Implicit Theories of Creativity Across Cultures: Novelty and Appropriateness in Two Product Domains
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One potential problem for creativity theory is whether both novelty and appropriateness are equally valid dimensions across cultures. Taking an implicit theory approach, the authors surveyed more than 400 students from Japan, China, and the United States. Using repeated measures scenarios of cooking and textbook products, novelty was found to be important across the three countries for evaluations of creativity. However, the Chinese were more swayed than were the Americans by the novelty manipulation in terms of how much they desired the products. Appropriateness was more important for Americans and Japanese for evaluations of creativity and desire for products. Both novelty and appropriateness had large effects. Rather than relying on assumed country variations, the authors argue that cross-cultural research be used to understand the nature of creativity.

Keywords: implicit theories; creativity; culture; novelty; appropriateness

Culture is often held responsible for a nation’s abundance or lack of creativity. Within the space of a month, the New York Times ran an article blaming a culture of discouraging innovation for Japan’s lack of Nobel Prize–winning scientists (French, 2001), whereas Wired magazine had an issue focusing on how the Japanese created the most innovative products in the world (Anderson, 2001). Cultural bias in the definition and identification of creativity has also been raised as the reason why individuals from outside the United States may not do as well on American-developed creativity tests—but without testing the nature of that bias or how to overcome it (Ford & Harris, 1992; Lubart, 1990). The purpose of this study is to examine cultural differences in conceptions of creativity in Japan, China, and the United States, specifically how culturally based implicit theories of creativity vary on the fundamental issues of novelty and appropriateness.

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CREATIVITY

Culture can influence creativity in a range of ways, the most obvious being how creativity is valued in different cultures. However, the most basic way that creativity may differ across cultures is in its very meaning. Therefore, the first step in assessing how culture may affect creativity is to establish how creativity is understood in the cultures in question. This is no small task. Both laypeople and creativity researchers even within the same culture use the word creativity to describe a wide range of things: the make-believe world of a child, home decor, specific eminent individuals, or the works of successful artists and scientists.

In current Western psychology, creativity is defined most commonly as a quality attributed to a person or a process that frequently produces a novel, appropriate, nonalgorithmic solution to a problem (Mayer, 1999; although some researchers discuss algorithmic creativity—e.g., Goldenberg, Mazursky, & Solomon, 1999). The general consensus is that creativity should include the features of both usefulness (appropriateness) and originality or novelty (e.g., Amabile, 1983, 1996; Brown, 1989; Mayer, 1999; Mumford & Gustafson, 1988; Stein, 1953). Appropriateness has been defined as usefulness, correctness, and value (e.g., Amabile, 1983) and fitting “the demands of the situation and the needs of the creator” (Brown, 1989, p. 11). It is not sufficient for a product to be new; it must also fill its function. A roll-up television an inch thick is not creative unless it also has sufficient audio and video quality.

The fundamental issue for this article is whether both novelty and appropriateness are equally valid dimensions of creativity for people across different cultures. According to some authors, it is a Western conception to view creativity as something both novel and appropriate (Mayer, 1999; Stein, 1953). Lubart (1990, 1999) reviewed the anthropological and philosophical literature on creativity in Indian, East Asian, and, to a lesser degree, African societies and concluded that there are distinct Eastern and Western conceptions of creativity. Lubart suggested that the element of novelty may not be well suited to non-Western cultures (also see Ludwig, 1992). Lubart compared different creation myths and concluded that Western creation and creativity are seen as having a finite beginning and end; Eastern creation and creativity develop, but with “successive reconfigurations” (Lubart, 1999, p. 341). Therefore, the Western conception of creativity is primarily concerned with innovation, whereas the Eastern conception of creativity is more dynamic, involving the reuse and reinterpretation of tradition rather than breaks in tradition (Lubart, 1999; Raina, 1999).

However, these reviews have a major weakness. They compare anthropological data and ancient philosophical works from Eastern countries with ideas held by modern Western (generally American) psychologists. This comparison confounds culture with different methods, samples, and modernity of thought. Although the “novel and appropriate” definition is currently the primary one in psychological scholarship, even the Western tradition contains many other conceptions of and approaches to creativity (Kaufman & Sternberg, 2006; Mayer, 1999). In a study examining lay theories of scientific creativity in Indian scientists, the authors concluded that there were many similarities between Indian and Western scientists (Kapur, Subramanyam, & Shah, 1997). It is thus also an oversimplification to claim that all Eastern or Western traditions have common theories.

