

## Research Article

# Connecting the Dots Within

## Creative Performance and Identity Integration

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**ABSTRACT**—*In two studies drawing from social identity theory and the creative-cognition approach, we found that higher levels of identity integration—perceived compatibility between two social identities—predict higher levels of creative performance in tasks that draw on both identity-relevant knowledge domains. Study 1 showed that Asian Americans with higher identity integration were more creative in developing new dishes using a given set of ingredients, but only when both Asian and American ingredients were available. Study 2 showed that female engineers with higher identity integration were more creative designing a product, but only when the product was targeted to female users. These findings suggest that the psychological management of multiple social identities may be related to accessibility of multiple knowledge domains, which in turn influences creativity.*

Creativity, typically defined as the ability to generate ideas that are both original and feasible, is often essential for personal and professional success. The antecedents of creative performance have long been of interest to behavioral scientists (Amabile, 1983; Paulus & Nijstad, 2003; Royce, 1898; Sternberg & Lubart, 1999). A dominant psychological approach to understanding creativity, the *creative-cognition approach*, suggests that accessibility of different knowledge systems is critical to the generation of creative ideas (see Smith, Ward, & Finke, 1995, for a review). This view is consistent with the notion that creative performance is a process of recombining existing knowledge sets that initially appear unrelated or irrelevant to one another (Guilford, 1950; Koestler, 1964; Merton, 1973; Rietzschel, Nijstad, & Stroebe 2007). The underlying logic is that exposure to different sets of knowledge equips individuals with the requisite knowledge sets for certain creative tasks. But will

individuals make use of the diverse knowledge they have acquired? Imagine an Asian American chef having to create an innovative dish using Asian and American ingredients. Will he or she make use of both sets of knowledge tied to these two distinct cultural identities? We suggest that the answer to this question lies in the chef's ability to integrate the two cultural identities. Drawing on both the social identity and the creative-cognition literatures, we suggest that greater perceived integration of one's multiple social identities increases the accessibility of multiple identity-relevant knowledge domains, and that this accessibility, in turn, improves creative performance on tasks drawing on these knowledge domains.

### KNOWLEDGE SYSTEMS AND SOCIAL IDENTITIES

Knowledge systems—attributes, behaviors, and information that are characteristic of a specific social category—are bundled with social identities (see Devine & Monteith, 1999, for a review). Social identities refer to aspects of the self that are based on memberships in important social groups (Tajfel & Turner, 1979). Individuals may have many social identities, and depending on which social identity is being activated, different knowledge systems are made accessible for use (Fiske, 1998; Higgins, 1996). For example, when Asian Americans' Asian identity is activated (through exposure to Asian primes), they exhibit a prototypical Asian inferential behavior (i.e., making more situational than personal attributions), whereas when their American identity is activated, they exhibit the opposite behavior (i.e., making more personal than situational attributions; Hong, Morris, Chiu, & Benet-Martínez, 2000). Similarly, activating gender identity among Asian women increases gender-stereotypic performance on academic tests (doing worse on math tests and better on verbal tests). However, activating Asian women's Asian identity increases culturally stereotypic performance on these same tests (doing worse on verbal tests and better on math tests; Shih, Pittinsky, & Ambady, 1999). This stream of research shows that even though one might theoretically possess the expertise or know-how to solve a problem,

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certain knowledge systems may not be accessible at a given time because the relevant social identity is not activated.

## MULTIPLE IDENTITIES AND IDENTITY INTEGRATION

Although individuals belong to different social groups simultaneously, how multiple social identities are managed is not well understood (Deaux, 1996). Early perspectives on this process emerged from research exploring immigrants' perceptions of their "dominant" and "ethnic" identities (e.g., Berry, 1990). Recently, Roccas and Brewer (2002) proposed four strategies individuals use to manage multiple social identities: intersection (a white Christian identifies only with other white Christians), dominance (a white Christian with a dominant religious identity identifies with other Christians), compartmentalization (a white Christian identifies with either Whites or Christians depending on the situation), and merger (a white Christian identifies with both Whites and Christians).

