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The Relationship Between Bilingualism and Creativity Revisited: Some Considerations for English Education

GyeongHee No
Seoul National University of Education

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Upon the introduction of the Fourth Revolution, creativity is stressed to be one of the core capacities for individuals to be equipped with. This study aims to provide some insights on the potential contribution of English teaching to the development of creativity among English learners. To achieve the goal, it first examines the positive relationship between bilingualism and creativity by reviewing the literature. Second, it investigates the underlying mechanisms of how bilingualism fosters creativity, which have been rarely dealt with in the literature. To speculate on the "how," specific examples are drawn from categorization process in language learning, bilinguals' lexical and conceptual representations, and their cross-cultural experiences. Third, it proposes that creativity in bilinguals is a function of cognitive flexibility, by demonstrating striking similarities between the cognitive processes involved in second language learning and the construct of divergent thinking which is often measured by Torrance Tests of Creative Thinking. Finally, it suggests that English teaching in and of itself may be potential contributions to cultivating English learners' creativity and thus English teachers are better to focus on the issue of 'teaching creatively' rather than on that of 'teaching for creativity.'

**[bilingualism/creativity/cognitive flexibility/English education/
이중언어/창의성/인지적 유연성/영어교육]**

I. INTRODUCTION

As creativity is considered a driving force in the development of individuals as well as

nations in the 21st century, it has become a growing subject of interest in every field of society. Accordingly, fostering creativity has become one of the important national agendas. Reflecting this trend and need in society, the Ministry of Education made headway in fostering creativity through public education by revising the national curriculum in 2009 under the banner of Creativity-Character education (Ministry of Education, Science, and Technology, 2011). In the 2015 revised national curriculum, creativity is placed as one of the core competencies to develop through public education (Ministry of Education, 2015). Such a trend in education and society resulted in boosting research on the issues of creativity in public education.

Recently, discussion on creativity in the English education circles in Korea has focused on the issue of how teachers or learners perceive teaching creativity in the English class or the issues on what contents, materials, or activities can enhance learners' divergent thinking skills. For example, some researchers conducted survey studies to examine what perspectives teachers have on integrating creativity education with English learning and teaching (H. Y. Chung & K. L. Choi, 2013; H. D. Kang, 2012; W.-K. Lee & K.-I. Lee, 2014). Several studies tried to investigate the effects of integrating materials or subjects such as stories, arts, or science into English class on fostering creativity (H. D. Kang & J. Y. Choi, 2012; H.-R. Kim & M.-J. Yoo, 2013). Other studies tried to find effective ways to design creative tasks in teaching-learning activities (T. D. Hyun, 2014; J. S. Kim, 2012). Others attempted to provide effective teaching techniques for enhancing creative thinking skills (J.-I. Han, H. Oh, & Y. Kim, 2013; S. H. Park & H. Y. Chung, 2015).

Even though numerous studies on creativity have been published in Korea, there still seems to be some skeptical perspectives on the teachability of creativity in the English class. The 2015 revised national curriculum of English did not include 'Fostering creative thinking skills' as a core competence to be developed through the English subject. The curriculum seems to assume in the 'Character' section that the English subject is not suitable for creativity education as we can see in the following statement: "English education in the primary school should be centered on experience-based activities in order for the learners to experience the joy of discovery learning. One of the rationales for this is to reduce learning burden from learners so that they can use their free time for the development of creativity and personality…" (Ministry of Education, 2015, p. 4).

Meanwhile, a great number of studies have been published in the international journals to claim that bilingualism itself affects creativity in children (Adesope, Lavin, Thompson, & Ungerleider, 2010; Bialystok, 2001; Ricciadelli, 1992; Simonton, 2008). As we will see it later, near consensus has been made through the 50 years of research regarding the positive influence of bilingualism on the cognitive development of an individual. Yet, there still remains a question to be solved in the literature: What makes bilinguals to be more

creative than monolinguals? In this line of inquiry, the present study aims to achieve two goals. The first is to raise awareness of Korean teachers and scholars to the positive relationship between creativity and English learning. The second is to explore the underlying mechanisms of how bilingualism leads to the development of creativity, which has rarely been investigated domestically and internationally in the literature. In this sense this article is a hypothesis-generating study of the heuristic value.

Specifically this study raises the possibility that English learning in itself results in enhancing creativity. To elaborate, Korean learners of English can promote creative thinking skills even without any intentional teaching for creativity in the English classroom, as cognitive flexibility is developed in the process of learning English itself. Taking one step further, this study attempts to provide speculations regarding the mechanisms underlying the positive effects of bilingualism on creativity. To achieve these goals, we will first review studies on creativity in an attempt to provide an operating definition of creativity. Second, we will examine the relationship between bilingualism and creativity by reviewing the literature. Third, in order to present the underlying mechanisms of how bilingualism fosters creativity of an individual, we will investigate categorization process in language learning, bilinguals' lexical and conceptual representations, and their cross-cultural experiences. Then we propose that creativity in bilinguals is a function of cognitive flexibility which is projected from multiple systems of lexical and conceptual representations. Finally, we will discuss some implications for the direction of English teaching in Korea.

II. CREATIVITY AND BILINGUALISM

1. What is Creativity?

Some say that creativity is a mystery (Boden, 1994). This would reflect the elusive and multidimensional nature of creativity. In an attempt to state the definition of creativity explicitly, Plucker, Beghetto, and Dow (2004) examined 90 articles published in professional refereed journals which included the term 'creativity' in the title. Of the articles examined, only 34 articles (38%) provided an explicit definition of creativity and its definition varied depending on researchers. Even with such diversity, they found some commonalities in the research reviewed; The most common characteristics of explicit definitions on creativity were uniqueness (n = 24) and usefulness (n = 17). These days, a general agreement has been established among scholars toward the idea that creativity involves something "unique/original/novel" and "useful/valuable/appropriate" (Amabile,

1996; Feist, 2010; Mayer, 1999; Runco, 2004; Sternberg & Kaufman, 2010). Then, we can define creativity as something original and useful.