THROUGH THE LENS OF CULTURE

Cross-cultural psychology provides the method and conceptual framework for this study. Cultural psychologists often describe culture as a shared system of learned meanings (Rohner, 1984), encompassing the “values, norms, beliefs and assumptions embraced
by participants” (Nystrom, 1990, p. 147). Although culture can be operationalized in a number of different ways (for a review, see Peng, Ames, & Knowles, 2001), our study uses the implicit theory approach to examine culture. Here, “implicit theories” are those underlying, shared assumptions that guide one’s thinking about how some aspect of the world works, such as lay epistemologies (Kruglanski, 1989), folk theories of intentionality (Malle & Knobe, 1997), or implicit theories of personality (Chiu, Hong, & Dweck, 1997). Implicit theories are the ideas held by laypeople that are usually not discussed, questioned, or consciously considered. Cultural differences have been discovered in several types of implicit theories, such as self-views (Markus & Kitayama, 1991), causal theories (Morris & Peng, 1994), theories of mind (Lillard, 1997), and even ways of dealing with ambiguous and seemingly contradictory information (Peng & Nisbett, 1999).

The implicit theory approach to studying culture provides a precise way of measuring at a particular cultural moment the assumptions that individuals have about creativity. It is an individual-level measurement that does not rely on the interpretation of social institutions or on data from an elite few in a culture’s history. Furthermore, its impact on individual thoughts and feelings is more proximal than explicitly held values (e.g., Hong, Morris, Chiu, & Benet-Martinez, 2000). These reasons imply that the implicit theory approach may be better able to reflect the dynamic changes in people’s minds that often result in, and are the product of, institutional and cultural reforms (Peng et al., 2001).

In the past few years, there has been an emerging interest in examining conceptions of creativity across and within cultures, particularly within the United States and East Asia (e.g., Chan & Chan, 1999; Niu & Sternberg, 2002; Rudowicz & Hui, 1997; Rudowicz & Yue, 2000; Runco, 1984; Runco & Bahleda, 1986; Sternberg, 1985, 1988; Sternberg, Conway, Ketron, & Bernstein, 1981; Yue & Rudowicz, 2002). These have been primarily useful in demonstrating differences and similarities in traits associated with creativity. The main research paradigm involves collecting lists of traits associated with creativity and then showing that these traits are more important than others in the evaluation of creativity in people (e.g., Rudowicz & Hui, 1997; Sternberg, 1985). The general assumption that creativity is related to originality, imagination, and so on seems to be common. These studies also point out that cultural differences in creative traits seem to be related to other cultural values, such as conformity and independence. However, with the exception of Rudowicz and Yue’s (Rudowicz & Yue, 2000; Yue & Rudowicz, 2002) comparisons among Taiwan, Hong Kong, and mainland China, none of these studies compare results directly across different cultures but rely on comparisons between studies.

In addition, these studies do not get to the heart of understanding the novelty and appropriateness aspects of creativity. Trait terms and characteristics are vital to implicit theories of the creative personality but do not elucidate how people understand or recognize creative products. A recent collection by Kaufman and Sternberg (2006) summarized some of the literature from within different countries (e.g., Africa, France, Germany, China, etc.) with regard to creativity. The most basic assumption in creativity research, that its primary dimensions are novelty and appropriateness, is suggested to be shared but is rarely tested across countries. Although the current study limits creative products to two domains, it experimentally manipulates the amount of both novelty and appropriateness in a set of within-subjects scenarios to determine the relative effect of each dimension on ratings of creativity. Because most of the literature on implicit theories of creativity (with the exception of the anthropological evidence from India) takes place either in East Asia or in the United States, locations from these regions were chosen for this study.
PREDICTIONS

We hypothesized that both novelty and appropriateness, manipulated separately, will be important to evaluations of creativity and how much individuals from different countries desire a product. Based on the previous reviews, people from East Asia will find appropriateness a more important dimension and criterion of creativity than will Americans. Americans in general will find novelty more important for creativity and desire products with higher levels of it more. Given that most cross-cultural studies usually involve only two countries (van de Vijver & Leung, 2000), three countries will be examined. We predict that country differences will play out via interactions with each of the two main manipulations (novelty and appropriateness). Simple effects comparisons will also be used to unpack potential interactions between country and the main manipulations.

METHOD

For this study, a questionnaire was administered to a large number of participants from the People’s Republic of China, Japan, and the United States. When possible, we obtained participants from different regions within these countries.

PARTICIPANTS

Although the samples were not from the general population and are not expected to generalize well, we expected that, by using college students from different public universities with excellent reputations, the participants would be roughly equivalent in terms of level of education, socioeconomic status, age, and other qualities.

