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Publisher: Routledge

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Creativity Research Journal

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/hcrj20>

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Available online: 09 Nov 2010

To cite this article: Hangeun Lee & Kyung Hee Kim (2010): Relationships Between Bilingualism and Adaptive Creative Style, Innovative Creative Style, and Creative Strengths Among Korean American Students, *Creativity Research Journal*, 22:4, 402-407

To link to this article: <http://dx.doi.org/10.1080/10400419.2010.523409>

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Relationships Between Bilingualism and Adaptive Creative Style, Innovative Creative Style, and Creative Strengths Among Korean American Students

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The purpose of this study was to examine whether there is a relationship among different degrees of bilingualism and creativity (adaptive creative style, innovative creative style, creative strengths). A total of 116 Korean American students participated in this study. They consisted of 49 boys with the mean age of 11.8 and 65 girls with the mean age of 11.3. The Word Association Test and the Subjective Self Rating were used to determine the degrees of bilingualism, and the Torrance Test of Creative Thinking–Figural was used to measure creative potential. The results indicated that the degree of bilingualism was positively associated with creativity, and more specifically, with the adaptive creative style and creative strengths.

LANGUAGE AND CULTURE INFLUENCE CREATIVITY

Creativity is a multidimensional ability that is influenced by various factors of specific social environments such as culture or language (Gelade, 2002). Creativity can be viewed as a form of cultural and social phenomenon rather than a form of mental process (Csikszentmihalyi, 1999). Culture can affect both the level of creativity and how creativity is evaluated. Creative behaviors and skills can be affected within the realm of an individual's circumstance. These behaviors can also be affected by the specific words used (Mumford, Reiter-Palmon, & Redmond, 1994) and by the social environment in which an individual has been situated (Dacey, Lennon, & Fiore, 1998). Thus, creativity exists in various shapes and forms depending on what a culture values, honors, and cultivates (Ng, 2003; Torrance & Sisk, 1997).

Ogawa, Kuehn-Ebert, and DeVito (1991) and Saeki, Fan, and Van Dusen (2001) have studied cross-cultural differences between Asian and American students and found that different creative performances or preferences exist between different cultures and languages groups. For example, in measures of creativity, American students show superiority in flexibility (ability to shift categories of ideas), whereas Asian students show superiority in elaboration (ability to add details to ideas). Shallcross and Li (1992) investigated different patterns of solving the nine-dot problem between Chinese and American students and found that American students spent more time experimenting with the trial-and-error approach before arriving at a solution. Chinese students spent more time identifying the problem before attempting to solve it, reflecting the Chinese saying, "Think three times before doing." Lubart (1999) stated that there is a different perception in the manner of creativity between Eastern and Western cultures. According to Lubart, in the Eastern view, creativity seems to involve finding a way to reinterpret traditional ideas, whereas creativity from the Western perspective seem to involve a break with tradition altogether.

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ARE BILINGUAL INDIVIDUALS MORE CREATIVE THAN MONOLINGUAL INDIVIDUALS?

Bilingual individuals are often engaged in two different cultural environments, using two different languages, as opposed to monolingual individuals who are typically situated within the realm of one cultural environment and one language. Differing languages of bilingual individuals and accompanying cultural contexts may affect creative individuals' conception of problems (Lubart, 1999). Research on bilingualism has indicated that bilingual children tend to be more creative than monolingual children (Lasagabaster, 2000). One cause of the increase in creativity may be the flexibility that is required for students to frequently switch languages and cultural behaviors (Walters, 2005). In a bilingual setting, students are often confronted with challenges caused by an interaction between their first and second languages, or between two different cultural circumstances. Under these circumstances, bilingual individuals must be more flexible in their decision making approach utilizing their dual linguistic perspective and dual cultural perceptions. During problem solving or decision-making, bilingual individuals' associations connected to the same concept or immense tolerance of ambiguity for incompatible, ill-defined elements may be very diverse. Fleith, Renzulli, and Westberg (2002) investigated the effect of a creativity training program on divergent thinking ability and found that the program had positive effects on divergent thinking ability in bilingual classrooms.

On the other hand, Spanakos (2001) did not find superiority of bilingual individuals to monolingual individuals on measures of divergent thinking, although bilingual individuals did perform better than monolingual individuals on a measure of convergent thinking. This might be due to the level of proficiency across both languages. Although there is inconsistency between the studies, the majority suggest that bilingual individuals tend to be more creative than monolingual individuals (Ricciardelli, 1992). Further, it might be suggested that the less alike the two languages (e.g., Korean and English) and cultures (e.g., Eastern and Western) are, the more flexibility is required.