Roccas and Brewer (2002) suggested that the specific strategy people employ depends in part on individual differences in the perceived compatibility between different social identities. Evidence supporting this notion indicates that bicultural individuals vary on *identity integration*, an individual difference construct describing the degree to which two cultural identities are perceived as compatible with or in opposition to each other (Benet-Martínez & Haritatos, 2005). Specifically, bicultural individuals with high identity integration perceive their two cultural identities as largely compatible and complementary, and do not find it problematic to identify with both cultural groups at the same time (an approach similar to the merger strategy). However, bicultural individuals with low identity integration feel caught between the two identities and prefer to keep them separate, believing they can identify with each cultural group at particular times or in particular contexts, but cannot identify with both cultural groups at the same time (an approach similar to the compartmentalization strategy).

## IDENTITY INTEGRATION AND CREATIVITY

We propose that individual differences in identity integration predict creative performance in specific domains. To the extent that individuals with higher levels of identity integration are better at simultaneously activating multiple social identities, they should be better at accessing knowledge systems associated with these social identities, and thus show better creative performance in tasks that require applying those knowledge systems. Thus, identity integration and type of task (single identity relevant vs. multiple identities relevant) should interact in predicting creative performance. Specifically, we propose that individuals with high identity integration will exhibit higher levels of creativity than individuals with low identity integration in tasks relevant to both identity-related knowledge domains,

but not in tasks relevant to the knowledge domain of a single social identity.

## STUDY 1

In Study 1, we examined whether integration between two cultural identities predicts creative performance in developing new dishes. We measured Asian Americans' bicultural identity integration and then asked them to develop new dishes when both cultural identities were relevant (both Asian and American ingredients were available) and when only a single cultural identity was relevant (when only Asian or only American ingredients were available).

### Method

#### *Participants*

Sixty-one Asian Americans were recruited through fliers and received payment for their participation (23 males, 38 females; mean age = 24.04 years,  $SD = 4.82$ ). Forty participants were first-generation bicultural individuals who were born in East Asian countries and had lived in North America for at least 5 years. Twenty-one participants were second-generation bicultural individuals whose parents were first-generation immigrants from East Asian countries. Analyses indicated no significant differences between the first- and second-generation samples on the independent or dependent measures. Therefore, these groups were combined in the subsequent analyses.

#### *Selecting the Ingredient Sets*

An independent sample of 40 Asian Americans generated a list of Asian and American cooking ingredients and then ranked the ingredients on how often each is used in cooking typical Asian or American cuisine. Averaging across these rankings, we picked the 25 top-ranked Asian ingredients and 25 top-ranked American ingredients. Next, two Asian and two American coders rated the typicality of each ingredient for Asian or American cooking. On the basis of these ratings, we picked the 16 most typical Asian ingredients (e.g., soy sauce and wasabi) and 16 most typical American ingredients (e.g., barbecue sauce and parmesan cheese).

Next, we assembled six different ingredient sets (two of each of three types), keeping the ingredients in their original jars, bottles, and boxes. One tray of ingredients contained Asian ingredients only, another contained American ingredients only, and the third contained half Asian and half American ingredients. Each set had eight ingredients, and the typicality ratings for usage in Asian or American cooking were equivalent across the sets. Additionally, salt and pepper were included in all ingredient sets.