The original sample consisted of 109 Chinese students, 177 Japanese students, and 191 American students. However, they were actually significantly different in terms of age, partial \( \eta^2 = .23, F(2, 467) = 70.03, p < .001 \). The average age of the Chinese students was 26.4 years \((SD = 7.95)\), the average age of the Japanese participants was 20.7 years \((SD = 1.9)\), and the average age of the Americans was 20.3 years \((SD = 3.48)\). Because of this difference, culture was significantly confounded with age. In particular, age was positively correlated with being Chinese \((r = .48, p < .001)\); with being Japanese, \( r = -.18, p < .001 \); and with being American, \( r = -.24, p < .001 \).

To better match the sample for age, only participants younger than 26 years (i.e., ranging from 18 to 25) were used for this study. This did not entirely remove the significant correlations between culture and age (or difference in terms of age), but the size of the correlations became smaller \((r = .14, p < .01); with being Japanese, \( r = .16, p = .001 \); with being American, \( r = -.25, p < .001 \)). Alternative analyses of the whole sample with and without controlling for age as a covariate are presented in the notes, including testing for age as a significant unique effect.

This matched sample consisted of 60 Chinese, 172 Japanese, and 180 American participants. Of the Chinese students, all were born in China and were ethnic Chinese taking psychology classes at Peking University. Twenty-one (35%) took a summer course, and 39 (65%) were in the research participation pool during the school year. Their average age was 20.9 years old \((SD = 2.35)\), and 50% were female and 50% were male.

Of the 172 Japanese students, 42% were female and 58% were male. The largest group (75, 44%) was engineering students from Osaka Prefecture University. An additional 50
social psychology students from the University of Tokyo and 47 students at Tokyo Medical and Dental University taking a psychology course participated in the survey. The mean age of these students was 20.6 years (SD = 1.8). The majority were ethnic Japanese (93%) and had been born in Japan (98%).

The 180 American students had all lived most of their lives in the United States and considered it their home country, although only 89% were born there. In all, 107 were taking psychology courses from the University of California, Berkeley (UCB), and 73 were recruited from the University of North Carolina at Chapel Hill (UNC) in a sociology course. Their average age was 19.7 years (SD = 1.5). Thirty-four percent were male and 65.5% were female. In terms of race/ethnicity, 55% were Caucasian, 32% Asian American, 7% African American, 3% Hispanic, and 3% some combination of two or more races/ethnicities or Native American.

Information was collected about the field of study (major) of each participant. Given the potential for participants to have more than one major, analyses were conducted by separating those students who have one or more social or behavioral science major versus all other students and those students who have one or more natural science or mathematics major versus all other students. These two dichotomous variables allowed for clear and simple distinctions. For the Chinese participants, 40% listed one or more natural science or mathematics majors (vs. 58% who only listed other majors), and 50% listed one or more social science majors (vs. 48% who listed only non–social sciences). For the Japanese, 67% listed one or more natural science majors (vs. 31%), and 27% listed one or more social science majors (vs. 70%). For the American sample, 33% had one or more natural science or mathematics majors (vs. 67% who did not), and 59% had one or more social science majors (vs. 41% who did not).

**DESIGN AND MEASURES**

This study was a mixed design of three within-subjects variables and two between-subjects variables. The two between-subjects independent variables were country and order. The scenarios and all their questions were presented in two different orders backward to each other to control for order effects between participants.

Three independent variables were manipulated within the scenarios: level of novelty, level of appropriateness, and type of product. A 2 (novelty, high and low) × 2 (appropriateness, high and low) × 2 (type of product) design was presented as eight scenarios. The two products were a textbook for a college course and a meal cooked by a friend. The type of product was not hypothesized to have any particular effect but was included to establish a small measure of breadth. Novelty was manipulated by a statement that asserted that the product in the example was new or different in some way. Appropriateness was manipulated by fulfilling the criteria of what would make a good textbook or meal. For example, the scenario high on appropriateness and high on novelty for the textbook was the following:

Imagine that you are taking a university course where your main reading is a big textbook. The textbook is clearly written and explains the material very well. It presents the material in a way that hasn’t been done before, including some new examples.

An example of the scenario low on appropriateness and low on novelty for cooking was the following:
Imagine that you often have dinner with a good friend, where you each take turns cooking. One night, your friend cooks dinner for you. The meal doesn’t fill you up but tastes okay. The friend combines ingredients that are usually used together.