The scholars in psychometric tradition have attempted to measure creativity of individuals by developing a test of creativity. Paul Torrance is best known for developing the Torrance Tests of Creative Thinking (TTCT), which are composed of verbal and figural tests. Torrance (1974) counted creative thinking as involving divergent thinking skills, following Guilford (1956), and measured creativity with four scoring variables such as fluency, flexibility, originality, and elaboration. Fluency is measured by the total number of relevant ideas generated in response to the stimulus. Flexibility is represented by the number of different categories of relevant responses. Originality is gauged by the number of statistically infrequent, uncommon, or unique ideas. Elaboration is calculated by the number of details used to extend a response.

The TTCT battery developed by Paul Torrance is the most widely used test of creativity and the most referenced of all creativity tests (Baer, 1994). It has been revised four times since the original test was developed in 1974. In the third edition of the TTCT, Ball and Torrance (1984) eliminated the Flexibility scale because it turned out to overlap with the Fluency scale, and added the new scales, Resistance to Premature Closure and Abstractness of Titles, resulting in a total of five subscales in the tests. Abstractness of Titles was included on the belief that creativity requires an abstraction of thought. It measures the degree a title moves beyond concrete labeling of the pictures. Resistance to Premature Closure was added based on the idea that a creative person keeps an open mind and tolerates ambiguity when processing new information. It measures the extent of psychological openness.

Meanwhile, some researchers have taken a social-personality approach to measure the creativity of individuals, claiming that in addition to cognitive factors some personality traits also facilitate creativity (Batey & Furnham, 2006; Feist, 1998; Feist & Barron, 2003). According to them, there are some personality traits commonly observed among creative scientists and artists in the history. Personality is defined as the unique and relatively enduring set of behaviors, feelings, thoughts, and motives that characterize an individual (Feist & Barron, 2003). In an attempt to find the unique personality characteristics of creative artists and scientists, Feist (1998) conducted a meta-analytic review of the literature on personality and creative achievement. What he found was that creative people are more open to new experiences, less conventional and less conscientious, self-accepting, and impulsive.

Among the personality traits, one variable which constantly shows a strong positive relationship to creativity is openness to experience. Many empirical studies have repeatedly reported that openness is positively correlated to creativity. McCrae (1987), for

example, reported that test scores of divergent thinking skills obtained from 208 men were consistently associated with their ratings of openness to experience in measurements repeatedly performed for several years. The researcher assumed that openness served as a catalyst for creative abilities. Wolfradt and Pretz (2001), based on an empirical study of 204 college students in Germany, claimed that openness was the single characteristic common to all creative participants on all types of creativity such as creative personality traits, performance, and hobbies. Feist (2010) also claimed that openness was considered the most influential among the various personal traits for creativity.

As an argument for why openness has a strong correlation to creativity, Steinberg (1999) posited that openness seems to be closely related to cognitive flexibility. According to him, open-minded people are not tied to any one perspective and are willing to accept others' perspectives and ideas, so they can build up a wide range of thoughts and strategies to solve problems. In a similar vein, Rubinstein (2003) and Dollinger (2007) pointed out that conservatism and conformity conflict with creativity. Conservativism reflects a tendency to value tradition and authority. People who are conservative may not be open to different perspectives and thus cannot think outside the box.

Another personality trait related to creativity seems to be ambiguity tolerance. Zenasni, Besançon, and Lubart (2008) examined the relationship between creativity and tolerance of ambiguity. Participants (adults and adolescents) were asked to complete three measures of creativity (a divergent thinking task, a story-writing task, and self-evaluation of creative attitudes and behavior) and two self-report measures of tolerance of ambiguity. The results showed that tolerance of ambiguity was significantly and positively related to creativity.

So far, we have examined what the nature of creativity is from the psychometric approach and the socio-personality approach. Creativity is something original and useful. In the psychometric tradition, divergent thinking is considered as a major component of creativity and it is measured by the scales of fluency, originality, elaboration, abstractness of titles, and resistance of premature closure. In the socio-personality tradition, creative people are considered to be open to new experiences and tolerant to ambiguity.

2. What is Bilingualism?

Bilinguals are said to be people who can speak two languages. Defining bilingualism, however, is not as simple as it looks since there are multiple dimensions to take into consideration such as proficiency level, aspect of language, circumstances of use, age of language acquisition, among others. Even with the proficiency level taken alone, there has been a great deal of controversy over how fluent a person should be to achieve a label of 'bilingual.' If you take the minimal view of bilingualism (i.e., a few words acquired), you would end up with a problem that almost everybody in the world is bilingual. If you take

the maximal view (i.e., native-like fluency), you could hardly find any bilinguals since it's more of a cognitive ideal than a common situation (Hakuta, Ferdman, & Diaz, 1987). As acutely pointed out by Bialystok (2001), however, bilingualism is not a category like age or gender but a scale on a continuum, moving from no knowledge to native fluency. This indicates that no objective cut-off points exist to decide a bilingual.

Some scholars take a functional approach, moving away from the proficiency dimension toward the dimension of use. Grosjean (1989) and Bialystok (2001), for example, defined a bilingual as someone who can function in each language according to given needs. Someone is bilingual if he/she can use the second language for their own purposes. For instance, a tour guide who can guide tourists successfully in his/her second language deserves to be called as a bilingual. As pointed out by Baker (2006), it is true that most bilinguals use their two languages for different purposes and with different people. If we take this functional view, Korean teachers of English are bilinguals.