#### *Procedure*

Participants responded to four items that we used to measure identity integration, or participants' perceived compatibility

between their two cultural identities: “I feel ‘Asian-American’ (i.e., hyphenated, a mixture of the two),” “I keep Asian and American cultures separate” (reverse-scored), “I feel part of a combined culture,” and “I am simply an Asian who lives in North America (i.e., I am an Asian who happens to live in the U.S.)” (reverse-scored). Participants rated each item on a scale from 1 (*completely disagree*) to 5 (*completely agree*). These four items were drawn from the Bicultural Identity Integration Scale—Version 1 (BIIS-1; Benet-Martínez & Haritatos, 2005; Cheng, Lee, & Benet-Martínez, 2006). Their internal reliability was .70. We averaged responses to the four items to form an identity-integration score, with higher scores indicating higher identity integration. The distribution of these scores was bimodal, and we used the scale’s midpoint (3) to divide the sample into two groups: 47 individuals with high identity integration ( $M = 3.84$ ,  $SD = 0.60$ ) and 14 individuals with low identity integration ( $M = 2.20$ ,  $SD = 0.33$ ).<sup>1</sup> Participants also rated how strongly they identified with Asian and American identities, using a scale from 1 (*not at all*) to 6 (*very strong*).

Next, participants were instructed to develop creative dishes (dishes that would be “new, delicious, and popular with potential customers”) for a new restaurant that would be opened nearby. Participants performed two tasks, each in three conditions defined by the type of ingredients available: mix of Asian and American ingredients, Asian ingredients only, and American ingredients only. In Task 1, participants were shown three ingredient trays, one of each type, and were asked to estimate the number of creative (new, delicious, and popular) chicken dishes that could be created out of any combination of the ingredients in each tray. This task was designed to measure participants’ creative *fluency* (Diehl & Stroebe, 1987; Parnes & Meadow, 1959; Rietzschel et al., 2007). In Task 2, participants were shown another three ingredient trays, again one of each type (but with ingredients different from those presented in Task 1). This time, their task was to think of one creative, delicious, and popular chicken dish that could be made with the ingredients on each tray and to write their recipes down. The participants were allowed to pick as many ingredients as they wished to use from each tray. This task was designed to measure the *originality* of their creative ideas (Amabile, 1996; Diehl & Stroebe, 1987; Rietzschel et al., 2007). The two tasks and the three ingredient trays within each task were presented in counterbalanced order.

Two coders (one Asian and one American) who were self-identified “cuisine connoisseurs” familiar with Asian, American, and East-West fusion restaurants and cuisines rated the recipes generated in Task 2 using three items: “This is a creative dish,” “This is a delicious dish,” and “This will be a

popular dish.” All three items were rated using a 5-point Likert scale (1 = *not at all*, 5 = *very much*). The internal reliabilities of the items across the different conditions ranged from .65 to .79. Ratings on the three items were averaged to form an originality score. The interrater reliability between the two coders was high ( $r = .74$ ,  $p < .01$ ).

## Results

Fluency (estimates of the number of creative dishes) and originality (ratings of creativeness of the recipes) did not differ significantly between the Asian-only and the American-only conditions. We therefore combined these two conditions to form one single-culture condition.

