8-2007

Increasing innovation through identity integration.

Chi-Ying CHENG
Singapore Management University, cycheng@smu.edu.sg

Jeffrey SANCHEZ-BURKS

Fiona LEE

INCREASING INNOVATION THROUGH IDENTITY INTEGRATION

Published in Academy of Management 2007 Best Paper Proceedings

CHI-YING CHENG
Columbia University
New York NY 10027

JEFFREY SANCHEZ-BURKS
FIONA LEE
University of Michigan

ABSTRACT

Three studies examined the psychological antecedents and processes related to individual-level innovation. We propose that individuals who can integrate multiple social identities are better at combining knowledge systems associated with each identity, and thus exhibit higher levels of innovation. Study 1 showed that Asian American biculturals with high Identity Integration (II) between their Asian and American identities exhibited higher levels of innovation in creating Asian-American fusion cuisines compared to biculturals with low II. Study 2 showed that women engineers with high II between their gender and professional identities were more innovative than those with low II on identity-related tasks. Study 3 showed that innovation among faculty members with two disciplinary affiliations is similarly related to individual differences in II between their disciplinary affiliations. These findings suggest that the psychological management of multiple identities affects individual innovation.

INTRODUCTION

In this article, we examine individual differences and cognitive processes that underlie how individuals innovate. Previous research on innovation has focused on understanding how interpersonal characteristics influence innovation including team interaction (Swann, Kwan, Polzer, & Milton, 2003) and interdependence (Chen, Liu, & Tjosvold, 2005). The research reported in this article contributes to this literature by examining how intra-individual psychological properties shape innovation. We focus on "identity integration"--or the perceived compatibility of multiple social identities (Benet-Martínez, Leu, Lee, & Morris, 2002)--as an individual difference that predicts how individuals bring together disparate knowledge structures in order to innovate.

Innovation: Novel Solutions from Recombined Existing Knowledge

Innovation is commonly defined as the recombination of existing ideas or knowledge to

create a new idea that is useful and practical (Ancona & Caldwell, 1987). Organizational scholars who have studied innovation propose that the history of technological innovations is a history of "smart recombination"--combining old ideas in new ways rather than creating wholly new ideas (Hargadon, 2002). Indeed knowledge is unevenly distributed in groups and social collectives. There is evidence that frequent interactions and networks between departments or industries promote the "brokering" or inter-exchange of knowledge between these groups, which in turn facilitates innovation at the group and organizational level (Hargadon, 2002).

We propose that a similar process of recombination and integration also may account for innovation at the individual level. We argue that individual differences in how multiple social identities are integrated may influence an individual's ability to recombine knowledge systems linked to these distinct identities, which in turn predicts how well and how much an individual can come up with innovative ideas.

Knowledge Systems and Social Identities

Just as knowledge is unevenly distributed across and between social groups, knowledge in different domains is not equally accessible within individuals. Specifically, knowledge systems are bundled with various social identities, and depending on which social identity is being activated, different knowledge systems are made accessible at different times (Fiske & Taylor, 1984). Research on biculturals, or individuals with multiple cultural identities, further supports the idea that knowledge systems are associated with different social identities. A series of cross-cultural studies show that Asian American biculturals draw from different cultural knowledge sets and behave in a cultural-consistent way when primed with cultural cues. This line of research shows that different knowledge systems or competencies become more accessible when the social identity associated with this knowledge is activated. This can be problematic when identities associated with relevant knowledge systems are in conflict with one another. For example, if two social identities are perceived as incompatible, it might be particularly difficult to simultaneously activate both identities at the same turn, which in turn inhibits the ability to draw from the knowledge systems associated with each identity.

Identity Integration

There are several influential theoretical perspectives in the psychological literature that address how multiple social identities are managed. Roccas and Brewer (2002) suggest that individual differences in perceptions of the relationship between different social identities affect how multiple social identities are negotiated. This is of particular importance when people have social identities with conflicting values or norms such as being gay and Christian at the same time. Supporting this notion, there is evidence that biculturals vary on Identity Integration (II), an individual difference continuum measuring the degree to which two cultural identities are perceived as compatible or in opposition to each other (Benet-Martínez & Haritatos, 2005).