Within bilingual individuals, those who have attained a high level of competence in only one of their two languages are called *non-balanced* bilingual individuals and can be categorized differently from *balanced* bilingual individuals (Hamers & Blanc, 2000). Aliotti and Wu (1985) and Ricciardelli (1992) found that balanced bilingual individuals perform better than non-balanced bilingual individuals on measures of creative potential.

ADAPTIVE CREATIVE STYLE, INNOVATIVE CREATIVE STYLE, AND CREATIVE STRENGTHS

Kirton (1999) defined creativity as a continuum of styles, ranging from adaptive preferences for decision-making and problem solving to innovative preferences, indicating that individuals tend to have relative preferences for solving problems independent of their creative ability. According to Kirton, the primary difference between adaptors and innovators is their approach to change: Adaptors are those who try to do things better, whereas innovators are those who seek to do things differently. Adaptors create original ideas, which are more likely to fit the existing paradigm. Innovators endeavor to create original ideas, which are more likely to challenge the existing paradigm (Kirton, 1999). These two different creative styles are found to be related to different subscales of measures of creativity. Goldsmith (1985), Isaksen and Puccio (1988), and Puccio, Treffinger, and Talbot (1995) found that innovators are more fluent, more original, more drawn to risk taking, and more creatively motivated.

In addition to the two creative styles, Kim (2006b; Kim, Cramond, & Bandalos, 2006) has added creative strengths as one more factor of creative style, which is measured by the Torrance Tests of Creative Thinking (TTCT, see the instrument section for more detailed information). Kim (2006b) reported that creative potential, measured by the TTCT, consists of two factors, which correspond to Kirton's Innovative and Adaptive styles. The innovative factor is associated with Fluency, Originality, and Resistance to Premature Closure, whereas the adaptive factor is associated with Elaboration, Abstractness of Titles, and Resistance to Premature Closure on the scores of the TTCT. Resistance to Premature Closure double-loads on both factors, which is based on Torrance's (1998) theoretical assumption that psychological openness is a prerequisite for creativity in general. Creative strengths is the third factor because it has been added in addition to the two creative styles. Kim found that innovators tend to be more fluent and original than adaptors, which is consistent with the findings of the previous studies (Isaksen & Puccio, 1988; Torrance & Horng, 1980).

Further, Kim (in press) and Cheng, Kim, and Hall (2010) found that both adaptive creative style and creative strengths are related to other measures (e.g., personality types, Confucianism, or people from different cultures), whereas innovative creative style has no relationships or has different relationships with these measures: Confucianism has a strong negative relationship with both adaptive creative style and creative strengths, but no relationship with innovative creative style (Kim, in press; Kim & Lee, 2007). American educators perform

better than Korean educators on adaptive creative style and creative strengths, whereas Korean educators perform better than American educators on innovative creative style (Kim & Lee, 2007). Similarly, American college students perform better than Taiwanese college students on adaptive creative style (Cheng et al., 2010). This may indicate that adaptive creative style and creative strengths operate as a part of society and are more influenced by society, whereas innovative creative style may always be creative regardless of social constructs and are less influenced by society.

In this study, therefore, we examined the relationship between creativity (adaptive creative style, innovative creative style, and creative strengths) and degrees of bilingualism, in order to see whether there are similar relationships to the ones that have been found between creativity and culture.

RESEARCH QUESTION

Is there a relationship between degrees of bilingualism and creativity (adaptive creative style, innovative creative style, creative strengths) among Korean American students?

METHOD

Participants

A total of 116 Korean American students attending the Atlanta Korean American School, Atlanta, GA, participated in this study. Students under age 7 were excluded because they could not reach the dual language ability needed to complete the measure of bilingualism called the Word Association Test (WAT, Lambert, 1956). The participant inclusion criteria were: students who had more than 2 years of schooling in the United States; who had Korean speaking parents; and who had at least 75 correct responses on the WAT. This was necessary in order to screen students who had balanced language proficiency in both Korean and English. Most of the participants were attending gifted programs in their school systems, although it was not one of the inclusion criteria. The participants consisted of 49 boys with the mean age of 11.84 (Range = 8–16; $SD = 2.285$) and 65 girls with the mean age of 11.26 (Range = 7–18; $SD = 2.477$). Two students did not identify their gender on their responses. The mean years they lived in the United States were 8.7, whereas the mean years they lived in Korea were 2.7. The mean years attending American schools were 6.9, whereas the mean years attending Korean language schools were 4.1. Participants spend a mean 1.5 hr watching American TV and a mean 0.7 hr watching Korean TV. Participants

reported spending a mean 1.8 hr reading English books and 0.3 hr reading Korean books.

The Atlanta Korean American School is the third-largest Korean American school in the United States; it is a private Saturday school which students pay tuition to attend. Students attend from Atlanta and the surrounding metropolitan area. The typical student comes from a middle-class family that has high educational expectations for their children. Although they were not perfectly matched, the students' socioeconomic status and family background could be controlled to some degree because of the school's homogeneity in those characteristics.