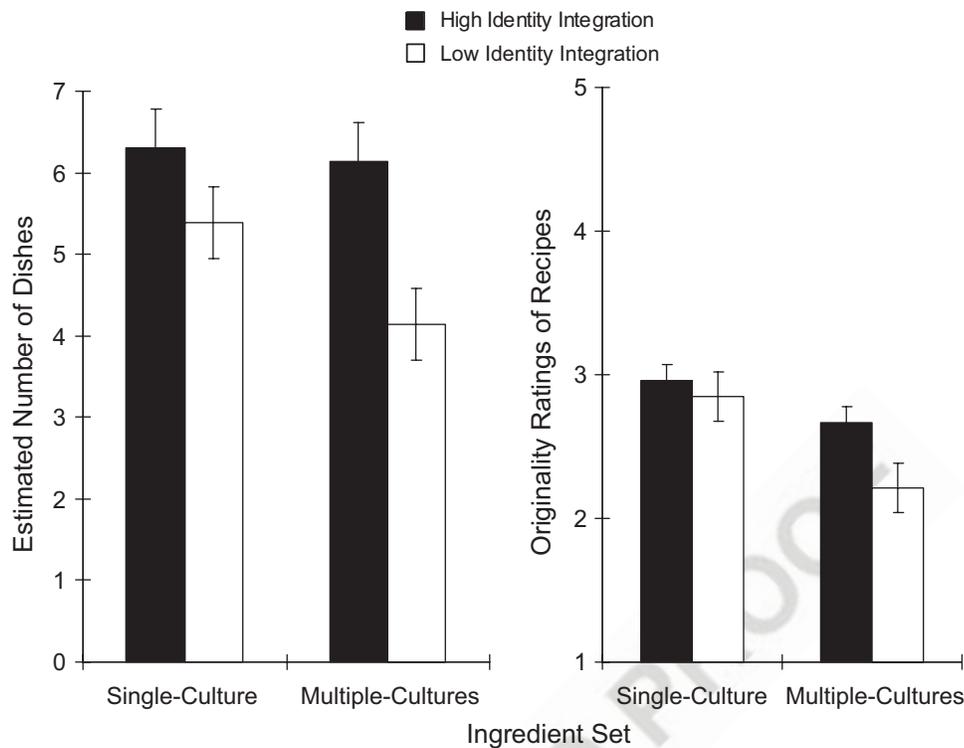
We analyzed creative fluency using a repeated measures analysis of variance (ANOVA) with two independent variables—ingredient set (single culture vs. multiple cultures) and identity integration (high identity integration vs. low identity integration). Two covariates, strength of identification with American culture and strength of identification with Asian culture, were added, as these variables have been shown to correlate with cultural knowledge (LaFromboise, Coleman, & Gerton, 1993). Gender was also added as a covariate. The analysis yielded no main effects for the independent variables or the covariates,  $F_s < 1$ ,  $p_s > .05$ . As hypothesized, the interaction of ingredient set and identity integration was significant,  $F(1, 54) = 4.67$ ,  $p = .036$ ,  $\eta_p^2 = .079$ . As illustrated in Figure 1, Asian Americans with high identity integration showed greater creative fluency than those with low identity integration in the multiple-cultures condition,  $t(54) = 2.05$ ,  $p = .044$ , but not in the single-culture condition,  $t(54) = 1.11$ ,  $p = .27$ .

An ANOVA conducted on the originality ratings of the recipes replicated this pattern, showing a significant interaction between ingredient set and identity integration,  $F(1, 54) = 5.09$ ,  $p = .03$ ,  $\eta_p^2 = .092$ . As shown in Figure 1, participants with high identity integration exhibited higher levels of originality than participants with low identity integration in the multiple-cultures condition,  $t(54) = 1.82$ ,  $p = .07$ , but not in the single-culture condition,  $t(54) = 0.60$ ,  $p = .55$ . Again, there were no significant main effects,  $F_s < 1$ ,  $p_s > .05$ .

## Discussion

The results from Study 1 are consistent with the notion that in performing creative tasks, people with high identity integration are better at simultaneously accessing and applying multiple identity-related knowledge systems than are people with low identity integration. Although Study 1 examined the integration of social identities within the single identity domain of culture, identities can be integrated across different identity domains. In these cases, the management of multiple social identities can be more complex (Deaux & LaFrance, 1998). In Study 2, we tested whether we would observe the same effect of identity integration when the identities in question were from different identity domains.

<sup>1</sup>This practice and the size of the resulting groups are consistent with current identity-integration research, which typically uses the scale’s midpoint to differentiate individuals with high versus low identity integration, and typically finds the distribution to be skewed toward higher levels of identity integration (Benet-Martínez, Leu, Lee, & Morris, 2002; Mok, Morris, Benet-Martínez, & Karakitapoglu-Aygün, 2007).



**Fig. 1.** Results from Study 1: participants' estimates of the number of dishes that could be prepared from the ingredients and the originality of participants' recipes as a function of ingredient set (single culture vs. multiple cultures) and identity integration (high vs. low).

