



Can speaking more languages enhance your creativity? Relationship between bilingualism and creative potential among Korean American students with multicultural link

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ABSTRACT

This study examined the relationship between individuals' creativity and their degree of bilingualism, which is reflective of multicultural experiences. A total of 116 Korean American students (49 boys & 65 girls) participated in this study. The Word Association Test (Lambert, 1956) and Subject Self Rating (Peal & Lambert, 1962) were used to measure participants' bilingualism, and the Torrance Tests of Creative Thinking (Torrance, 2008) was used to measure their creative potential. The results indicated that individuals' degree of bilingualism and creativity are positively correlated, regardless of gender or age. Girls outperformed boys in the areas of bilingualism, Elaboration, and Abstractness of Titles, and age was not an influential factor on either creativity or bilingualism.

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1. Introduction

Creative individuals perceive unique combinations and challenges through interactions with their environments, including among these interactions the juxtaposition of their own culture or language use with their hosts' (Raina, 1999). Multicultural experience is a measure of the extent of immersion in different cultures, including factors such as family immigration to a different culture, speaking in different languages, and interacting with individuals from a different culture (Leung, Madduz, Galinsky, & Chiu, 2008). Multicultural experience may enhance creativity (Leung et al., 2008). Bilinguals are able to speak two languages that represent two different cultures (Bialystok, 2001). Thus, bilingualism may influence bilingual individuals' creativity, due either to cognitive benefits of speaking a second language, or to the cultural dynamics speakers encounter in everyday life.

In this study, we investigated Korean American students' creativity in their bilingual and multicultural situations (i.e., being in America and having a Korean background). There are gaps in the previous research on the relationship between bilingualism, multiculturalism, and creativity. Prior research provides little empirical evidence to support the notion of positive influence of

multiculturalism on creativity, and researchers have not yet investigated if a certain type of multicultural experience is required to benefit creativity (Leung et al., 2008). In the present study, we seek to fill that gap. Further, gender and age have been shown to influence individual differences regarding bilingualism, creativity, and the relationship between the two. Lopez (2003) suggested the bilingual individual's creative potential should be examined with a homogenous sample to control cultural effect. With this in mind, we investigated multicultural experience focusing on the relationship between the degree of bilingualism and creativity with one homogenous group: Korean American students.

1.1. Creativity in different cultures

Csikszentmihalyi (1999) stated that creativity should be considered more as a cultural and social phenomenon than merely a mental process. Torrance and Sisk (1997) believed that what is honored in a culture will be cultivated within the culture. With this cultural perspective, creativity may be expressed in different ways in different cultures. Research shows different patterns in the ways of expressing creativity across cultures (Niu & Sternberg, 2001; Simonton, 1997). Cultural factors, including educational experience, family expectations, and socio-cultural forces may affect the development of creativity. For example, Asian countries have very different cultures and educational environments when

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compared to the US. Asian culture values conformity and collectivism, whereas American culture values independence and individualism (Kim, 2009). Saeki, Fan, and Van Dusen (2001) reported some cultural differences in Elaboration and Abstractness of Titles of the Torrance Tests of Creative Thinking with American and Japanese college students. American students perform better on Elaboration and Abstractness of Titles than Japanese students. Saeki et al. explained these differences in participants' creativity as the effect of different cultural influences.

1.2. Multicultural experiences, bilingualism, and creativity

Bilingual immersion enables students to develop a multicultural identity with a positive attitude toward themselves (Bekerman, 2004). Proficiency in two different languages can represent a high level understanding of both cultures and can, therefore, be instrumental in measuring the degree of multicultural experiences. Research (e.g., Bekerman, 2004; Leung & Chiu, 2010) confirms the positive effect of bilingual competence on cognitive tolerance toward unfamiliarity or openness to change through developing understanding of two different cultures. Maddux, Adam, and Galinsky (2010) found that people who have a foreign-living experience perform better on creative tasks when compared with people who do not have any experience of living in a foreign country. These tasks include idea flexibility, recognition of underlying connections and association, and resistance to functional fixation, by more eagerly removing blocks in a problem solving activity and using multiple approaches. Leung et al. (2008) concluded that creative benefits are most apparent under certain conditions of multicultural experience, such as extensive interaction with different cultures (i.e., bilingualism). Additionally, a successful cultural adaptation, including learning foreign cultures and the ability to speak two languages, is a substantial factor for creativity enhancement (Leung et al., 2008; Maddux et al., 2010). In the present study, we investigated how the degree of competence in two different languages, which represent two very different cultures, affect creative thinking among Korean American or Korean students who had lived in the US.

