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음악창작의 문화 비교를 위한 예비연구
- 한국과 미국을 중심으로 -
A Cross-Cultural Examination of Music Compositions in South Korea and the United States: A Pilot Study

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초록 본 예비연구의 목적은 한국과 미국의 초등학교 고학년 학생들의 음악창작 결과를 분석하여 음악창작에 대한 문화를 비교하는 것이다. 32명의 한국학생들과 35명의 미국학생들을 대상으로 4주간 창작 지도를 하고 MuseScore2를 이용하여 8마디 가락을 창작하게 하였다. 합의적 평가기법(CAT)을 이용하여 평가한 결과, 두 나라 간 창의성에서 통계적으로 유의미한 차이가 없었다. 그러나 창의성에서 높은 점수와 낮은 점수를 받은 작품들을 추가적으로 분석한 결과, 창의성이 높은 그룹은 다양한 소리 선택, 발전과 대조, 구조화 등의 특징을, 그렇지 않은 그룹은 제한된 소리 선택, 단순함/반복의 특징을 공통적으로 가지고 있었다. 이미 있는 친숙한 선율의 사용은 한국 창의성 점수가 낮은 그룹에서만 발견되는 특징이었다.

주제어: 합의적 평가기법, 음악창작, 창의성, 문화 비교, 평가

Abstract In this pilot study, we cross-culturally examined notation-based music compositions of upper-level elementary students in South Korea and the U.S. using the ratings of judges from both countries. Research participants were 32 South Korean and 35 U.S. upper-grade elementary students. After taking four weeks of music composition sessions, the students composed 8 measures of melody. Students' music compositions were judged using the Consensual Assessment Technique. As a result, we did not find statistically significant differences by these variables. But when we conduct further analysis of twelve high and low scored compositions in creativity in both countries, there were remarkable differences. Music compositions with high creativity manifested various sound potions, development/contrast, and organization/structure. Low creativity groups has limited sound options and simplicity/repetition. But adoption of pre-existing melody was found only in Korean low-creativity composition.

Key words: CAT, music composition, creativity, cross-cultural, evaluation

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Ⅰ. Introduction

The ways people think, behave, and live share a certain number of common aspects across cultures (Pike, 1967; Berry, 1989). Creation is one universal human behavior found throughout all times and in all cultures. Over the course of history, people have expressed their ideas and thoughts through creaton such as writing novels, drawing pictures, crafting art work, designing buildings, and composing musical pieces (Reznikoff, 2008; Waller, 1993).

Despite the universality of products created by humans, their manifestations vary according to their culture and society. When we learn art history such as music, visual arts, and architecture, unique patterns of each time period are emphasized – The Middle Age, Renaissance, Baroque, Classical, and Modern Era (Burkholder, Grout, & Palisca, 2019; Kahn, 2017). The chronological examination of human art products throughout history has been a popular lens with which to study human creation in our school curricula.

In addition to this chronological examination, we also need to understand the cultural variations of human art products created by people who live concurrently with us. This is especially important in a global society where cross-cultural collaborations are predominant. Psychologists have examined the creating processes and products of various artistic areas such as visual arts, writing, and geometry, to understand cultural similarities and differences among cultures. Chen et al. (2002) evaluated European American and Chinese college students' drawings of geometric shapes. The drawings were evaluated by Chinese and European American judges. The two groups of judges demonstrated cross-cultural agreement in judging geometric shapes. The two student groups' drawings with considerably different histories and cultures did not display significant differences in patterns and themes.

In Hennessey and her colleagues' (2008) study, elementary school teacher-judges from the U.S., Saudi Arabia, China, and South Korea assessed collages and stories created by children from the judges' respective countries (Hennessey, Kim, Guomin, & Weiwei, 2008). The four groups of judges demonstrated high agreement within each country (= .72 ~ .91). Storme, Lubart, Myszkowski, Cheung, Tong, and Lau (2017) compared Chinese and French students' graphic versus verbal creative tasks. The researchers compared correlated patterns of these domain-specific and domain-general variables in

creative tasks, which were found to be different across cultures. Hong and Lee (2015) examined Caucasian American and East Asian undergraduate students' utilization of shapes in terms of novelty and appropriateness in their architectural designs. East Asians received lower scores, perhaps because they showed less acceptance toward atypical and unique shapes than the Caucasian Americans did.

As shown above, some scholars found cross-cultural similarities, but others reported cultural differences in research participants' creative tasks. The number of these studies seems to be too sparse in each area to discover any generalizable patterns. This may explain why such mixed results have been reported. Furthermore, as far as determined, no extant studies have cross-culturally investigated in music – especially for music creating activities such as composition or improvisation. It seems to be obvious that more studies on people's creative processes and products across various fields including music should be conducted cross-culturally to collect cases and broaden our understanding on this topic.

