independently categorized participants' ideas reflecting similar uses. For instance, using a brick to "build a house," "build a school," or "build a church," refers to using a brick as building material; therefore, redundancy was reduced by combining such uses into idea categories of each raters' choosing and counted only once for each participant.

To generate a measure of divergent thinking that takes into account novelty, each rater counted the frequency of each idea category across all participants. Next, each participant's response was divided by the square root of the frequency with which an idea was listed by all participants. For example, if a particular use was cited by 49 participants, each participant who had mentioned this idea scored $1/\sqrt{49}$, or $1/7$ for having listed this use. Each particular use listed by a respondent could receive a score between .073 (if the same use idea was listed by all 187 respondents) and 1 (if the use was listed by no one else).

As mentioned, participants were credited only once no matter how many exchangeable members of the same idea category they cited. The inverse of the square root was chosen as the operand because the frequency distribution of the idea categories roughly followed that of the rectangular hyperbola, which is appropriately normalized by a square root function. The final measure of divergent thinking performance was the sum of all scores for each idea category listed by a participant. Summary scores generated independently by the two raters were highly correlated, $r = .90$, $p < .001$; hence, they were combined. Overall, this measure is sensitive not just to productivity, but also to the novelty inherent in divergent thinking and critical to creativity. Because the distribution of the resulting variable was skewed, it was log-transformed for further analysis.

RESULTS

Manipulation Checks

Participants in the individualist norms condition were much more likely to identify the norms they had been exposed to as individualist, compared to participants in the collectivist condition who were more likely to identify their norms as collectivist ($M = 1.78$, $SD = 1.07$ vs. $M = 3.78$, $SD = 1.19$), $F(1, 188) = 146.62$, $p < .001$, $\eta_P^2 = .44$. Likewise, in the collectivist norms condition, participants felt much more connected to Horizon Industries and their colleagues than in the individualist norms condition ($M = 3.66$, $SD = 0.82$ vs. $M = 31.7$, $SD = 0.82$), $F(1, 179) = 13.50$, $p < .001$, $\eta_P^2 = .07$.

For the threat manipulation, approximately two-thirds of participants (126 of 179) correctly identified their threat condition, $\chi^2(df = 2) = 65.57$, $p < .001$. A total of 24 (13%) participants misidentified their threat condition and 29 (17%) participants did not recall their threat condition. When excluding these observations, the reliable effects reported in the following continued to be significant, but were weaker, as one would expect with a smaller sample size. Thus, all cases were included in subsequent analyses.

Additional analyses showed that participants' accuracy in identifying their norms condition was not significantly related to the Threat condition they had been exposed to. That is, being under threat did not influence the ability of either men or women to identify their norm condition more or less accurately than those not under threat.

Descriptive Analyses

The means, standard deviations, and correlations of all dependent variables are summarized in Table 1. As expected, our objective measure of divergent thinking was associated with our self-assessment measure of creativity, $r(187) = .40$, $p < .001$; which speaks to the convergent validity of the subjective creativity measure. This finding is consistent with Rossman and Gollob (1975), who also found self-assessed and objective measures of creative performance to be correlated (but see Davis & Belcher, 1971). Both variables were linked to positive affect, $p < .009$, but no other correlations were reliable.

TABLE 1
Descriptive Statistics and Pearson Correlations

			Correlations			
	M	*SD*	*(1)*	*(2)*	*(3)*	*(4)*
(1) Objective measure of divergent thinking	0.28	0.64		.17*	.40***	−.11
(2) Subjective measure of creativity	3.43	0.92			.27***	−.04
(3) Positive affect	25.52	7.89				.08
(4) Negative affect	13.94	4.18				

Note. *N* varies for different variables and correlations but is at minimum 173.

Objective Measure of Divergent Thinking

Recall the competing hypotheses as to the effect of both individualist and collectivist norms, threat, and gender on creativity. The objective measure of divergent thinking was submitted to a 2 (norms) × 2 (threat) × 2 (gender) factorial analysis. Cell sizes ranged from 14 to 36, largely because there were more women than men in the study. This analysis did not produce any significant main effects for threat, $F < 1$, nor for norms, $F(1, 179) = 1.71$, $p = .19$, $\eta_P^2 < .01$, and there was also no norms x threat interaction, $F(1, 179) = 2.26$, $p = .13$, $\eta_P^2 = .012$. However, the three-way interaction was significant, $F(1, 179) = 6.38$, $p = .012$, $\eta_P^2 = .034$, which provided initial support for the idea that gender was, indeed, involved in the effects of norms and threat on creative performance (see Table 2).