1.3. Degree of bilingualism and creativity

Research has focused on creativity, such as problem-solving models, creativity training programs, and studies of gender differences (Fleith, Renzulli, & Westberg, 2002). Fleith et al. (2002) studied the effect of a creativity training program on divergent thinking and self-concept with monolingual and bilingual students, and found that creativity training improves divergent thinking in bilingual students. Lasagabaster (2000) found that, although bilinguals are superior to monolingual peers in creative thinking as measured by the Torrance Tests of Creativity Thinking, no differences are found between *nonbalanced* and *balanced* (see Section 2.2) bilinguals. Therefore, an inconsistency is found among the research involving the relationship between the degree of bilingualism and creativity. The complexity of the concept of bilingualism and the different nature of two language proficiencies might explain the disagreement among studies (Simonton, 2008). Further, the effect of demographics has been considered in the investigation of the relationship between bilingualism and creativity. For example, Konaka (1997) found that the degree of bilingualism have a substantial effect on divergent thinking and that there is no gender difference in divergent thinking among balanced bilingual students. Although an inconsistency exists in research studies, the majority of studies suggest that bilinguals tend to be more creative than monolinguals and confirm bilinguals' linguistic flexibility in monitoring their language production appropriately in different contexts (Ricciardelli, 1992).

1.4. Effect of gender and age on bilingualism and creativity

Ekstrand (1980) and Boyle's (1987) early investigations of gender and bilingualism reported the superiority of females. Creativity test results show that boys are superior on flexibility and originality, whereas girls are superior on elaboration (e.g., Ai, 1999; Torrance, 1965).

Research supports the critical period for second language acquisition based on the belief that children are biologically better prepared to learn second languages than adults (Marinova-Todd, Marshall, & Snow, 2000; Singleton, 2003). On the other hand, research has also shown that the native-like proficiency is attainable irrespective of the age at which acquisition began (Birdsong, 1992; Bongaerts, Planken, & Schils, 1995). Smith and Carlsson (1985) reported positive aging effects on adolescents' creativity. Lindauer, Orwoll, and Kelley (1997) also reported that the quality of the visual artists' work improves as they age, although quantity does not. However, there is a nonlinear trend in creativity with aging, showing that creative productivity tends to rise rapidly to a definite peak and decline gradually until output is about half the rate at the peak (Diamond, 1986), though the location of the peak and the post-peak declines vary depending on the domain of creative achievement (Simonton, 1988).

1.5. The research questions are

1. Is there a relationship between the degree of bilingualism and creativity composite score (i.e., Creativity Index) as well as each creativity subscale (i.e., Fluency, Originality, Elaboration, Abstractness of Title, Resistance to Premature Closure, and Creative Strengths)?
2. Is there a gender or age difference in bilingualism or creativity and their relationships?

2. Methods

2.1. Participants

A total of 116 Korean American students who were attending the Atlanta Korean American School participated in this study. The participant inclusion criteria in this study included students who had more than two years of schooling in the US, who had Korean speaking parents, and who had at least 75 correct responses on the Word Association Test (WAT, Lambert, 1956). This was necessary to screen students who had low proficiency in both Korean and English. The participants consisted of 49 boys with the mean age of 11.84 (range 8–16) and 65 girls with the mean age of 11.26 (range 7–18). Among the students, two did not indicate their gender or age.

2.2. Instruments

The WAT and the Subjective Self Rating (SSR, Peal & Lambert, 1962) were used to determine the students' degree of bilingualism. The WAT is one of the most widely used measures of bilingualism (Carringer, 1974; Konaka, 1997). To measure the degree of bilingualism in Korean and English, we used 16 English words from Lambert's list (1956) and 16 Korean words chosen based on the Korean frequency list from the Korean Frequency Report (2005). The Korean word list was modeled on Lambert's criteria. On the WAT, Korean and English words were presented alternately, and the students 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 achieving a balanced score:

$$\text{Balance} = \left[\frac{(\text{Sum of correctly identified Korean words}) - (\text{Sum of correctly identified English words})}{(\text{Sum of Korean words}) + (\text{Sum of English words})} \right] \times 100$$

The absolute value of the score indicates the magnitude of the difference from being balanced. Therefore, the lower score, the more balanced in two languages. The WAT appears to have adequate inter-rater reliability and intra-rater reliability. Semel, Wiig, and Secord (1992) reported that inter-rater coefficients range from .78 to .89 and the intra-rater reliability coefficients range from .68 to .82 for the WAT. The other measure of bilingualism based on the participants' subjective ratings of their bilingualism was the SSR. The SSR includes questions that rate participants' language ability to listen, speak, read, and write English and Korean (e.g., How well do you understand spoken English?) on a four-point scale rating from 4 (very well) to 1 (not at all). The maximum score for each language is 16. The degree of bilingualism was determined by the ratio of the English and Korean self-rating.