For the dependent variables, the participants judged each of the eight scenarios on seven criteria using Likert-type 1 (not at all) to 7 (extremely) scales before reading the next scenario. Only six of these are relevant to this study, three of which were used for manipulation checks and three of which were used as dependent variables. In addition to judging the meal or textbook on its creativity, the participants rated each scenario product on how different it was from what they had experienced, its general quality, how suited it was to the situation, how much they would want to read or eat the product in the example, and, relative to similar types of products, how much money they would be willing to spend on it. Because the pattern of results was similar for ratings of (a) how much the participants would want to experience the product and (b) how much they would be willing to spend on it, these two items were combined into a simple composite measure of desire for the product. The reliability of these questions as a two-item combination was tested for each scenario separately; testing across scenarios would incorrectly presume item correlations across different scenario manipulations. The mean Cronbach’s alpha for these two items across the eight scenarios was .63 (SD = .081).

Translation and linguistic equivalence. A decentering approach was used in the creation and translation of the questionnaires to increase comparability across them. New measures were developed in collaboration with local experts from the relevant countries (van de Vijver & Leung, 1997). The entire packet was translated into Japanese and traditional Chinese by bilingual psychology undergraduate assistants who had lived most of their lives in Japan and Taiwan, respectively. These versions were then back-translated by bilinguals who had lived at least half of their lives and during their formative years abroad (in Japan and the People’s Republic of China, respectively) but had also lived at least 10 years in the United States. The different versions were discussed, committee style, by all of those involved in the translation so far to be sure that same meaning (not simply exact word-for-word translation) was achieved across all versions. In this manner, changes or problems arising from one version could be addressed in the other two (van de Vijver & Leung, 1997). Finally, additional Japanese and Chinese bilinguals who had each spent more than 5 years in the United States edited the Japanese and Chinese versions for grammar and understandability.

Procedure. The majority of the students were recruited in undergraduate classes. The entire packet, which included other measures not reported here, took 45 minutes to 1 hour to complete. All participants were given informed consent forms in their own language and were debriefed after having taken the survey. Previous studies have found reference group effects such that participants will intuitively compare themselves to other members of their immediate community when rating their values (Heine, Lehman, Peng, & Greenholtz, 2002). To help mitigate these effects, all participants were told before beginning that the survey was being administered in Japan, China, and the United States.

Analyses. Previous research has shown that there may be culturally based response biases; for example, the Japanese language encourages Japanese participants to use the middle of scales, whereas Arabic encourages the use of the extremes (Kuroda & Suzuki, 1989). Therefore, we ipsatized the data within subject to control for individual and cultural
response biases (Smith, Bond, & Kağıtçibaşı, 2006). The method we utilized involves recalculating each item score to control for each individual’s mean score and standard deviation on that scale (Gurwitz, 1987). This process controls for response biases because of mean differences (e.g., acquiescence biases, etc.) and biases because of differences in range (e.g., centrality biases, using only the extreme ends of the scale, etc.). Although the original scales were from 1 to 7, the presented means are the ipsatized versions, which center around zero.

The data were analyzed using repeated measures MANOVAs. The two dependent variables were evaluations of creativity and the composite variable of how much the product was desired. Every analysis included domain and order of questions, thereby controlling for those two variables. In fact, each analysis included all the main independent variables such that the reported results automatically control for the other results noted. Field of study was tested as a covariate, and, as mentioned previously, the participants were matched for age. The data were then tested across the entire sample for effects of the primary variables (country, novelty, and appropriateness) and their interactions on the two dependent variables. Country was examined as a three-value variable. Interaction effects were further unpacked by testing for simple effects using ANOVAs (e.g., the effect of the novelty manipulation for each of the three countries, the effect of country for each level of the novelty scenarios). In this manner, we were able to discover the relative influence of the novelty and appropriateness manipulations for each country compared with each other.

RESULTS

Because the results are suitably complex, the results are divided into several sections: possible confounds, manipulation checks, creativity of the product, and desire for the product.

POSSIBLE CONFOUNDS

First, it is important to establish the possible confounds for this study. We investigated major and order of the questions, all using the age-matched samples detailed above.

Order. Order of questions had a significant main effect on ratings of creativity, partial $\eta^2 = .068$, $F(1, 408) = 29.87$, $p < .001$, such that individuals with Order 1 gave higher ratings of creativity across the board than did those who were administered Order 2. There was also a significant effect of order on desire for the product, partial $\eta^2 = .095$, $F(1, 410) = 43.03$, $p < .001$, such that those administered Order 2 gave higher ratings for desirability of products across all the scenarios than did those given Order 1. There were no significant interaction effects between the different orders and either the novelty or appropriateness manipulations for ratings of creativity or for appropriateness by order for desire. However, there was a significant interaction between novelty and order for desire for the product, partial $\eta^2 = .018$, $F(1, 410) = 7.33$, $p = .007$. Because of these effects, and because of the possibility of order by country effects, order was controlled for in all subsequent analyses.