Using self-reports to measure II, these studies showed that biculturals with high identity integration (or high IIs) see the two identities as largely compatible and complementary. In contrast, low IIs feel caught between the two identities and prefer to keep them separate, despite the fact that, like high IIs, they strongly identify with both cultures (Benet-Martínez & Haritatos, 2005). Similarly, women in male-dominated professions (such as business or engineering) also have been found to vary on gender-professional identity integration. High II female professionals perceive their gender and professional identities to be compatible, while low II female professionals see the two identities as fundamentally incompatible, and work hard to keep these identities separate (Trahan, Lee, & Cheng, 2004). We propose that such individual differences in identity integration which we propose have implications for individual-level innovation.

Present Studies

Three studies test the proposition that identity integration predicts an individual's ability to innovate. Because those with high II are better at accessing seemingly conflicting and disparate social identities simultaneously, they may be better at accessing and combining the knowledge systems associated with these social identities, and thus better at creating innovative ideas. Those with low II may be more likely to activate one social identity at a time, and therefore less likely to have access to disparate knowledge systems, resulting in lower levels of innovation. We further propose that this effect--high IIs being more innovative than low IIs--will be evident only in tasks that require knowledge from the relevant social identities. That is, we do not expect high IIs to be generally more innovative than low IIs.

In summary, we predict an interaction effect between II and type of task on individual innovation. When the task requires the application of knowledge systems relevant to two conflicting social identities, high IIs will be more innovative that low IIs. When the task does not require the application of knowledge systems relevant to the two social identities, there will be no differences in innovation between high and low IIs. We test these predictions across two experiments and one field study, each study examining II with different combinations of social identities.

STUDY 1

In Study 1, we examined how level of II between two task-related cultural identities shape innovation in creating fusion cuisine. Fusion cuisines combine two cuisines from different cultures to form new dishes that are different from the traditional cuisines of the respective cultures. Innovative fusion recipes should be new combinations of different traditional cuisines, and should also be appealing to potential customers--that is, the new idea can be effectively applied to reach a desired goal or end-state. We suggest that biculturals who have high II will be more innovative in creating fusion dishes than low IIs, and that this effect will be stronger when the task draws from the two respective cultures.

In a within-subject 2 (II) x 2 (task type) design, 68 Asian-American participants

completed the 8-item Bicultural Identity Integration Scale—Version 1 (see Benet-Martínez & Haritatos, 2005). The example item reads like "I feel part of a combined culture" and higher score indicates higher level of II. Next, participants were asked to create innovative recipes under three conditions in counterbalanced order. In the first condition, where innovation in fusion cuisine was possible, participants' were given both Asian and American cooking ingredients (mixed ingredient condition). In the second and third conditions, participants were only given Asian or American ingredients but not both (single ingredient condition). For each ingredient set, participants first estimated the number of innovative (new, delicious, and popular) dishes that could be created out of any combination of the ingredients, and then created a recipe of one innovative dish from the ingredients. Two coders rated these recipes for innovativeness.

As predicted, we found a significant II x task type interaction. High IIs estimated significantly more innovative dishes than low IIs, and this effect was more apparent in the mixed ingredient condition than in the single ingredient condition. Moreover, the same effect was found for the rated innovativeness of the recipes. Study 1's findings support our hypothesis --Asian-Americans with high identity integration created more innovative dishes than Asian-Americans with low identity integration. Meanwhile, this effect was significant only when the task requires activating both Asian and American knowledge sets.

STUDY 2

Study 2 examined gender-professional identity integration among female engineering students. There is evidence that, for women, a strong gender identity often conflicts with a strong male-dominant professional identity (Deaux & LaFrance, 1998). For example, the dominant professional values in engineering such as being aggressive, independent, non-emotional, and rational diverge significantly from the stereotypical values associated with being a woman.

We predicted that women with high gender-professional II will be more innovative than those with low II, and that this effect will be stronger in tasks that draw from both gender and professional identities than tasks that draw from on a single identity. Participants were 116 female engineering students in a large Midwestern University. They were randomly assigned to work on one of two innovation tasks. The first task instructs participants to design a new multifunction cell phone marketed for women. Participants were asked to think of "as many new and interesting features as possible," and to be "as creative as possible." The second task was identical to the fist task, except that the multifunction cell phone was marketed for college students. After completing the cell phone design task, the participants were asked to fill out a scale measuring perceptions of gender-professional identity integration. This scale was modified from the II scale used in Studies 1 (for example, the item "I am simply an Asian living in America" was changed to " I am simply a woman working in engineering".) Innovation was measured by the number of cell phone features generated, and the average rated level of innovativeness of these features (as coded by two judges). Results showed that high IIs generated significantly more features than low IIs, and that this effect was stronger when the task was

targeted to female users rather than college students. The same results were found for the rated innovativeness of the features. These findings were consistent with our predictions.