The Torrance Tests of Creative Thinking (TTCT) – Figural was used for measuring students' creativity. The TTCT has five norm-referenced criteria for measuring creativity, including Fluency (the number of relevant ideas), Originality (the number of statistically infrequent ideas), Elaboration (the number of added ideas), Abstractness of Titles (the degree of abstract thinking), and Resistance to Premature Closure (the degree of psychological openness), and 13 additional criterion-referenced measures of Creative Strengths (subsets of Emotional Expressiveness, Storytelling Articulatness, 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). The TTCT-Figural has been found to be a reliable and valid measurement of creativity (Kim, 2006a; Torrance, 1998; Torrance & Wu, 1981). Besides the six subscale scores, the "Creativity Index (CI)" can be used as a composite score for the TTCT. Raw scores are converted into standard scores and the standard scores for each of the five norm-referenced measures are averaged. The number of the frequency of creative strengths is added to the averaged standard scores to yield a CI, which is an overall indicator of creative potential (See the TTCT manual for the standard scoring procedures, Torrance, 1998).

Table 1
Means and Standard Deviations for subscales and Creativity Index on the TTCT (N = 114 [49 Boys & 65 Girls]).

	Boy (SD)	Girl (SD)	Total (SD)
Elaboration	93.38 (20.00)	102.29 (21.43)	98.134 (21.71)
Fluency	106.00 (26.01)	115.14 (22.01)	111.63 (23.87)
Originality	105.19 (25.05)	110.55 (22.11)	108.14 (23.29)
Titles	75.83 (28.65)	90.68 (37.87)	83.56 (35.43)
Closure	98.71 (15.32)	97.06 (23.07)	97.86 (19.89)
Strengths	8.29 (3.90)	9.14 (3.50)	8.75 (3.67)
CI	104.31 (17.47)	112.28 (18.84)	108.61 (18.64)

Note. Titles = Abstractness of Titles; Closure = Resistance to Premature Closure; Strengths = Creative Strengths; CI = Creativity Index.

Table 2
Correlation Coefficients among age, subscales and Creativity Index on the TTCT, and Bilingualism on the WAT (N = 116).

	Elaboration	Fluency	Originality	Titles	Closure	Strengths	CI	Age
Age	-.12	-.06	-.01	.00	.22*	-.03	.00	–
WAT	-.07	-.02	-.08	-.21*	-.09	-.25**	-.19*	.09

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

Titles = Abstractness of Titles; Closure = Resistance to Premature Closure; Strengths = Creative Strengths; CI = Creativity Index. WAT = The Word Association Test.

3. Results

3.1. Relationship between degree of bilingualism and creativity

The WAT scores were negatively correlated with CI scores ($r = -.19, p \leq .05$). Because a lower WAT score indicates a higher degree of bilingualism, the significant negative correlation indicated that participants who are more balanced on the WAT performed better on the CI than those who are less balanced bilingually.

The correlation between the scores of the SSR and those of CI was not significant ($r = -.03, p > .05$). The WAT counts participants' correct response on each stimulus word, whereas the SSR reports participants' degree of confidence in his/her language skills. Therefore, these two bilingualism tests measured each participant's degree of bilingualism from different perspectives. The correlation coefficient between the scores on the two bilingualism tests was .37 and significant ($p \leq .01$).

The correlation coefficients between the subscale scores on the TTCT and the scores on the WAT are reported in Table 2. Among the six subscales, Abstractness of Titles ($r = -.21, p < .05$) and Creative Strengths ($r = -.25, p < .01$) had significant correlations with the scores on the WAT.

3.2. Gender and age effects on degree of bilingualism and creativity

Table 1 shows means and standard deviations of the subscale scores and CI on the TTCT for both boys and girls. A multivariate analysis of variance (MANOVA) on both of the two measures of bilingualism were conducted. For bilingualism, the results showed that girls had significantly higher scores than boys, $F(1, 112) = 6.33, p < .05$, on the WAT. For creativity, the result showed that girls outperformed boys on CI, $t(112) = -2.307, p = .023$ (small effect, $r = .025$).