Field of study. Across the entire sample, there were no interaction effects using either of the two dichotomous variables for major by novelty, major by appropriateness, or appropriateness by novelty for either of the evaluations of creativity or desire for the product, whether country was included into the analysis or not. There was a nonsignificant
trend for natural science majors versus nonscience majors on desire such that science majors rated all products slightly higher in terms of desirability, partial $\eta^2 = .008$, $F(1, 403) = 3.23$, $p = .073$, but even this trend disappeared when country was included, partial $\eta^2 = .001$, $F(1, 397) = 0.48$, $p = .49$. The effects for country were unchanged by the inclusion of field of study. Because there were also no country by major effects, or country by major by novelty or culture by major by appropriateness effects, it was deemed unnecessary to include major in subsequent analyses.

MANIPULATION CHECKS

The novelty and appropriateness manipulations were tested via three questions: How different from most meals or textbooks is the one in the example (novelty), how suited to the situation or suitable for college education is the product (appropriate in terms of suited to the situation), and how well written or well made was the product in the example (appropriate in terms of quality).

Controlling for country, order, and type of product, these questions suggest that the manipulations were successful. Across all scenarios and samples, the appropriateness manipulation had a positive main effect on the rated suitability of the product, partial $\eta^2 = .728$, $F(1, 399) = 1066.62$, $p < .001$, and on the rated quality of the product, partial $\eta^2 = .789$, $F(1, 406) = 1519.31$, $p < .001$. Similarly, the novelty manipulation had a significant positive effect on participants’ ratings of how different the product in the scenario was from most other textbooks or meals, partial $\eta^2 = .67$, $F(1, 400) = 812.54$, $p < .001$.

It is also necessary to examine whether these manipulation checks were significantly different across country. If they are different, there is a chance that the manipulations were not the same for each sample. Controlling for order and domain, for evaluations of quality, there was a significant country by appropriateness effect, partial $\eta^2 = .129$, $F(2, 406) = 30.02$, $p < .001$. Similarly, for ratings of suitability, appropriateness and country resulted in a significant

TABLE 1
Repeated Measures Multiple Analysis of Variance for Creativity of the Product

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>Partial $\eta^2$</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Novelty</td>
<td>1,404</td>
<td>1482.57</td>
<td>.786</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Appropriateness</td>
<td>1,404</td>
<td>429.16</td>
<td>.515</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Order</td>
<td>1,404</td>
<td>77.28</td>
<td>.161</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Country</td>
<td>2,404</td>
<td>49.09</td>
<td>.108</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Country $\times$ novelty</td>
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<td>18.90</td>
<td>.086</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Country $\times$ appropriateness</td>
<td>2,404</td>
<td>2.32</td>
<td>.011</td>
<td>.10</td>
</tr>
<tr>
<td>Country $\times$ novelty $\times$ appropriateness</td>
<td>2,404</td>
<td>9.23</td>
<td>.044</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Chinese</td>
<td></td>
<td>6.11</td>
<td>.029</td>
<td>.029</td>
</tr>
<tr>
<td>Japanese</td>
<td>1,58</td>
<td>41.92</td>
<td>.420</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Americans</td>
<td>1,169</td>
<td>256.83</td>
<td>.603</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Whole sample—Low appropriateness scenarios</td>
<td>1,177</td>
<td>363.45</td>
<td>.672</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Country</td>
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<td>19.96</td>
<td>.089</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Whole sample—High appropriateness scenarios</td>
<td>2,409</td>
<td>6.41</td>
<td>.030</td>
<td>.002</td>
</tr>
</tbody>
</table>

a. Controlling for order and domain manipulations.
interaction effect, $\eta^2 = .116$, $F(2, 399) = 26.12$, $p < .001$. The pattern of results for both of these items was such that the appropriateness manipulation had a stronger effect (both positive and negative) on the Japanese and the Americans’ ratings of suitability and quality than for the Chinese. Finally, for ratings of how different the product was, there was a significant interaction for country and novelty, $\eta^2 = .034$, $F(2, 400) = 6.97$, $p = .001$. The Chinese were more swayed by low novelty than were the Japanese and more swayed by high novelty than were the Americans. The Japanese gave higher ratings of difference at high levels of novelty than did the Americans, who gave lower ratings of difference at low levels of novelty than did the Japanese.

CREATIVITY OF THE PRODUCT

As expected, both the novelty and the appropriateness manipulations had significant main effects on ratings for creativity (see Table 1 and Figure 1). Those products that were considered most creative were high on both novelty and appropriateness.