Bilingualism has multiple dimensions. Bilinguals can be classified into two types, on the basis of the relationship between the bilinguals' proficiency in both languages: balanced bilinguals and unbalanced ones (Peal & Lambert, 1962). Balanced bilinguals are those who have become highly competent in both languages, whereas unbalanced bilinguals are those who have developed a high level of competency only in one language. Bilinguals can also be classified into three categories, based on the dimensions of how two linguistic codes are organized by individuals: compound, coordinate, and subordinate (Weinreich, 1968). Compound bilinguals store two sets of linguistic codes in one meaning system. Coordinate bilinguals have two sets of meaning systems where each linguistic code is organized separately. Subordinate bilinguals have one meaning system which is accessible only through their L1 and thus they interpret linguistic codes in their L2 through their L1. Depending on the extent of their L1 retention, bilinguals can be classified into two categories: additive and subtractive. Additive bilinguals enhance their L2 without losing their L1 proficiency whereas subtractive bilinguals learn L2 at the expense of losing their L1, which is often observed from language minority groups in immigrant societies.

3. The Relationship Between Bilingualism and Creativity

A question often raised in relation to bilingualism is whether knowing two languages allows a person to be more creative than knowing just one language. Early studies on bilingualism warned that bilingualism could cause negative effects on cognitive development (see Cummins, 1976, for a review). Peal and Lambert (1962), however, first pointed out the methodological weakness of the previous studies. According to them, those studies did not control confounding variables such as socioeconomic background, proficiency level, age, etc.

That is, what affected the results was not bilingualism but the socioeconomic backgrounds of the subjects. After controlling the confounding variables, what they found was that the bilinguals performed significantly better than monolinguals on most of the cognitive tests. Later, Kessler and Quinn (1980) conducted an experimental study with Spanish-English bilingual children and English monolinguals in the sixth grade in the U.S. They investigated the effects of bilingualism on creativity and scientific problem-solving. The children were asked to formulate scientific hypotheses after participating in an inquiry-based science program. The results supported the previous study, revealing that the bilinguals outperformed the monolinguals both in verbal and nonverbal tests.

Cummins (1976) reviewed the relevant literature in an attempt to resolve inconsistencies between the results of studies before and after Peal and Lambert (1962). The former showed bilinguals' negative effects on cognitive ability and the latter reported bilinguals' cognitive advantages. The factor which differentiated the two sorts of studies turned out to be linguistic competence attained by the bilingual subjects. The cognitive benefits were observed more apparently with balanced bilinguals than with unbalanced bilinguals. That is, bilinguals need to achieve certain levels of linguistic proficiency in both languages in order to attain their cognitive benefits. Based on this finding, Cummins came to propose the threshold theory which posits that there is a threshold level of linguistic competence for a bilingual child to take the cognitive advantage of bilinguals.

The bilingual advantages on cognitive development have also been reported with classroom learners. Lambert, Tucker and d'Anglejan (1973) conducted an experiment with fifth graders in a bilingual education program in Canada in order to see if there were bilingual advantages in cognitive development. The results showed that English-French bilingual groups performed better than English or French monolingual groups in intelligence and creativity tests by the end of the second year of the bilingual education program. Landry (1974) also investigated positive effects of learning a foreign language on creative thinking with the elementary school learners in the FLES programs where a foreign language was instructed for 100 minutes to 200 minutes per week. He compared the scores of the Torrance test of creativity of the students in the FLES program to those in the non-FLES program. There were no statistical difference in the creativity test scores at the first and fourth grade levels, but the difference was significant at the level of grade six. Landry concluded that experience with two languages at the elementary school level has significant effects on divergent thinking skills of the learners.

Ricciardelli (1992) carried out a meta-analysis on the relationship between bilingualism and creativity based on the empirical studies published by that time in the major literature. Of the 24 articles analyzed, 20 studies reported that bilinguals performed better than monolinguals on creativity which was measured in a variety of tests. One study reported no differences between two groups, and three studies found a monolingual superiority. The

researcher, after conducting further analyses on those studies showing no bilingual's advantages demonstrated that those studies could be accommodated by the threshold theory. Ricciardelli concluded that in the majority of the studies bilinguals were superior to monolinguals on creativity and thus there was a positive relationship between bilingualism and creativity. A recent report by European Commission (2009) has listed more than 200 articles which demonstrate the bilinguals' advantage on creativity as well as cognitive development.

The bilingual advantages have being continuously reported in the literature even after the meta-analysis by Ricciardelli (1992) and the review by European Commission (2009). Recently, Leikin (2012) has reported that bilingual superiority of creativity is observed even with kindergarteners. He carried out an experiment to 13 bilingual children (Hebrew-Russian) and 14 monolingual Hebrew children in order to examine the influence of early bilingual education on the development of creativity. What he found was that the bilingual children performed better than monolinguals both on the Picture Multiple Solution task (measuring general creativity) and the Creating Equal Number task (measuring mathematical creativity).

Massive research for the last 50 years or so provides strong evidence that bilingualism supports creativity. As of now, near consensus has been made among the scholars regarding bilinguals' cognitive advantages over monolinguals which can be summarized into two statements. First, bilinguals are superior to monolinguals in creativity. Second, the bilingual advantages are observed more prominently from balanced bilinguals than from unbalanced bilinguals.

III. WHAT BRINGS ABOUT THE BILINGUAL ADVANTAGES ON CREATIVITY?

In the previous section, we have seen that the vast majority of the studies regarding bilinguals' creativity have repeatedly reported that bilinguals outperformed monolinguals on a variety of creativity tests. Bilingualism is believed to play a role in promoting creativity. One question to be raised immediately is "What causes bilinguals to be more creative than monolinguals?" Previous studies have tried to provide an answer to the question (Cummins, 1976; Kessler & Quin, 1980; Oren, 1981). What they all equivocally suggested was that bilinguals develop creativity as a result of using two independent coding systems and incorporating different perspectives from the two different cultures. What is deficient in this explanation, however, is the underlying mechanisms or specifications as to how creativity is developed in the process of learning another language.