## STUDY 2

In Study 2, we examined creativity among female engineers, who may experience conflict between their gender identity (being a woman) and their professional identity (working in a male-dominated profession or a stereotypical masculine job). There is evidence that for women, a strong gender identity often conflicts with a strong professional identity. Women often describe themselves as “not belonging,” as being “out of place,” or as being “displaced” in the professional world, and such feelings contribute to a strong sense of internal conflict (Fournier & Kelemen, 2001). This conflict between gender and professional identities is particularly acute in highly male-dominated professions such as engineering, in which the dominant professional values of aggressiveness, independence, nonemotionality, and rationality diverge significantly from the stereotypical values associated with being a woman (Hood & Koberg, 1994; McIlwee & Robinson, 1992).

Study 2 examined the relationship between identity integration and creative performance in a design task among female engineering students. We expected to find an interactive effect of identity integration and task type on creative performance. Specifically, we predicted that, compared with female engineering students with low identity integration, those with high identity integration would be more creative when designing a product to be marketed to women, a task that is relevant to both their professional identity as an engineer and their gender identity as a woman. In contrast, we did not expect to find differences between

participants with high and low identity integration when the task was relevant only to their professional identity. We also administered the Remote Associations Test (RAT), a standard test measuring stable individual differences in creativity (Mednick, Mednick, & Mednick, 1964).

## Method

### Participants

The participants were 110 female engineering students enrolled in an engineering school within a large university (mean age = 21.40 years,  $SD = 2.79$ ).

### Procedure

Participants were instructed to design a new mobile communication device that would appeal to potential customers. Participants were randomly assigned to one of two conditions. In the gender-specific condition, the target consumers were women. In this case, the creative task drew on knowledge relevant to both gender and professional identities. In the non-gender-specific condition, the target consumers were college students. Participants were asked to list as many new and popular features as possible for their design.

Next, participants completed the RAT (Mednick et al., 1964). Each of the 10 items in this test consists of three words, and the task is to provide a fourth word that has associations with all three

provided words (e.g., for the test item “peas, envy, golf,” the correct answer is “green”). Each correct answer was given 1 point.

Participants then completed a measure of their integration of their gender and professional identities. This scale was modified from the identity-integration scale used in Study 1 and had been used in a previous study to measure identity integration among female professionals (Sacharin, Lee, & Gonzalez, in press). The scale contained four items: “I am simply a woman working in engineering” (reverse-scored), “I keep everything about being a woman and being an engineer separate” (reverse-scored), “I am a female engineer,” and “My identity is best described as a blend of both a woman and an engineer.” Higher scores indicated a higher level of integration of gender and professional identities (Cronbach’s  $\alpha = .55$ ).<sup>2</sup> Last, participants rated their identification with their gender and with the engineering profession (using the same scale as for the cultural-identification measure in Study 1), and the length of time they had been an engineering major.

## Results

We used the midpoint of the identity-integration scale to split the participants into two groups: 77 individuals with high identity integration ( $M = 3.94$ ,  $SD = 0.50$ ) and 33 individuals with low identity integration ( $M = 2.80$ ,  $SD = 0.31$ ). The two groups did not differ in gender identification, professional identification, or length of time they had been in engineering,  $F_s < 1$ ,  $ps > .05$ .

*Fluency* of creativity was indexed by the number of features participants generated. This is a more precise measure of fluency than the measure used in Study 1 (i.e., participants’ estimates of the number of creative dishes). To measure *originality*, we had three independent coders rate the creativity of each feature on a 5-point Likert scale (1 = *not at all creative*, 5 = *extremely creative*). A compartment that stores makeup is an example of a feature given a high score for creativity. Smaller size and better reception are examples of features given low scores, because these are not new features, just enhancements of existing features. The interrater reliability for the originality measure was .84. We averaged the originality scores for all the features generated by each participant to form a single originality score for that participant.