Country had a main effect and a significant interaction with appropriateness but no interaction effect with novelty. Examining the effect sizes for the different country groups for appropriateness, it seems as though appropriateness had a stronger effect on the Americans and the Japanese than the Chinese. On the other hand, the novelty manipulation seems to have had a similarly significant effect for each of the three samples (see Figure 1). Indeed, examining the effect sizes for the whole sample, the novelty manipulation seems to have had a stronger effect than the appropriateness manipulation in general.

DESIRE FOR THE PRODUCTS

Dimensions important to evaluations of creativity are not necessarily the same as what people desire in a product. However, examining novelty and appropriateness in terms of desire can shed light onto how much they are valued by members of different cultures. Two items dealing with how much the participant wanted to experience and spend on the product formed

![Figure 1: Creativity of the Product by Country and Novelty and Country by Appropriateness](http://jcc.sagepub.com)

NOTE: These are marginal means of ipsatized results controlling for order and domain.
As with the analyses above, all of these analyses controlled for order and domain.\(^6\)

Both the novelty and appropriateness manipulations had positive significant effects for how much the participants desired the product (see Table 2). The more novel and the more appropriate, the more the participants wanted and were willing to spend money on the theoretical product. There was also a significant main effect for country and significant interaction effects for country by novelty and country by appropriateness.

Testing the simple effects for the novelty and country interaction, it is clear that the Chinese were more strongly influenced by the novelty manipulation than were either the Japanese or the Americans. Even though they all have significant effects, the effect size of the novelty manipulation is greatest for the Chinese sample. The effect sizes for appropriateness are greater for the Americans and Japanese than for the Chinese, as is illustrated by viewing the marginal means (see Figure 2).

**DISCUSSION**

This study is a first step to examine popular claims about cultural differences in the relative importance of novelty and appropriateness for creativity. Few studies have explored
these important aspects of creativity. With regard to evaluations of novelty and appropriateness in the two types of products examined, creativity appears to be consistent across cultures in some basic ways. In particular, the novelty manipulation had a consistent effect across the three country groups. However, the differences indicate that, as with other cognitive processes such as attribution, categorization, and inductive and deductive reasoning (Nisbett, Peng, Choi, & Norenzayan, 2001; Peng et al., 2001), conceptions of creativity may subtly differ by culture.

For judgments of creativity, novelty was very important across the three countries. Appropriateness was important as well, but the significant interaction effect suggested that the appropriateness manipulation had a stronger effect for the Americans and Japanese than for the Chinese. This finding is contrary to cultural stereotypes that claim that Americans, as opposed to East Asians, would find appropriateness less important to creativity.

Judgments of desire for a product are not the same as evaluations of creativity. By comparing the patterns of results, we can tease apart the relative influence of the novelty and appropriateness dimensions. In particular, if our participants desired products that were different from those they found creative, creativity in and of itself may not automatically be valued. In general, both novelty and appropriateness had strong significant effects on both ratings of creativity and desire; however, novelty was more important overall for creativity, and appropriateness was more important overall for desire. The country differences were also more complex for desire: A significant interaction effect between novelty and country revealed simple effects such that novelty was most important for the Chinese and least important (but still significant) for the Americans. Appropriateness had a stronger effect for the Americans and Japanese than for the Chinese.

Several interesting directions emerge from these data. First, what differences existed suggest that appropriateness, here demonstrated by the level of functionality of the product, may be more important to Americans and less important to Chinese than has been previously suggested. This is a modest refutation of Lubart’s (1999) conclusions and this study’s hypotheses. In addition, the finding that novelty was not as important to the
Americans in terms of desire for the product as for the Chinese suggests that novelty as a dimension may be valued differently than previously theorized. Third, at several points there were differences and similarities among all three samples, including between the Japanese and Chinese, two East Asian cultures that have often been lumped together in cross-cultural psychology. The current findings remind us again that not all East Asian cultures are the same. Fourth, and most striking, for the two domains examined, both the appropriateness and novelty manipulations had strong significant effects across all the samples. In particular, unlike suggestions in prior research, novelty was important in all three countries in evaluations of creativity. What culture differences were found are not nearly as strong (in terms of effect sizes) as the manipulations themselves. Cultural differences in the importance of novelty and appropriateness for creativity may be less powerful than previously theorized. Therefore, the culture differences found here suggest the beginning of an area for scientific exploration rather than the conclusion.