This section attempts to speculate the underlying mechanisms of the "how" by demonstrating specific examples such as categorization learning, bilinguals' lexical and conceptual representations, and their cross-cultural experiences. The basic argument to be deployed here is that second language learning itself develops cognitive flexibility which is a key component of creativity.

1. Category Learning and Cognitive Flexibility

A word is an external entity used as a label for an internal concept and word meanings are the concepts to which words refer (Francis, 1999). A category is a group of things that have some features that are the same. It also is a way to name a number of objects, events, or feelings that are considered equivalent. Then, words can be verbal labels given for particular concepts or categories. In this section, it will be argued that cognitive flexibility is required to learn words or categories of a language, whether in L1 or L2, since systems of categories are not logical nor straightforward but fuzzy and ambiguous. Note that cognitive flexibility, a component of divergent thinking, is the ability to adjust one's mind from old situations to new situations overcoming previously held beliefs or habits.

Children begin their journey of language acquisition by learning words around the age of one year (Bloom, 1976). What to be noted here is that even learning a single word is not an easy task as ordinary people would expect since the conceptual boundaries referred to by words are not clear-cut. In order to see that learning even a concrete noun is a challenging task for children provided that cognitive flexibility is not presupposed, let's take an example of learning the word, *dog*, from a child's standpoint. At the very early stages of language acquisition, a baby may be shown to the pictures such as those in Figure 1 as parents name each animal one by one. Although parents name them differently, all the animals share some distinct similar physical characteristics (e.g., four legs, two ears, two eyes, a tail, fur, etc.). This may create confusion from the baby's viewpoint. Hearing that the parents name the animal in ② as *dog* and that in ⑨ as *wolf* but name all the animals in ②, ⑥, and ⑧ as *dog*, the baby would fall into confusion, since the dog in ② and the wolf in ⑨ look much alike while the dogs in ②, ⑥, and ⑧ demonstrate evident physical variations. Despite such a baffling process, there is a magic in child language acquisition. Even though the membership of a category or conceptual boundaries of words are not clear-cut, all-or-nothing matter, children eventually manage to construct conceptual categories of individual words which are equivalent to those of adults, going through trial and error such as making overextension errors.

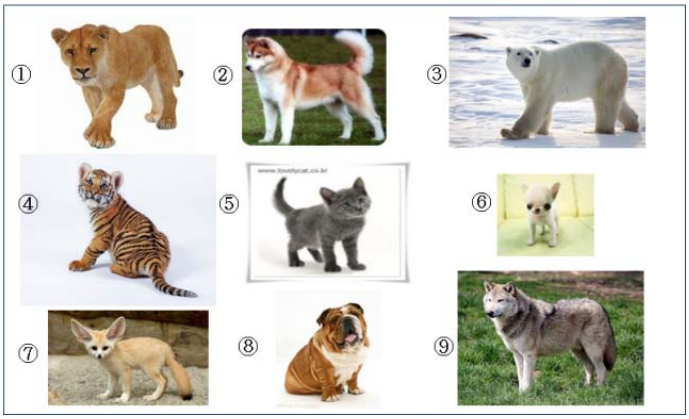

FIGURE 1 What is 'Dogness'?

It is commonly acknowledged that children are good language learners. What makes them good language learners? The answer seems to be within their ability to be flexible with initial hypotheses. The presence of overextension errors appearing in child language acquisition data across languages indicates that children keep changing their initial hypotheses about the category members until they meet the exact fit between their own categories and those of adults in the language community (Markman, 1989; Pinker, 1984). In other words, children are flexible in structuring the categorical system of their language. As such they manage to build up the complicated categorical system of a language. Here the point is that cognitive flexibility is a prerequisite of language acquisition. Likewise, children would also develop the cognitive flexibility more in the process of learning a second language.

Before going into the next section, it is necessary to clarify the meaning of terms. Some scholars use the term *semantic representation* to refer to those concepts that are referred to by particular words or sentences (Francis, 1999). One thing to note here, however, is that words and sentences are different in the way they represent meanings. Words are basic categories of concepts whereas sentences and phrases are representations for thoughts or events which can be referred to as "thinking for speaking" by Slobin (1996, p. 70). According to Slobin, thinking for speaking is the expression of experience in linguistic terms and a special form of thought which is mobilized for communication. For this reason, this study will distinguish the term for the semantic representation of words from that of the semantic representation of sentences or phrases, by employing the term, *lexical representation* for the former and the term, *conceptual representation* for the latter.

2. Bilinguals' Lexical Representations

Words are often compared to building blocks which are basic units to build a house. What makes second language acquisition difficult is that there are immense mismatches in the shapes of building blocks across languages. In general, the important concepts in the culture are given labels which are actually realized as words in the language, and yet certain concepts which are important in one culture may not be important in the other culture (Kay & McDaniel, 1978; McDonough, Choi, & Mandler, 2003). As a consequence, a word in one language may not have a lexical counterpart in some other languages. What makes the second language learning even more difficult comes with mismatches that exist in lexical boundaries between L1 and L2. That is, even when the lexical counterparts exist in the two languages, the exact boundaries between the lexical categories may be drawn to different places, which ends up with different semantic partitionings of concepts. In short, lexical representations of words, namely the shapes of building blocks, do not have exact matches across languages. Consequently, second language learners face the challenging work of resetting lexical representation of L2 words.