To understand this interaction, the data from men and women were analyzed separately in a 2 (norms) × 2 (threat) design. For men, the only effect was an interaction, $F(1, 66) = 7.29$, $p = .009$. When not under threat, men showed more divergent thinking under individualist norms than under collectivist norms, pairwise $p = .065$, whereas this was reversed when men experienced threat, $p = .056$. By contrast, for women there was only a significant norms main effect, $F(1, 113) = 4.34$, $p = .037$, indicating that women showed more divergent thinking in the collectivist norms condition compared to the individualist norms condition ($M = 0.36$, $SD = 0.68$ vs. $M = 0.11$, $SD = 0.59$, respectively). No other effects approached significance, all $F < 1$. In summary, when not under threat, men and women responded differently to individualist and collectivist norms, such that men showed more divergent thinking under the former, and women more divergent thinking under the latter condition. However, threat rendered the effects of norms rather similar on both genders.

TABLE 2
Experimental Effects: Means and Standard Deviations

	Individualist Norms		*Collectivist Norms*	
	M	*SD*	*M*	*SD*
Objective measure of divergent thinking				
Men				
No threat	0.57	0.57	0.19	0.71
Threat	0.08	0.51	0.46	0.59
Women				
No threat	0.08	0.55	0.42	0.62
Threat	0.14	0.63	0.30	0.75
Subjective measure of creativity				
Men				
No threat	3.95	0.87	3.32	0.91
Threat	3.47	0.66	3.85	0.95
Women				
No threat	3.10	0.85	3.33	1.00
Threat	3.24	1.05	3.43	0.70
Positive affect				
Men				
No threat	27.25	7.49	22.93	8.70
Threat	24.67	7.94	27.18	6.23
Women				
No threat	23.18	7.59	23.93	7.89
Threat	24.26	8.71	29.35	6.93

Subjective Measure of Creativity

As before, a 2 (norms) × 2 (threat) × 2 (gender) factorial analysis was used to examine self-reported creativity. First, there was a main effect for gender, $F(1, 179) = 7.57$, $p = .007$, $\eta_P^2 = .04$, with men perceiving themselves to be more creative than did women ($M = 3.67$, $SD = 0.87$ vs. $M = 3.28$, $SD = 0.92$, respectively). This result is in line with other research showing that, with objectively identical performance levels men, tend to hold inflated self-perceptions compared to women (e.g., Correll, 2001; Miller, Cooke, & Tsang, 1992).

Mirroring the findings from the objective measure, a significant three-way interaction was also found, $F(1, 179) = 6.86$, $p = .01$, $\eta_P^2 = .037$. Again, separate two-way analyses for men and women revealed an interaction effect for men, $F(1, 66) = 6.08$, $p = .016$. When not under threat, men considered themselves more creative in the individualist condition than the collectivist condition, $p = .037$, and this pattern was nonsignificantly reversed when under threat, $p = .19$. However, for women, neither threat nor norms altered self-perceptions of creativity, all $F(1, 113) < 1.50$, $p > .22$.

Affect

Both the positive and the negative PANAS scores were submitted to the previously discussed three-way analysis. Although there were no significant effects for negative affect, all $F(1, 165) < 1.95$, $p > .16$, for positive affect there was a threat x norms interaction, $F(1, 169) = 5.45$, $p = .021$, $\eta_P^2 = .03$. Participants under threat experienced more positive affect in the collectivist condition compared to the individualist norms condition ($M = 28.27$, $SD = 1.16$ vs. $M = 24.46$, $SD = 1.17$), $p = .023$, whereas there were essentially no differences when threat was absent ($M = 23.43$, $SD = 1.26$ vs. 25.22, $SD = 1.19$), $p = .30$.[1]

DISCUSSION

This research highlights that organizational norms shape the level of creativity of individuals within an

[1]Because of missing data, *n* was reduced in these analyses.

organization. This finding is consistent with the notion that organizational culture is an important element in influencing innovation (Goncalo & Staw, 2006; Woodman et al., 1993). In particular, our research provides some support for the idea that, under some circumstances, an emphasis on individuality helps increase creative output.