A possible explanation for this study's results may be found in the interactions between country and the manipulations as revealed in the manipulation checks. It is clear from those results that the appropriateness manipulation had a stronger impact on the American and Japanese participants than the Chinese, who may have been more influenced by the novelty manipulation. Differences in perceived demand are, in a sense, the object of study. If the appropriateness manipulation was more powerful for the Americans for desiring the product, for example, this implies cultural differences in what people think they should like. If the same phrase elicits a different reaction from members of different cultures, then, in a small degree, we have captured culture: The “shared meanings” are interpreted differently. Nevertheless, whether these are true cultural differences in the interpretation and influence of novelty and appropriateness or a subtle difference in language of the stimulus cannot be solved by this one study.

Future research should concentrate on improving on the methods developed here. This study has some procedural and theoretical similarities to the Amabile Consensual Assessment Technique (CAT; Amabile, 1996), a method generally used to enable coders to judge real creative products (rather than used as a quasi experiment in and of itself). The basis of the CAT is that the coders use their implicit assumptions to judge creativity and that such assumptions are often difficult to articulate. With both the CAT and this study, each assessment of a product occurred independently from other “coders” (participants), who judge each product on several dimensions. In future studies, instead of judging theoretical products, participants could judge actual products, as the CAT has already been successfully used cross-culturally (e.g., Chen et al., 2002). These products could be made to vary by novelty and appropriateness, with both dimensions pre-evaluated by individuals in the relevant cultures.

There were also multiple ways of defining appropriateness in the creativity literature. In this study, appropriateness was operationalized as the product in question fulfilling its function well, but it could also have been operationalized as usefulness to the creator, usefulness to society, suitability, fitting the needs of a situation, and so on. These different types of appropriateness should be distinguished in future research. Furthermore, future studies on novelty and appropriateness should attempt to integrate other criteria by which a product is judged to be creative, such as authenticity (Averill, Chon, & Hahn, 2001) and transformation and condensation (Jackson & Messick, 1965).

A potential problem with the current study is the demand characteristics brought about by the within-subjects design. Each participant read eight scenarios that varied on the planned manipulations. A between-subjects design would be stronger in terms of better hiding the hypotheses from the participants. Because the Amabile CAT requires each coder
to evaluate each product and compare them to each other, a between-subjects design should not be mistakenly referred to as the CAT. Regardless, multiple extensions of this study would help to tease apart what participants actually desire from what they think they should desire.

As with any study, it is possible that the findings have alternative explanations. The fact that the implicit theory approach captures a particular cultural moment means that it is hard to generalize to other cultural moments. This study’s use of university students as participants further limits its generalizability. In addition to the possibility that these findings are caused by cohort effects, such that college students in the turn of the century might have different implicit theories of creativity than do their elders, there may also be longitudinal effects, such that the very same participants may change their unspoken attitudes over time. Although considered adults, students aged 18 to 25 may well have different implicit theories than do older adults, and their own implicit theories may change across their own life spans. It would be useful to compare different age groups within and across countries.

In general, however, the use of college students allows for greater comparability across the different cultures, and it can be very difficult to find similarly comparable samples in the general population. Although there were differences between the samples for majors that they held, major itself was not found to be meaningfully related to ratings of the scenarios. On the other hand, both the actual and relative socioeconomic status of the participants was presumed, rather than tested, to be comparable. Even though each university is relatively affordable (and the American universities, as well-respected public rather than private schools, are among the least expensive in that nation and draw students from across socioeconomic classes), the relative socioeconomic status of students in the different countries could be different. Students from Peking University may be more different from the broader population of China than students from UNC or Osaka University. Despite efforts to counteract the reference group effect (Heine et al., 2002), it may have been at play for relative socioeconomic standing rather than national culture.

In addition, the study was limited to scenarios focusing on two different specific products within a possible universe of products, processes, people, and other outputs. Although not discussed in this article, there were effects for domain, suggesting that these results may not generalize across different outputs. The choice of products for future research must be conducted carefully to ensure that they are roughly equally appreciated and used in the different countries. Meals and textbooks were judged by cultural experts to be fairly common products for college students across the three samples. By keeping the focus on novelty and appropriateness, this study began a manageable line of inquiry, but it is by no means the final word.

Finally, this type of research reminds us of a great lack within psychology: Neither the study of creativity nor the study of culture has large, overarching theories that were relevant here. Although it is likely that continued accumulation of knowledge in this area will lead to a larger, encompassing theory, at this point this research is primarily focused on testing specific assumptions and describing phenomena. Future research may find it useful to incorporate cross-cultural theories and patterns such as individualism–collectivism (e.g., Triandis, 1989; Triandis & Gelfand, 1998). Associating these results with cultural values may serve to reveal other influences on implicit theories of creativity (e.g., Paletz & Peng, 2006). Creativity and cultural theory may together also serve to explain the preponderance in similarities in implicit theories of creativity found in this study.