In order to specify how English and Korean can be different in lexical representations, let's take a look at the metaphorical space given in Figure 2 where lexical representations of individual words are depicted by various shapes. The outer box in Figure 2 indicates the universe of possible concepts that human beings can imagine. The empty blank in the box indicates the concepts which are not describable in either language. Let's assume that solid lines indicate lexical categories of Korean, dotted lines are for English, and colored shapes show the exact overlaps of lexical representations in the two languages. Concrete nouns such as *apple, book, chair, dog, etc*. are some examples of the colored shapes.

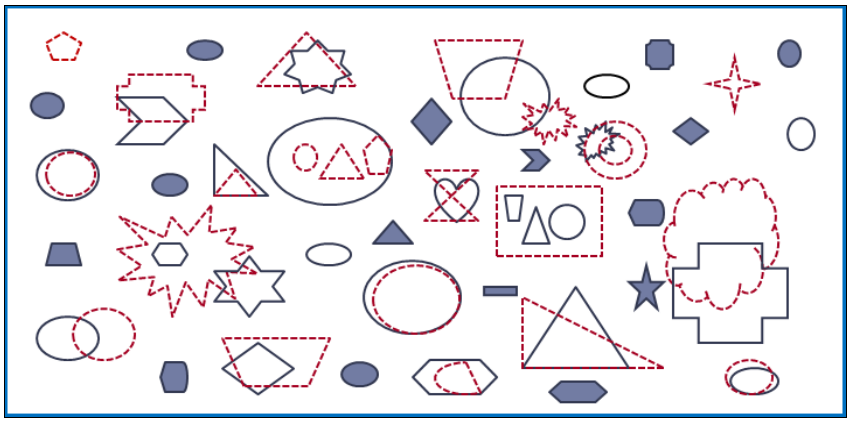

FIGURE 2 Semantic Shapes of Words in English and Korean

What we see from Figure 2 is that there are lots of lexical mismatches between the two languages. That is, some lexical categories of Korean are different from or in conflict with those in English. For example, the English word *teenager* has the Korean translation counterpart, *sipttae (십대)*, but their semantic shapes are not equivalent: *Teenager* represents those between the ages of 13 to 19 whereas *sipttae* indicates the ages from 10 to 19. Some Korean words do have no English counterparts. For example, the semantic concepts for the Korean words *oppa* (*오빠*, older brother of a female) and *seonbae* (*선배*, someone who has seniority) cannot be represented by single lexical categories in English. Meanwhile, what is treated as a single lexical category in English can be broken down into two or more lexical categories in Korean. For example, the semantic concepts for the English word *museum* cannot be found as a single lexical category in Korean. In Korean, three different words cover the lexical representation of *museum*: *bakmulkwan (박물관)* for a historical museum, *misulkwan (미술관)* for an art museum, and *kwahakkwan (과학관)* for a science museum. Conversely, the Korean word *insa (인사)* is crosscut into two lexical categories in English, namely *greeting* and *farewell*. The lexical mismatches between the two languages get worse when it comes to the meanings of verbs. This becomes evident when you look up the bilingual dictionaries of English; Many English verbs are listed with more than dozens of Korean meanings.

Learning a new language is a process of making sense since learners need to understand new concepts which are not in their native language and restructure their lexical categories reflecting the patterns in the target language input. In the process of 'making sense' by resolving incongruent categorical concepts from the two languages and forming new categories or integrating the two concepts into one, bilinguals would develop cognitive flexibility which is a component of creativity. Remember that Torrance (1974) defined flexibility as the ability to shift categories of ideas. That is, in the process of forming two different coding systems, learners would develop sensitivity to the categorical differences in the languages, which in turn may stimulate and enhance thinking flexibility. This line of inference can be supported by Oren (1981). Oren investigated children's labeling ability through interviews with questions such as "Let's call this car a wug. Can you ride a wug?" The results showed that bilingual children performed significantly better than monolinguals in labeling and naming tasks. The bilingual children easily accepted that the names of objects could be changed, whereas the opposite was true for the monolingual children.

3. Bilinguals' Conceptual Representations

Languages diverge in the way they organize conceptual representations or events and in

what kinds of relationships they recognize (Bowerman, 1996). The manner to code certain concepts in language differs across languages or cultures. According to Talmy's (1985) typological classification, English is a "satellite-framed" language whereas Korean is a "verb-framed" language. English expresses the path meanings primarily through particles or prepositions (e.g., *in, out, up, off, toward*, etc.) when Korean does it with verbs. For example, English uses particles to describe ascending/descending movements as in "Put your hands up/down." In contrast, Korean encodes the same concept of vertical movements by employing separate verbs, namely *ollida* (*올리다*, cause to ascend) and *naelida* (*내리다*, cause to descend), as depicted in Figure 3(a).[1] Another example comes from the manner concepts. In Korean, the events such as 'lying down on the back or on the stomach' are encoded by two separate verbs, *nuptta* (*눕다*) and *eoptteulida* (*엎드리다*), as in Figure 3(b). In contrast, English encodes such different concepts by focusing on the manner of how they lie on the surface, namely contact information.