The results of the MANOVAs on the subscales indicated that girls outperformed boys ($F[1, 112] = 4.92, p < .05$) on Elaboration and Abstractness of Titles ($F[1, 112] = 5.26, p < .05$), whereas no gender effects were found on the other creativity subscales. Not only did the girls have higher mean scores of two separate creativity subscales, they were also more balanced bilinguals than the boys. The analysis of covariance (ANCOVA) results showed nonsignificant interaction between gender and the scores on the WAT and CI, $F(1, 110) = .00, p = .97$, which indicated that gender is not an influential factor on the relationship between the degree of bilingualism and creativity. To investigate gender effect on the pattern of relationships between the creativity subscales and the degree of bilingualism, an ANCOVA on Elaboration and Abstractness of Titles was conducted. The results showed no gender effects on the relationship between the scores on the WAT and Elaboration, $F(1, 110) = .74, p = .39$, and Abstractness of Titles, $F(1, 110) = 37, p = .85$.

The nonsignificant correlation coefficients between age and the test scores showed that student' ages were not related to their scores on the WAT ($r = -.09, p > .05$) and CI ($r = -.00, p > .05$).

4. Discussion

4.1. Relationship between degree of bilingualism and creativity

The degree of bilingualism is found to be positively related to creativity. Students who are highly balanced bilinguals tend to be more creative. This is consistent with the previous research, in that multicultural experiences, including intensive immersion of multiple cultures or ability to speak two languages, are positively related to creativity (Maddux & Galinsky, 2009). Although the correlation coefficient was low, a statistically significant positive relationship between bilingualism as a type of multicultural experience and creativity is found among Korean American students, regardless of their gender and age. The students' bilingualism might correspond to their extent of their multicultural experience (i.e., years in Korea). Participants who are more balanced in two languages have spent more years in Korea and spent more time reading Korean books. This is reasonable because all of the participants in this study were those who use Korean as their second language. Thus, the degree of bilingualism might represent the extent of multicultural experiences.

The results indicate that the subjective self-rated degree of bilingualism based on the SSR is not accurate compared to the objective degree of bilingualism based on the WAT.

4.2. Gender and age effects on degree of bilingualism and creativity

Girls are more balanced on their two languages than boys. Winter and Pauwels (2000) indicated that females are more likely to attain a second language than males, and that females also tend to have positive attitudes toward second language acquisition as well as first language maintenance.

Girls are also more creative in terms of Abstractness of Titles and Elaboration than boys, and this is consistent with previous research (e.g., Kim, 2006b). Further, although the students in this study preserve their Korean cultures, they have been Americanized. Kitayama, Duffy, Kawamura, and Larsen (2003) found that Japanese students living in the U.S. tend to perform more similarly to American students on the psychological tasks than to their ethnic peers in Japan. Speaking English as well as living in the U.S. may affect Asian American students' ways of thinking. Language reflects individuals' culture and influences individuals' way of thinking of themselves and understanding the world around them (Madoc-Jones, 2004).

Students' age does not play a role in their degree of bilingualism or in creativity except Resistance to Premature Closure. The degree of bilingualism seems to relate to students' length of exposure to language contexts rather than their ages. This finding is consistent with previous research in that multicultural experience is defined as the extent of interaction with different cultures (Leung et al., 2008). The participants who are more balanced in two languages tend to stay longer in Korea or to attend more years in a Korean school than others.

Finally, students' age does not affect the way the degree of bilingualism associates with creativity subscales. This suggests that advantages of multicultural experience on creativity is apparent regardless of gender and age.

4.3. Implications

Multicultural experiences, which are relevant to students' degree of bilingualism in this study, can explain the interaction between bilingualism and creativity along with the cognitive benefits of speaking two languages. The results can provide educators with useful insights that they can apply to their culturally

diverse classrooms, regarding both multicultural and bilingual education, to enhance their students' creativity. Educators should also recognize diversity even within single ethnicity groups, including their different degree of bilingualism and different creative potential.

4.4. Limitations

In this study, the participants were selected in part because they attended private Saturday school in Atlanta that requires extra tuition payment. Thus, this study may not control the socioeconomic status of participants, which may be a possible limitation to generalizing the results to the entire Korean American Students. Additionally, only one ethnic group, Korean American students, was used in this study. There are diverse ethnic groups in bilingual populations who have their own unique ethnical perspective. Thus, this may also be a limitation to generalizing the results to the entire bilingual populations.

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