At the same time, our findings demonstrate that organizational norms are only one of many sources of influence on the fragile phenomenon of creativity, and that even the impact of norms is dependent on other factors. Specifically, our study revealed that individualist versus collectivist norms promoted or undermined creativity, but that the nature of this influence ultimately depended on the gender of the person, as well as whether the organization (and, therefore, the individual) was under threat or not. The somewhat intuitive link between creativity and individuality did emerge (Goncalo & Staw, 2006; Kanter, 1988), but it was limited to men in organizations that occupied a secure position in the market. By contrast, when norms emphasized collectivism, women in nonthreatened organizations, as well as both men and women in organizations under threat, were more creative. This latter finding suggests that creativity can be extrinsically motivated, which supports the findings of Eisenberg and Rhoades (2001), but runs contrary to Amabile's (1982) conclusion that only intrinsic motivation is conducive to creativity.

Our data are also compatible with a person-environment fit idea of creativity, namely, that personal tendencies, such as those originating in gender socialization patterns, interact with organizational norms, such that primarily a fit between the two is most conducive to creativity (cf. Choi, 2005; Livingstone, Nelson, & Barr, 1997). Previous findings showing that individualist norms inevitably give rise to creativity should be reinterpreted within this context. Specifically, much creativity research has been conducted in individualist environments, such as Western rather than Eastern societies, or in organizations with individualist rather than collectivist norms. The person–environment fit idea of creativity predicts that individuals who harbor values and tendencies that are compatible with individualist norms should be more creative in individualist types of environments. If one assumes that the individualist norms of the culture or organization in which previous research was conducted remained unexamined, it is not surprising if such research should conclude that individualist norms give rise to higher levels of creativity (e.g., Goncalo & Staw, 2006).

Our findings concerning threat also seem to lend some support to our threat mobilization hypothesis. However, this effect was comparatively weak and, as with the effect of norms, situational threat never resulted in a main effect: For men in a collectivist organization, emphasizing cooperation and solidarity, creativity increased slightly under threat compared to the no-threat condition, but this increase was nonsignificant, pairwise $p = .23$. At the same, men in an organization with individualist norms exhibited lower creativity when under threat, pairwise $p = .015$—a finding that is consistent with the threat rigidity hypothesis (Staw et al., 1981). Although the cause for this interaction pattern is not entirely clear, men might be particularly likely to entertain status-related concerns and be responsive to status-relevant cues, especially in intergroup contexts (e.g., Eagley, 2009; Van Vugt, De Cremer, & Janssen, 2007). From this perspective, saving one's organization through one's own creative efforts might be seen as a way to secure a high status position within the group. Conversely, in nonthreatening times individuals might gain the admiration of others and, thus, social status by distinguishing themselves from others through creative excellence. Either way, future research could usefully explore this possibility. Note, however, that consistent with this idea women should be, on average, much less concerned with social status. Indeed, situational threat had no influence on the creativity of women, regardless of whether they were cued into an organization with collectivist or individualist norms, both pairwise $p > .42$. This pattern also reiterates that the support for the threat mobilization hypothesis was quite weak.

Interestingly, the present research generated no support at all for the group norm amplification hypothesis. This is quite surprising in view of research conducted under social identity theory (Tajfel & Turner, 1986) and self-categorization theory (Turner et al., 1987) which found that situational threat increases the salience of in-group norms, which subsequently fosters adherence to these norms on the part of group members (Jetten et al., 2002; McAuliffe et al., 2003). Whereas there was evidence that the emergence of creative behavior is governed by organizational norms, only the combination of norms, threat, and gender shaped creative behavior. Arguably, rather than merely increasing the salience of group norms, within the context of our experimental paradigm, situational threat may have altered the perceived purpose of the creativity task. In the absence of threat, working on the divergent thinking task was merely a personal test of idea generation, where men and women's creativity was predicted by whether any tendencies resulting from gender socialization were compatible with the organizational norms. However, when men and women learned that the organization was in trouble, the perceived purpose of the creativity might have shifted from being merely a private affair to participants in the collectivist norm condition feeling motivated to expend extra effort on behalf of the group. In this sense, threat might have at least clarified the perceived purpose of the creativity task as being for the benefit of the organization. One goal of future research

might be to clarify this; however, it important that such future research consider how organizations and organizational norms frame the purpose of creative behavior (i.e., whether it is for the benefit of the organization or the individual).

Our results offer strong support for the hypothesis that positive affect is associated with enhanced creativity (e.g., Isen, Daubman, & Nowicki, 1987; Wright & Walton, 2003). Interestingly, participants in the collectivist norm condition in an organization under threat experienced greater positive affect than participants in any of the other conditions. This seemingly counterintuitive finding might be explained by that fact that members of an organization with collectivist norms may experience a greater sense of connectedness to others, especially when the norms are made salient by external threat. It is easy to see that this sense of connectedness and the feeling that one is not facing the threat alone is conducive to positive affect, compared with organizations in which norms do not emphasize social connectedness or where norms of cooperation and solidarity are not emphasized by situational threat.