To examine our hypotheses, we conducted 2 (identity integration: high vs. low)  $\times$  2 (target: gender-specific target consumer vs. non-gender-specific target consumer) between-subjects analyses of variance (ANOVAs). The results for originality ratings showed no main effects,  $F_s < 1$ ,  $ps > .05$ .

<sup>2</sup>The cross-domain nature of Study 2 may have contributed to the fact that this identity-integration scale was less reliable than the BIIS-1 in Study 1; the bulk of past research on identity integration has focused on bicultural identities, and, to our knowledge, our study is the second that has applied this concept to other identity domains. A reliability of .55 can present a high risk for Type II error (failing to find a significant relationship between identity integration and creativity even though such a relationship exists; Cohen, Manion, & Morrison, 2000). However, the low reliability of the scale is not as problematic for interpreting the results as it might be, given that we found support for our hypothesis.

Supporting our hypothesis, the interaction between identity integration and target was significant,  $F(1, 104) = 4.49$ ,  $p = .036$ ,  $\eta_p^2 = .044$ . As Figure 2 shows, in the gender-specific condition, features generated by participants with high identity integration were rated as more creative than those generated by participants with low identity integration,  $t(42) = 2.02$ ,  $p = .037$ . In the non-gender-specific condition, creativity did not differ between participants with high and low identity integration,  $t(40) = -1.11$ ,  $p = .31$ . The same results emerged when we controlled for the number of features generated.

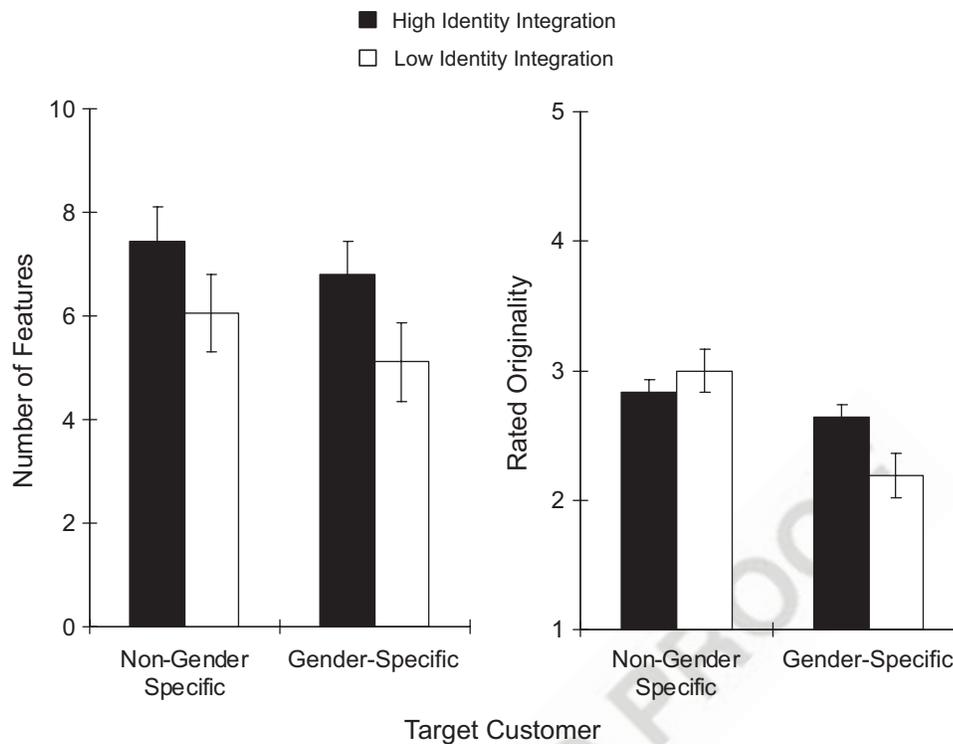
The ANOVA results for creative fluency did not reveal any significant main effects or interactions,  $F_s < 1$ ,  $ps > .05$ . However, planned contrasts indicated that female engineering students with high identity integration generated marginally more features than those with low identity integration in the gender-specific condition,  $t(59) = 1.65$ ,  $p = .10$ . In the non-gender-specific condition, the number of features generated did not differ between participants with high and low identity integration,  $t(46) = 0.34$ ,  $p = .74$  (see Fig. 2).