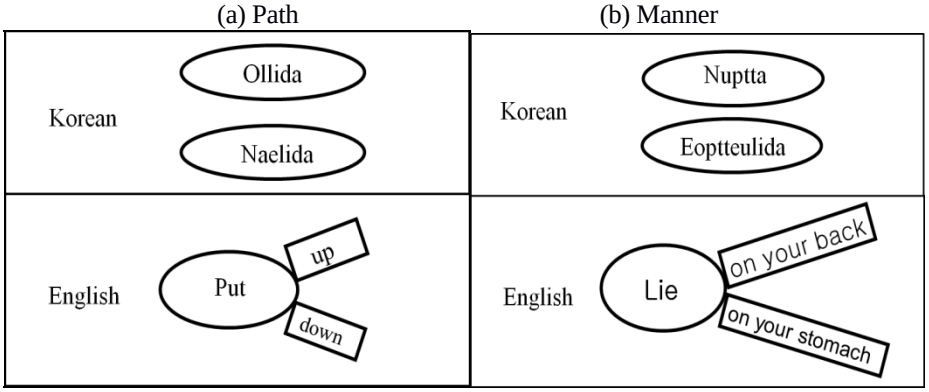

FIGURE 3 Conceptual Representations in English and Korean

Another example of crosslinguistic variation in coding concepts can be found with space events which have been observed by researchers of child language acquisition. For instance, Korean and English show a remarkable difference in expressing space meaning. Figure 4 shows how differently Korean and English partition special concepts for the events related to space, which was first observed by S. Choi (1997). In Figure 4, there are 11 spatial events. English classifies those events into two conceptual categories: *put on* for contact events and *put in* for containment events. In contrast, the same events are partitioned into five conceptual categories in Korean, classifying them totally differently from the way English does. Note that the Korean word *kkida* (*끼다*) in the box ④ covers

[1] English has the counterparts for those Korean verbs in single words (i.e., *descend* and *ascend*). However, these verbs are Latin-originated used in low frequency.

some parts of *put-on* events and some parts of *put-in* events and the six events encoded by the same expression *put on* in English are represented by four different verbs in Korean: *nohta (놓다), buchida (붙이다), sseuda (쓰다),* and *kkida (끼다).*

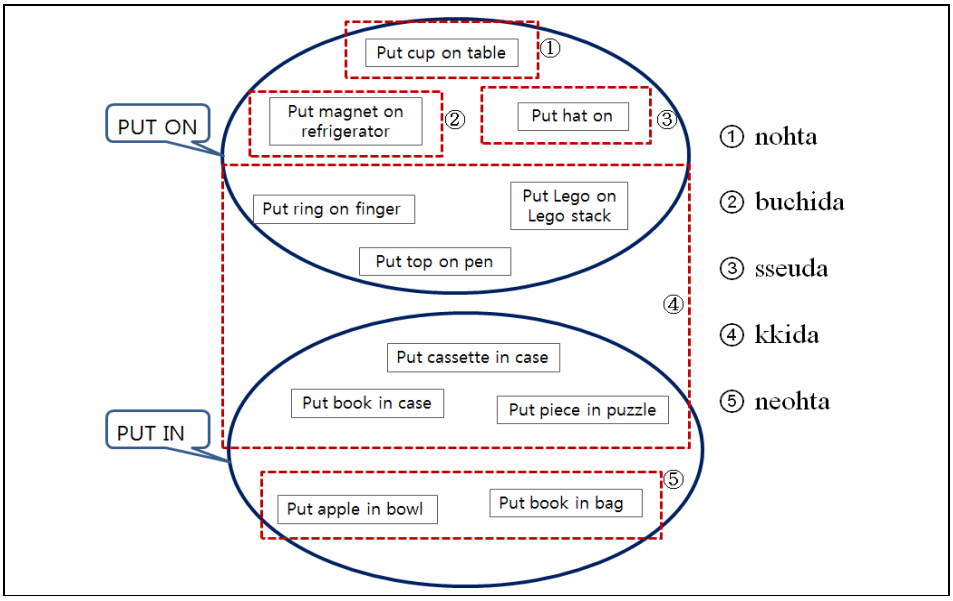

FIGURE 4 Categorization of Spatial Events in Korean and English

To be successful in learning another language, learners need to actively construct conceptual categories from the input, building up language specific systems. Bilinguals who speak two languages can exploit two different coding systems in expressing the same concepts. They know how the same concepts or events can be structured and encoded differently across languages, and here may be a link between bilingualism and cognitive flexibility. Cognitive flexibility is an ability to produce simultaneously multiple representations of a single event. As considered above, the manner, path, and space events are differently encoded in English and Korean, and thus Korean-English bilinguals may have multiple representations for those events.

4. Bilinguals' Cross-Cultural Experiences

Culture consists of a set of conventionalized routines and knowledge (Chiu & Hong, 2006). Language and culture are closely related to each other since language is a system of representation of perceptions and thoughts. As Bennett (1997) wittily remarked it, even a person who has a native-like fluency in the target language is a "fluent fool" (p. 16) if

she/he does not understand the cultural dimension of the language. This highlights the importance of culture in language learning, entailing that cultural experience is a part of language learning. Cross-cultural experiences seem to foster the creative expansion of ideas, as people can acquire new perspectives in the process of experiencing new cultures. When exposed to only one culture, on the other hand, the cultural knowledge may limit an individual' conceptual expansion as he/she is stabilized in a fixed viewpoint. Leung, Maddux, Galinsky, and Chiu (2008), based on literature review of empirical studies, demonstrated how multicultural experience enhances creativity. According to them, multicultural experience provides direct access to novel ideas and concepts from other cultures, creates a psychological readiness to recruit ideas from unfamiliar sources, and fosters synthesis of seemingly incompatible ideas from diverse cultures.

One may wonder whether the benefits of multicultural experience come even with indirect experience in a short period like classroom learning situations. This suspect is supported by Leung and Chiu (2010). They reported that European-American undergraduates who watched a 45-minute slide show about both American and Chinese cultures performed better in a creativity test (i.e., writing a creative version of the Cinderella story) than those who watched a slide show only of American culture. Chie and Hong (2006) also stated that people who have been exposed to two different cultures can retrieve seemingly discrepant ideas from each culture and integrate those ideas in a novel way, resulting in new insights.

It should be mentioned that claim of creativity enhancement through multicultural experiences is not relevant with the Sapir-Whorf hypothesis which states that one's language influences the manner in which one perceives and understands the world, and therefore, speakers of different languages will perceive the world differently (Kay & Kempton, 1984). The issue of linguistic relativity is beyond the scope of the present study. Rather, this study takes a position, following McDonough, Choi and Mandler (2003), that what determines our coinage of vocabulary is our interest and need, and thus it is natural that a language reflects the culture of the community.