The findings presented here are exploratory. If the results become established through future research, then we could begin to address deeper questions: How and are these differences in
implicit theories tied to specific behaviors (Matsumoto & Yoo, 2006)? Why are there cultural differences and similarities in implicit theories of creativity (Heine & Norenzayan, 2006)? Are these differences and similarities historical, or is this research a snapshot of the current moment? Are the differences and similarities functional for each culture, and, if so, how? Psychology could help guide an interdisciplinary study of culture and creativity, starting with careful multicultural ethnographies and then moving to cross-national surveys and experiments. Research on implicit theories has the potential to take what is often considered a large, difficult to control variable—culture—and operationalize it so it is more measurable and comprehensible. Research on implicit theories of creativity also enables us to better understand the nature of creativity, as we learn what laypeople from different perspectives think and assume.

National and corporate cultures are often blamed for a dearth of innovation on the part of their members. This study’s findings suggest that implicit theories of creativity may go beyond stereotypes about East–West differences. The implicit theory approach to cultural psychology allows us to better determine the social construction of topics such as creativity, so we can discover how they influence our cognition and behavior. The nature of creativity is multifaceted: If we view it through the eyes of people across the world, we can better understand which aspects are universal and which are culture specific.

NOTES

1. There were no significant differences on our dependent variables within the United States between Asian Americans and Caucasian Americans or the University of North Carolina at Chapel Hill and University of California, Berkeley students, neither as main effects nor as interactions between ethnicity (or location) and novelty or ethnicity (or location) and appropriateness.

2. The field of study was an open-ended question in which participants could list as many majors as they wanted. The majority of the Chinese and Japanese participants listed only one major (95% and 99%, respectively); however, 32% of the American students listed more than one major. Major was categorized by coders into natural science and/or mathematics (e.g., physics, any engineering, biology, neurobiology, mathematics, etc.), social and/or behavioral sciences (e.g., psychology, education, business, history, legal studies, etc.), humanities and/or arts (e.g., literature, fine arts, architecture, music), undecided, mixed (e.g., music therapy), or other (e.g., “interdisciplinary” without specification).

3. Type of product had several significant effects, including interaction effects, across the sample. For example, the whole sample valued and found more creative the meals versus the textbooks. However, domain was beyond the scope of this article, as only two were tested.

4. When the samples were matched for age, as discussed above, there were no significant age effects (country not in the model), not for ratings of creativity either as a main effect or in interaction with novelty or appropriateness nor for ratings of desire as a main effect or in interaction with novelty or appropriateness.

5. When not matched for age, the larger sample (aged 18 to 56) showed the same overall effects on evaluations of creativity: a main effect for country on evaluations of creativity, partial η² = .077, F(2, 465) = 19.46, p < .001, an interaction between country and appropriateness, partial η² = .050, F(2, 465) = 12.28, p < .001, an interaction among country, appropriateness, and novelty, partial η² = .039, F(2, 465) = 9.34, p < .001, but no interaction with just novelty, partial η² = .005, F(2, 465) = 1.26, p = .28. If this larger sample included age as a covariate, the significant country effects disappeared (and the main effects for novelty and appropriateness became smaller).

And yet when country was included, there were no interaction effects between age and novelty, age and appropriateness, or age by appropriateness by novelty, nor a main effect for age. When the samples were matched for age (including only participants aged 18 to 25), there was no main effect for age, nor were there significant interactions of age by appropriateness or by novelty. These findings suggest that the inclusion of age took away variance that was explained by country but that age itself did not have a significant independent effect.

6. Using the larger sample (aged 18 to 56) revealed the same pattern of results: For desire of the products, there was a main effect for country, η² = .037, F(2, 467) = 8.90, p < .001, and there were significant interactions between country and novelty, η² = .094, F(2, 467) = 24.16, p < .001, country and appropriateness, η² = .168, F(2, 467) = 47.16,
$p < .001$, and country and novelty and appropriateness, $\eta^2 = .043$, $F(2, 467) = 10.45$, $p < .001$. However, these country effects were lessened when age was included as a covariate, such that there was no longer a main effect for country, and the country by appropriateness effect became a trend, $\eta^2 = .011$, $F(2, 457) = 2.61$, $p = .075$. Novelty by country was still significant, even controlling for age, $\eta^2 = .015$, $F(2, 457) = 3.38$, $p = .035$. On the other hand, for these larger sample analyses, when country was included, there was no main effect for age, nor were there interaction effects between age and novelty, age and appropriateness, or age and appropriateness and novelty. When country was not included into the model but age was limited to the sample matching presented here, age also had no main effect nor interaction effects with novelty or appropriateness.

REFERENCES


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