This interpretation of our findings jibes well with our observation that participants in the collectivist norms condition were more highly identified with their organization than those in the individualist norms condition. However, this finding diverges from Jetten et al. (2000) and Hornsey and Jetten (2004), who found that high identification was not necessarily associated with collectivism. Social or organizational identification and individualism–collectivism are, indeed, analytically distinct; hence, it should not be surprising that they are often uncorrelated. However, typically there is at least a similarity between the collectivism/individualism distinction and social identification, with low identifiers being more likely to distance themselves from their group to act in self-interested ways than high identifiers who tend to emphasize ingroup loyalty (Branscombe, Wann, Noel, & Coleman, 1993; Doosje & Ellemers, 1997; Doosje, Ellemers, & Spears, 1995; Jetten, Spears, Hogg, & Manstead, 2000; Postmes, Branscombe, Spears, & Young, 1999; Roccas & Schwartz, 1993; Spears, Doosje, & Ellemers, 1997).

Limitations

All research has limitations, and this study is no exception. Rather than using participants that were actually working within threatened or nonthreatened organizations that had established individualist or collectivist norms, a paper-and-pencil paradigm was used to cue participants into the mindset of a member of an organization and informed them of the threat and the organization's norms. This experimental approach provides much more control than any field study, but it is also potentially less involving than being a member of an organization fighting for her livelihood by helping her company survive. Where the lack of naturalism is a concern, there is strong evidence suggesting that the results from laboratory simulations are potentially just as valid as those from field studies. In a meta-analysis of 76 studies, Anderson, Lindsay, and Bushman (1999) found a very high correlation between the results from laboratory and field studies ($r = .73$). Specifically with regard to group processes, meta-analyses routinely find that results from the laboratory underestimate the actual effects as they occur in naturally existing groups (e.g., Mullen, 1991). From this perspective, it is likely that these findings reflect processes occurring in the field; in fact, it may be that this study underestimates the actual relationship between threat, group norms, and gender, and their impact on creativity.

A related concern with the external validity of our research lies in the fact that participants comprised undergraduate students. Our participants tended to be older than the average undergraduate student, but one might still argue that these individuals lack the organizational experience necessary for them to be effectively cued into their roles for this study. Whereas one may have little reason to expect dramatic discrepancies between laboratory studies with student volunteers and field studies with professionals (Anderson et al., 1999), arguably the proof is in the pudding, and future research may wish to examine whether the findings of this study generalize to real-world organizations and their members.

Implications

Our research, while highlighting the impact of norms on creativity, also demonstrates that cultivating a particular set of organizational norms is no panacea for enhancing creativity. Instead, organizational norms may pose particular managerial challenges because, during times of booming economies when organizations are less likely to have their futures threatened, the same norms may foster different levels of creativity in different individuals. In other words, universal norms may enhance the creativity of some, but stifle creativity in others. To the extent that creativity is critical for innovation and, therefore, corporate success, a fixed set of organizational norms may not maximize this resource. This is an important limitation of the standard approach that entails making sure that, for the purposes of a corporate identity and culture, all members of the organization embrace the same set of norms (e.g., O'Reilly, 1989).

This problem is also endemic to organizational efforts aimed at team building. Over the last 35 years or so, there has been a push toward establishing tightly knit teams that emphasize cooperation and interdependence (Porras & Robertson, 1992). Such team-building efforts may have many advantages for the regular

functioning of the organization; however, this research illustrates that, when threat is absent, it can be a double-edged sword, as it may undermine creativity in a subset of the organization's members.

One, at least partial, managerial solution to this problem might be to allow specific teams, or even departments, to develop their own local cultures rather than expecting them to fall in line with an overarching organizational culture. Naturally, this approach may raise new issues within the organization, which are often predicated on norms that are consistently valued and reinforced across management levels and divisions (O'Reilly, 1989). Yet, managers have to be aware that not all norms may bring out the best in all members of the organization under all conditions.

When times get tough, i.e., when the organization is under threat, managers need to be flexible enough to recognize that an organizational culture that was conducive to creative output during boom times may no longer be optimal. Rather, organizations need to adapt and adopt norms that might have been previously shunned. Indeed, to maximize creativity, leaders within organizations have to be mindful that culture and strategy must fit together.

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