5. Second Language Learning and Cognitive Flexibility

In this section we will speculate an answer to the question of "What brings about the bilingual advantages on creativity?," arguing that the intersection of bilingualism and creativity is cognitive flexibility. In the following, logical inferences for the correlation between bilingualism and creativity will be established by demonstrating striking similarities between the cognitive processes involved in second language learning examined above and the construct of divergent thinking which is often measured by Torrance Tests of Creative Thinking (TTCT).

Divergent thinking is considered as a major component of creativity in the psychometric tradition. What is in the core of divergent thinking is the ability to generate a wealth of ideas to the given stimulus, which is the opposite process of convergent thinking. As considered earlier, divergent thinking has been measured by the five subscales of the TTCT: Fluency, Originality, Elaboration, Abstractness of Titles, and Resistance of Premature Closure (Ball & Torrance, 1984). The question of why bilinguals are superior to monolinguals in the creativity tests seems to be best answered when we consider the Fluency scale and the Abstractness of Titles scale which lay the foundation of cognitive flexibility.

First, let us take a look at the Fluency scale which is measured by the total number of relevant ideas generated in the response to a stimulus. One example commonly used in the creativity tests is the Unusual Uses Test where the participants are asked to generate as many uses of a common object such as garbage bags as possible (Guilford, 1956). It would be natural that bilinguals attain high scores in the Fluency scale since bilinguals are exposed to two languages and two cultures directly or indirectly and thus may have diverse ideas to the given stimulus, when compared to monolinguals who are confined only to their own culture. That is, bilinguals have more resources to retrieve associated ideas to the stimulus than monolinguals, as they have a greater diversity of associations to the same concept. As a consequence, they would get high scores in the Fluency scale. Note that the test results are referred to the norm-referenced scores which assess the performances of the test taker in comparison to those of the other test takers.

The arguments with the Fluency scale can be extended to the Flexibility scale since it was integrated to the Fluency scale in Ball and Torrance (1984). Flexibility is the ability to switch ideas and is measured by the number of different categories of relevant responses. This ability reminds us of the resetting process of conceptual structures as in Figures 3 and 4, where the same concepts are encoded differently in the two languages. Korean speakers who use verbs to express path or manner meanings (e.g., *ollida* vs. *naelida*, *nuptta* vs. *eoptteulida*) should approach the same concepts from the different perspectives when they speak English by employing particles (e.g., *up, down, on*) with base verbs (e.g., *put, lie*). The bilinguals would switch from one language to the other. Also, they approach the same concepts from totally different perspectives using the two different coding systems. This way, bilinguals may develop cognitive flexibility, experiencing conceptual restructuring as well as cultural diversity.

The Resistance to Premature Closure scale measures the ability to stay open and tolerate ambiguity. In order to see how bilingualism enhances creativity in terms of this scale, we first need to look at the concept of ambiguity tolerance. Studies in second language acquisition have reported that tolerance of ambiguity is essential in language learning and

that it is one of the distinctive traits of the good language learners (Chapelle & Roberts, 1986; Oxford & Ehrman, 1992). Then, what is ambiguity? Being ambiguous means that the concept under question does not exist in one's mental repertoire or it is contradictory to one's existing knowledge. In other words, it means that the concept is new and thus doesn't conform to one's knowledge. To metaphorically explain 'ambiguity,' let's take a look at Figure 5. Among the three shapes, the colored one is ambiguous to describe since it is not a type of shapes we are familiar with: It's not a circle or a square. This analogy pertains to learning a new system of the second language. The array of the shapes in Figure 5 reminds us of that in Figure 2 where the various semantic shapes of Korean do not fit in with those of English.

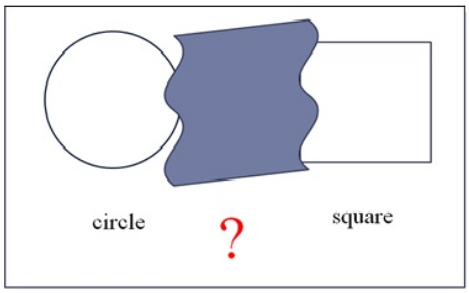

FIGURE 5 What is Ambiguity?

When learning a new language, it is full of ambiguity from the learners' viewpoints. The learners already have a fixed set of linguistic categories and cultural norms of their own native languages, but they have to comply with new systems and patterns, sometimes breaking out their existing cognitive structures. They also have to accept that the same concept is connected to two different associations. At this point the tolerance of ambiguity is in demand. Language learners would incorporate unfamiliar concepts with the existing structure and expand their concepts accordingly. Going through the processes repeatedly, language learners can boost cognitive flexibility which is measured by The Resistance to Premature Closure scale. This way, language learning seems to result in enhancing creativity which is a function of cognitive flexibility.

An interesting question to be discussed about the relationship between bilingualism and creativity concerns the causal direction of bilingualism and creativity: Which one is the cause and which one is the effect? In other words, the question is whether creative people learn the second language better or whether people become creative as a result of learning the second language. Hakuta and Diaz (1985) investigated the cause-effect relations between bilingualism and cognitive abilities, by analyzing a longitudinal data obtained from 123 English-Spanish bilingual children in the US. In order to figure out which of the

two acts as a causal agent, they performed a statistical analysis of zero-order correlation matrix for language and cognition at Time 1 (the first year) and Time 2 (the second year). The between-time analysis revealed that bilingualism affected cognitive ability. Of course, we could also predict the other direction: The more creative the individuals are, the better they would learn the second language. Yet, it would be logical to say that other factors being equal, people will become more creative in the process of learning the second language since language learning requires cognitive flexibility as we have seen earlier.