We also conducted a  $t$  test to compare the RAT scores of the two identity-integration groups. As expected, these scores did not differ between participants with high and low identity integration ( $M = 3.91$ ,  $SD = 1.94$ , and  $M = 4.07$ ,  $SD = 1.94$ , respectively),  $t(94) = -0.37$ ,  $p = .72$ . In short, participants with high identity integration were not generally more creative than participants with low identity integration. Adding RAT as a covariate to our earlier ANOVAs did not change any of the results.

## GENERAL DISCUSSION

Bringing together the literatures on social identity, knowledge accessibility, and creative performance, we found that identity integration is an important individual difference that moderates creative performance. When tasks draw upon knowledge systems tied to multiple social identities, the ability to simultaneously access these knowledge systems presumably enhances the creativity of individuals with high identity integration. This is consistent with the notion that cognitive flexibility in knowledge accessibility is an important psychological mechanism underlying individual-level creativity (Rietzschel et al., 2007).

Our findings have implications for understanding the ways creativity can be increased in different applied settings. For example, research shows that identity integration is associated with past experiences (Phinney & Devich-Navarro, 1997; Vivero & Jenkins, 1999). There is preliminary evidence that identity integration increases when individuals recall positive experiences related to having multiple identities, but decreases when individuals recall negative experiences related to having multiple identities (Cheng & Lee, in press). Thus, conditions that bring to the fore positive past experiences related to having multiple social identities might increase identity integration and facilitate creative performance. The literature has conceptualized identity integration primarily as a stable



**Fig. 2.** Results from Study 2: the number of features participants generated and the originality of those features as a function of target market (gender-specific vs. non-gender-specific) and identity integration (high vs. low).

individual difference, and future research is needed to examine whether it can indeed be manipulated and increased.

Identity integration can enhance the creative performance of work groups and organizations. Having a demographically diverse workforce has frequently been considered an important way to improve organizational innovativeness and creativity, yet the data supporting this relationship is mixed at best (O'Reilly, Williams, & Barsade, 1998). Identity integration may provide one answer to this puzzle (Cheng, Sanchez-Burks, & Lee, 2008). For example, if women in male-dominated professions have poorly integrated gender and professional identities and chronically separate these identities, their knowledge related to one identity (say, gender) may not be accessible in work settings. In this way, the potential benefits of gender diversity may be undermined. However, if women in these professions focus on the compatibility between their gender and professional identities (rather than the hardships and struggles of being a minority-group member), they may be better able to integrate these identities, and, as a result, they may achieve higher levels of creativity in domains where their dual identities intersect.

Our findings also raise new research questions about the psychological mechanisms underlying creativity. We argue that lower identity integration may be associated with lower accessibility of the disparate knowledge systems associated with multiple social identities, and that this lowered accessibility contributes to lower creative performance in relevant tasks.

However, it is also possible that the problem is not accessibility, but rather perceived applicability; that is, people with low identity integration may evaluate cross-identity knowledge as less practical and less useful to the task at hand than do people with high identity integration. To address this issue, future research could directly measure identity activation, knowledge accessibility, and evaluation of ideas among participants differing in their level of identity integration.

## CONCLUSION

Drawing on social identity theory and the creative-cognitive approach, we have shown that high identity integration (i.e., perceptions that multiple and conflicting social identities are compatible) contributes to enhanced creative performance in tasks for which knowledge associated with both identities is relevant. These findings show that the management of multiple social identities has theoretical implications for understanding the psychology of creativity and practical implications for increasing individuals' capacity for creativity and innovation.

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