In single-culture studies of music compositions, many scholars have investigated compositional strategies of Western culture. Colley et al. (1992) reported that expert composers organized musical sounds by taking into account sound balance and stylistic features of musical genres, whereas novice composers focused on chord-by-chord solutions on a small scale. Hickey (1995) found that those who scored high in creativity ratings in music composition more frequently experimented, repeated, and developed musical ideas than those with lower scores. Daignault (1996) reported that highly creative composers showed a tendency to refine musical sounds as well as to substantially extend their improvisations. Among the above strategies used by composers, exploration and experimentation have been recognized as initial actions of composition to invent musical ideas (Barret, 1998; Kratus, 2001; Wiggins, 2007). Development was viewed as a process of musical contextualization, which usually occurred after exploration (Tsisserve, 1997, Wiggins, 2007). Revision and refinement were regarded as advanced steps in the composition process, which develop over time with experience and age (Bamburger, 1991). It is necessary to understand whether these strategies found in Western professional or student composers are universal or any specific manifestations of culture.

To plan a cross-cultural study in music composition, it is appropriate to use the most valid measure to evaluate creative tasks. The literature offers the Consensual Assessment

Technique (CAT, Amabile, 1996), which was largely used in assessing people's creative outcomes. The CAT enables researchers to measure "real-life creative endeavors," such as writing essays, drawing pictures, or composing music (Hickey, 2002, p. 402). Many aforementioned scholars, such as Chen et al. (2002), Hennessey et al. (2008), Hickey (1995) also adopted the CAT for geometric shapes, collages and writings, and music composition, respectively. Particularly, Chen et al. (2002) and Hennessey et al. (2008) tested the CAT's cross-cultural feasibility, but their methods were slightly different. Chen et al. (2002) asked all Chinese and European American judges to evaluate geometric shapes of Chinese and European students, so that cross-cultural comparisons were made in the evaluations; they found cross-cultural agreement in judging shapes. On the other hand, Hennessey et al. (2008) recruited judges from the U.S., Saudi Arabia, China, and South Korea, and they evaluated creative tasks only from their own students. All four judges reported a high consensus in evaluating creative outcomes in their own country. Hennessey et al. (2008) suggested the CAT as a possible measurement tool for cross-cultural investigation of creative outcomes because the CAT showed high reliability in all countries' cases. However, as far as determined, the CAT has not been tested cross-culturally in music education studies.

Given the sparsity of cross-cultural studies in musical creative outcomes, the purpose of this pilot study was to examine music compositions cross-culturally to understand similarities or differences of music compositions across cultures. To this aim, this study included U.S. students as a comparison point to South Korean students. South Korea has a unique music culture, while simultaenously sharing Western music culture. Thus, the school music curriculum has an emphasis on Western music including performing, creating, and responding as well as Korean music (Korean Department of Education, 2015). Although Korea and the United States have these common elements of Western music, cultural differences are also clear. This study tries to find out how these differences appear in music composition. This pilot study thus explored the following questions:

1) Is there a difference in ratings of music compositions between South Korean and U.S. judges?
2) Is there a difference in ratings of music compositions between South Korean and U.S. students?

3) Are there any similar or different features in children's music compositions across cultures?

Ⅱ. Method

1. The Participants

Following approval from the university's IRB, 32 Korean and 35 U.S. students were recruited from two suburban elementary schools for this pilot study, one in the Central region of Korea and the other in the Southeastern region of the USA. Due to differences in school structures of each country, Korean students in 4th grade were recruited, 4th grade, and U.S. students between 4th and 5th grade were selected in order to have the closest sample in terms of biological age. Korean students' ages ranged from 10 to 11 (M = 10.06, SD = .242), and U.S. students' ages ranged from 9 to 11 (M = 10.02, SD = .736). In terms of gender, in the Korean group, 19 students (59.4%) were male and 13 students were female. 16 U.S. students (45.7%) were male and 19 U.S. students were female. Among U.S. students, ethnicities were as follows: 71.4% European/White, 22.9% Asian, and 5.7% Hispanic. The Korean participants were marked as 100% Asian.

Korean students have been practicing rhythm-changing expressions or music making using technology based on the 2015 music curriculum. U.S. students have been learning music through Koday and Orff method in the 2014 Music Standards. Of all the participants, 21 Korean students and 22 U.S. students had prior experience with music, like participating in a band, orchestra, choir, or private lessons, whereas the other 11 Korean and 13 U.S. students did not have prior musical experience. That is to say, approximately two thirds of both the South Korean and U.S. populations had prior music learning experience before participating in this study.