So far, we have considered how creativity can be enhanced by learning the second language. Bilinguals accept arbitrary assignments of word labels to the same concepts, tolerating numerous ambiguities. And they recognize that the same events can be encoded from different perspectives. Furthermore, they develop richer conceptual ideas as they learn the second language and culture. Their cross-linguistic and cross-cultural experiences seem to work to facilitate their cognitive flexibility.

IV. DISCUSSION AND CONCLUSION

The present study attempted to provide a new insight over the role of the English subject on the development of creativity. By reviewing the literature, it showed that there is a positive relationship between bilingualism and creativity, and bilinguals are superior to monolinguals in creativity. Taking one step further, it tried to characterize the underlying mechanisms of how bilingualism enhances creativity, by demonstrating some specific examples such as category learning, lexical and conceptual representations, and cross-cultural experiences. The study then raised the possibility that second language learning itself develops cognitive flexibility which is a key component of creativity. That is, Korean learners of English may promote creative thinking skills even without any intentional teaching for creativity in the English class, as cognitive flexibility develops in the process of learning English itself. If this is the case, it follows that English teachers are better to focus on the issue of ‘teaching creatively’ rather than on that of ‘teaching for creativity’ since the latter can be naturally attained as a result of English teaching itself.

The research on creativity in the discipline of English education has put focus on two major issues: teaching creatively and teaching for creativity. The former is concerned with how to teach learners in more interesting and effective ways, and the latter is mainly concerned with developing learners’ creative thinking skills. The claim that teachers should strive to find more interesting and effective ways of teaching English is not a controversial issue. Rather, it is an issue to be continuously pursued by teachers and scholars. Regarding the issue of teaching for creativity in the English class, however, some

teachers appear to be skeptical at least at the primary school level. A dilemma on creativity in education pointed out by several scholars is that it is not easy to instill creative mind into the learners in the classroom because it may be a paradox to encourage teaching for creativity in school education since the school curriculums are fixed and compulsory with fixed sets of knowledge (Craft, 2003).

When the issue of creativity comes to teaching English as a foreign language, a more serious dilemma will surface. The dilemma of the intentional teaching for creativity in the English class can be posed from the following aspects. First, it is related to the cognitive load theory in psychology. The theory was first developed by Sweller (1988) who wanted to emphasize that learners have limited processing capacity due to the inherent limitations of concurrent working memory load. Cognitive load indicates the total amount of mental effort being used in the working memory. Sweller claimed that instructional design should be used to reduce cognitive load of learners so that it optimizes intellectual performance. This theory is in line with the Trade-off Hypothesis by Skehan (1998) which claims that attention to one aspect of L2 production has a detrimental effect on another aspect. Learners have limited processing capacity which restricts what they can attend to. When the cognitive pressure increases, communicative capacity decreases. If learners whose English skills are very limited focus on meaning to express their creative thoughts, their capacity to produce form and structure will be decreased. This claim has been supported by numerous empirical studies. Seedhouse (1999), for instance, reported that the learners used indexicalized and pidginized languages when the task to perform is cognitively difficult. As cognitive load increases and their pressure to think creatively builds up, the capacity to process language forms decreases especially with the second language learners whose language skills are limited. Due to the limited working memory capacity, they have difficulty in attending simultaneously to both creative thinking and language production. Furthermore, too much demanding tasks in English class may not be effective since the learners may get stressed and feel less confident. Rather, learners' processing capacity should be freed to attend to form.

Another dilemma of the intentional teaching for creativity in the English class concerns time efficiency. English class time is very limited and lacks the time for developing basic language skills. Should we emphasize creativity at the expense of English skill teaching? Note that English learning itself develops cognitive flexibility which is a core component of creativity. If divergent thinking skills should be enhanced through the school subjects, the Korean language class can do the same job more effectively and efficiently than the English class since Korean learners can express their creative ideas with their highly developed language. The desirable quality of creativity education in the English class should be something specific and unique to the English class, not as a subset of the Korean language class. One specific contribution of English teaching to the development of creativity is that it develops learners' cognitive and psychological flexibility.

Creativity is multidimensional in nature and thus it would be desirable to take a balanced approach to creativity in education. According to Elbow (1973), there are two ways of seeking truth: doubting and believing games. Doubting games are highly honored practices of research in science. Most scientists have found truth by doubting existing ideas with critical thinking and finding logical errors. Believing games begin with accepting the idea even in case that it goes against current knowledge or beliefs. Creativity involves both convergent thinking and divergent thinking (Guilford, 1956). Adapting Elbow's claim to creativity, we could claim that there are two ways of seeking creativity in education. The subjects such as science or mathematics may approach creativity from critical and logical thinking where no ambiguity is tolerated. On the other hand, the English subject can help learners develop cognitive and psychological flexibility by encouraging them to play believing games where ambiguities are willingly accepted. By encouraging the learners to play both games, we can approach the true nature of creativity which has multiple dimensions.

Future research is needed to test through empirical studies if the speculation presented in the present study is valid with Korean learners of English. Furthermore, it is imperative to investigate the relationship between the proficiency level and the degree of creativity: What specific level of English proficiency should a learner attain to facilitate creativity and to appreciate bilinguals' cognitive advantages? Future research should also find effective teaching methods or strategies to maximize the inherent advantages of English teaching on fostering creativity. Specifically, we need to grapple with how we can teach English in a way that helps learners develop two coding systems to be coordinate bilinguals, rather than be subordinate bilinguals who process the L2 filtering through the L1 system.

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Examples in: English
Applicable Languages: English
Applicable Levels: Primary/Secondary/Tertiary

GyeongHee No
Department of English Education
Seoul National University of Education
1650 Seocho-dong, Seocho-gu
Seoul, Korea 06639
Tel: 02-3475-2432 / H.P.: 010-4653-0884
Email: gyeong@snue.ac.kr

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