STUDY 3

Study 3 consisted of a naturalistic field study that examined integration of different disciplinary identities in academic research. In this study, we focused on academics with a doctoral degree in one discipline and an academic appointment in another (e.g., a sociology Ph.D. with an appointment in a business school). These academics are likely to identify with two disciplines--one from which they are trained, and one in which they are currently appointed as faculty. Because different disciplines often have different norms (e.g., rules for determining authorship), expectations (e.g., criteria for promotion), and relevant "knowledge sets" (e.g., dominant literatures or theories from which research draws upon), identification with two different disciplines can create conflict (Alison & Long, 1990). We argue that individual differences in "disciplinary" II, or the perceived compatibility/conflict between the two disciplinary identities, will be related to research innovation. Drawing from existing studies on academic performance, research innovation was operationalized as the number of publications in peer reviewed journals (Lee & Bozeman, 2005).

Using publicly available information from the internet, we identified faculty members in a large Midwestern research university who have doctoral degrees outside of their field of primary appointment. We sent out e-mails to these 74 individuals with a survey containing the disciplinary identity integration scale. The scale was modified from the II scale used in Study 1 and 2; for example, the item "I am an Asian-American" is modified to "I am a scholar of A and B" (where A refers to the department/field in which participants received their Ph.D.s, and B refers to the field of their primary faculty appointment). The number of peer reviewed publications was collected from the participants' most recent CV. The results showed that, controlling for years after receiving Ph.D., high IIs had significantly more publications than low IIs, supporting our hypotheses.

SUMMARY AND THE FINDINGS

The findings from the three studies provide support that identity integration positively relates to individual-level innovation. Further, this effect was accentuated in tasks that required drawing from both identity-related knowledge sets. We found support for these relationships across a wide variety of social identities (gender, culture, profession, academic discipline) and domains of innovation (fusion cuisine, academic productivity, and engineering/design). These findings suggest that the psychology underlying innovation is a fruitful field of research that can have theoretical implications for understanding how multiple identities are managed and negotiated, and practical implications for increasing individuals' capacity to innovate in their everyday lives.

REFERENCES

Ancona, D. G., & Caldwell, D. (1987). Management issues facing new project teams in high technology companies. *Advances in Industrial and Labor Relations, 4,* 199-221.

Allison, P. D., & Long, J. S. 1990. Departmental effects on scientific productivity. *American Sociological Review, 39,* 596-606.

Benet-Martínez, V., & Haritatos, J. (2005). Bicultural identity integration (BII): Components and psychological antecedents. *Journal of Personality, 73,* 1015-1050.

Benet-Martínez, V., Leu, J., Lee, F., & Morris, M. (2002). Negotiating biculturalism: Cultural frame switching in biculturals with oppositional versus compatible cultural identities. *Journal of Cross-Cultural Psychology, 33,* 492-516.

Chen, G., Liu, C., & Tjosvold, D. (2005). Conflict management for effective top management teams and innovation in China. *Journal of Management Studies, 42,* 277-300.

Deaux, K., & LaFrance, M. (1998). Gender. In D.T. Gibert, S.T. Fiske, & G., Lindzey (Eds.), *The handbook of social psychology* (Vol. 1, 788-827). Boston: McGraw-Hill.

Fiske, S. T. & Taylor, S. E. (1984). *Social cognition*. Reading, MA: Addison-Wesley.

Hargadon, A. B. (2002) Knowledge brokering: A network perspective on learning and innovation. Research in B. Staw, & R. Kramer (Eds), *Organizational behavior* (Vol. 21, 41-85). Greenwich, CT: JAI Press.

Lee, S., & Bozeman, B. 2005. The impact of research collaboration on scientific productivity. *Social Studies of Science, 35,* 673-702.

Roccas, S. & Brewer, M. B. (2002). Social identity complexity. *Personality and Social Psychology Review, 6,* 88-106.

Swann, W. B. J., Kwan, V. S. Y., Polzer, J. T., & Milton, L. P. (2003). Fostering group identification and creativity in diverse groups: The role of individuation and self-verification. *Personality and Social Psychology Bulletin, 29,* 1396-1406.

Trahan, A., Lee, F., & Cheng, C.-Y. (2004). *Identity integration: Extending the model to the workplace.* Paper presented at American Psychology Association Conference, Honolulu, HI.