Instruments

Three different instruments were used in this study: The Word Association Test (WAT; Lambert, 1956) and the Subjective Self Rating (SSR; Peal & Lambert, 1962) were used to determine the students' degree of bilingualism. The Torrance Tests of Creative Thinking (TTCT)–Figural was used to measure the students' creative potential.

The WAT. The WAT is one of the most widely used measurements for measuring bilingualism (Carringer, 1974; Cummins & Gulututsan, 1974; Konaka, 1997; Lambert, 1956; Peal & Lambert, 1962; Wang, 1982). The WAT appears to have appropriate interrater reliability and intrarater reliability. Semel, Wiig, and Secord (1992) reported that interrater coefficients range from .78 to .89 and the intrarater reliability coefficients range from .68 to .82 for the WAT. To measure each participant's degree of bilingualism in Korean and English, 16 English words from Lambert's list and 16 Korean words from the Korean Frequency Report (2005) were used. The Korean words list was modeled on Lambert's criteria. On the WAT, Korean and English words were presented alternately, and the participants were asked to write down as many words as they could think of that seemed to "go with" or "belong with" the stimulus word. These sums of the association were the main considerations for obtaining a balanced score: $\text{Balance} = [(\text{Sum of English words}) - (\text{Sum of Korean words}) / (\text{Sum of English words}) + (\text{Sum of Korean words})] \times 100$. The absolute value of the score indicates the magnitude of the difference from being balanced. Thus, a student with +75 was much stronger in English than in Korean, and a student with -75 was much stronger in Korean than in English. Each participant's degree of bilingualism was determined based on the absolute value of the score on the WAT.

The SSR. The degrees of bilingualism were determined by the ratio of the English and Korean self-rating on the SSR, in order to examine whether the degrees

of bilingualism based on the students' self-rating are consistent with those based on the WAT scores. The scales of this measure have questions that rate participants' language ability in listening, speaking, reading, and writing English and Korean (e.g., How well do you understand spoken English?) on four-point scales from 4 (*very well*) to 1 (*not at all*). The maximum score for each language is 16.

The TTCT-Figural. The TTCT was developed by Torrance over a period of more than 40 years (see Kim, 2006a, for details). The TTCT includes verbal and figural batteries of test activities for use in all cultures, from kindergarteners through adults. It is used in three-quarters of all published studies on creativity involving elementary and secondary school students (Baer, 1993/1994). The TTCT is comprised of five norm-referenced measures including fluency, originality, elaboration, abstractness of titles, and resistance to premature closure, and 13 criterion-referenced measures of creative strengths. Each subscale is scored as follows (Torrance, 1998):

- Fluency: The number of relevant ideas;
- Originality: The number of statistically infrequent ideas;
- Elaboration: The number of ideas added;
- Abstractness of Titles: The degree beyond labeling; and
- Resistance to Premature Closure: The degree of psychological openness.

The 13 criterion-referenced creative strengths is comprised of subsets of emotional expressiveness, storytelling articulateness, movement or action, expressiveness of titles, synthesis of incomplete figures, synthesis of lines or circles, unusual visualization, internal visualization, extending or breaking boundaries, humor, richness of imagery, colorfulness of imagery, and fantasy.

According to Torrance (1990), the product-moment reliability coefficients range from .92 to .94. Research has reported high test-retest reliability over a short period of time for fluency, originality, and elaboration (Clapham, 2004; Torrance, Ball, & Safter, 1992; Treffinger, 1985). Torrance (1998) reported that the interrater reliability of TTCT figural is above .90. Thus, the TTCT-Figural can be seen as a reliable measurement of creativity (Treffinger, 1985).

Based on Kim (2006b; Kim et al., 2006), the scores of creative styles were calculated as the combination of the scores on the subscales of the TTCT: Innovative creative style scores were the mean scores of fluency, originality, and resistance to premature of closure.; adaptive creative style scores were the mean scores of abstractness

of titles, elaboration, and resistance to premature of closure. The creative strengths scores were excluded and used separately from the styles due to the different scoring procedures.

Procedure

The tests were administrated during a special class that provided students with creative activities, including dance, arts, Tae Kwon Do (Korean martial arts), and music. Administration of the test occurred at different times depending on the class level to which each participant belonged. A questionnaire was given to the participants to collect their demographic information. Participants were expected to complete tests for two areas: bilingualism and creativity. To ensure reliable test results, both the English and the Korean versions of the WAT and the SRS were utilized. Participants chose to take one version of each of the tests, depending on their language preference, and the tests were administered in the same order every time. The testing session for bilingualism for the WAT (35 min) and the SRS (10 min) took 45 min. The testing session for creativity with the TTCT took 35 min. The responses were collected and scored by the first author who had been trained and certified for TTCT scoring. The test results were reported confidentially to each student as a written document.

RESULTS

Table 1 shows means and standard deviations (*SDs*) for adaptive creativity style, innovative creative style, and creative strengths for the three groups: monolingual, nonbalanced bilingual, and balanced bilingual students based on the WAT scores. The balanced bilingual group (*n* = 51) had higher mean scores than both the non-balanced bilingual group (*n* = 55) and monolingual group (*n* = 10) for innovative creative style and creative

TABLE 1
Descriptive Statistics for Adaptive Creative Style, Innovative Creative Style, and Creative Strengths Among Monolingual, Nonbalanced, and Balanced Bilingual Students Based on the Word Association Test Scores (*N* = 116)

	<i>Monolingual</i>		<i>Nonbalanced</i>		<i>Balanced Bilingual</i>	
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
<i>n</i>	10		55		51	
Adaptive creative style	82.83	16.14	94.50	17.59	93.79	19.15
Innovative creative style	103.07	24.34	105.15	17.78	107.21	16.06
Creative strengths	6.30	3.80	8.95	3.62	9.01	3.59

TABLE 2

Correlation Coefficients Among Adaptive Creative Style, Innovative Creative Style, Creative Strengths, the Word Association Test (WAT), and the Subject Self-Rating (SSR; $N = 116$)

	SSR	Adaptive	Innovative	Strengths
WAT	.37**	-.20*	-.08	-.25**
SSR		.04	-.03	-.06

Note. * $p < .05$. ** $p < .01$, two-tailed.

strengths. However, the analysis of variance (ANOVA) result revealed that there was no statistically significant group difference ($p > .05$) in the mean scores on innovative creative style; $F(2, 113) = 0.32$, $p = .73$; creative strengths; $F(2, 113) = 2.51$, $p = .09$; or adaptive creativity style; $F(2, 113) = 1.79$, $p = .17$.

The correlation coefficients among the scores on the WAT and the SSR, adaptive creative style, innovative creative style, and creative strengths are reported in Table 2. The correlation coefficient between the WAT and the SSR was positive and significant, indicating that the degree of the participants' bilingualism was negatively associated with their self-perceived levels of their bilingualism.

The correlation coefficients between both the WAT and adaptive creative style ($r = -.20$, $p < .05$) and the WAT and creative strengths ($r = -.25$, $p < .01$) were negative and significant, indicating that the degree of bilingualism was positively associated with adaptive creative style and creative strengths. However, the correlation coefficient between the WAT and innovative creative style was negative but not significant ($r = -.08$, $p > .05$). Further, none of the correlation coefficients between the SSR and creativity were significant ($p > .05$).

DISCUSSION

The significantly negative correlation coefficients between the scores on the WAT and adaptive creative style, as well as creative strengths, indicate that the degree of bilingualism is positively associated with creativity. This is consistent with previous studies in that bilingual children tend to be more creative than monolinguals (Lasagabaster, 2000; Ricciardelli, 1992). Further, the nonsignificant correlation coefficient between the scores on the WAT and innovative creative style indicates that bilingualism is not associated with innovative creative style. This is similar to previous studies in which cultural differences are negatively associated only with adaptive creative style and with creative strengths, not with innovative creative style (Cheng, Kim, & Hall, 2010; Kim, in press). This might

indicate that adaptive creative style and creative strengths operate as a part of society and are influenced more by society and language, whereas Innovative creative style may always be creative regardless of social constructs and are less influenced by society or language. The nonsignificant correlation coefficient between the scores on the WAT and the SSR might indicate that the SSR is a self-rated and subjective measure and as such, the results may not be accurate. Thus, there are no significant correlation coefficients between the scores on the SSR and any of the measures of creativity.

IMPLICATIONS

The association between bilingualism and creativity can help educators understand bilingual students better, allowing them to develop appropriate strategies to enhance their students' creativity. Specifically, selecting participants from a homogenous group (Korean Americans) helped to find the true effects of the degrees of bilingualism on creativity by controlling the effects of culture. A pattern of association between bilingualism and creative styles can help educators understand bilingual students' creativity preference, and develop appropriate programs that match their styles of being creative.

LIMITATIONS

There are some limitations in this study, besides the small sample size. Ethnicity may be a limitation, because only one ethnic group, Korean Americans, was used. There are diverse ethnic groups in bilingual populations. Even Asian American people categorize themselves into several categories in which members of each group generally have their own unique ethnic perspective (Lee, 1994). Therefore, generalization of the results of this study to the entire bilingual population is limited. It is necessary to compare different ethnic groups in terms of their relationship between bilingualism and creativity, because each ethnic group has its own cultural background, which could influence the bilingualism and creativity of its members.

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