2. Procedures

1) Music Composition Sessions

Upper-grade elementary students of the Korean and U.S. classes participated in

four 30-minute music notation-based composition lessons once a week for four weeks. One of the researchers developed music composition lessons modified from Hickey (2001), which adopted music conceptual approaches to compose music by exploring melody, timbre, texture, rhythm and dynamics. The developed lesson was translated into Korean and the content validity was checked by two Korean and two U.S. music educators, and further revised based on their suggestions. Many Korean students learn music based on the Western tonality system due to the international homogenization of musical styles (McCarthy, 1997). Several studies conducted in Korea consistently reported Korean students' preference for Western music (Baek, 2007; Kim, 2009; Joo, 2016). Also, Korean music education standards place emphasis on music compositions from the Western tonality system as well as the traditional Korean modal system. Thus, composing music based on the Western tonal system is also a familiar task to Korean students. A more detailed music composition lessons are as follows.

<Table 1> Music Composition Sessions

Period	Music Concepts	Tasks
1	Rhythm	imitating simple rhythm patterns in 4/4 times musical questions and answer on a four beat rhythm pattern music-rhythm train game composing a four beat rhythm pattern
2	Melody	imitating melodic intervals of skip, step and leap with body movement inserting melodies on the previously-composed rhythm pattern
3	Tempo/ Dynamics	responding to tempo and dynamics with body movement when listening to *In the Hall of the Mountain King* (by Grieg) inserting tempo and dynamics vocabulary on the previously-composed melodies
4	Musical Form	discriminating whether two given melodies are identical arranging the melodies of their musical compositions presenting the tutorials of MuseScore2 for their composition assignment

The two instructors who taught the music composition lessons in the Korean and U.S. classrooms were researchers in this study. They conducted five video conferences prior to the music composition lessons and after teaching each lesson in order to ensure consistency in the procedures for the classrooms in both countries.

2) Creating a Melody

After the 4-week notation-based music composition lessons were finished, students were required to compose an 8-measure melody using MuseScore 2 (music notation/composition software) with individual laptops given to each student. Of course, there are many differences between Korean and American curricula, textbooks, and class content etc. However, students of both countries are familiar with Western music culture and computer technology. And students feel more comfortable when they compose using technology(Park, 2017). So Researchers decided that producing music using technology should be delegated as a task. All research participants possessed a basic level of technological competency before participating in this study. A simple tutorial lesson for MuseScore 2 was given to students prior to their individual music compositions. When students composed music, a specific instruction was given, saying, “Compose an 8-measure musical piece using rhythms, melodies, dynamics, and tempos learned from the music composition lessons.” Students were given 30 minutes to compose music, and each student wore a headset to compose music in a closed environment without external influence. Students who required more time were given extra time based on their composition pace. While students were composing music, the instructors dealt with individual questions asked by students.

3) Implementation of the Consensual Assessment Technique (CAT)

Students’ music compositions (notation and audio files) were sent to ten judges in Korea and the USA: Five U.S. (four male and one female) and five Korean (all female) elementary music education experts. All judges were either currently teaching at elementary schools or had taught elementary general music before. Among the ten judges, three held doctoral degrees(one Korean and two U.S.), six held master’s degrees(three Korean and three U.S.), and one Korean held a bachelor’s degree in music education. First, guides were provided to judges about the outline of this study and CAT method. And then the judges were recruited based on a suggestion from the literature, which stated, “All those persons rating products [should] be familiar enough with the domain to have developed, over a period of time, some implicit criteria for creativity, technical goodness, and so on” (Hennessey et al., 2008, p. 92).

The judges were given 67 student composition files (notation and audio files) in a random order; the information on students' nationalities was blinded to them. Following the CAT procedure outlined by Amabile (Amabile, 1982, 1988), they judged the music compositions by three criteria selected from Amabile (1996): creativity, aesthetic appeal, and technical goodness, on a 5-Likert type scale. These three criteria chosen by Amabile (1996) were the most significant three categories for factor analysis of multiple criteria. Amabile (1996) further suggested:

The integrity of the assessment technique (CAT) depends on agreement being achieved without attempts by the experimenter to assert particular criteria or attempts by the judges to influence each other. To achieve this, the judges should not be trained by the experimenter to agree with one another, they should not be given specific criteria for judging creativity, and they should not have the opportunity to confer while making their assessments. (Amabile, 1996, p. 42)

Thus, the judges were instructed to use "their own subjective definitions of creativity" for the Creativity dimension in their evaluations (Amabile, 1996, p. 45). However, the definition of Aesthetic Appeal, - the degree to which the music composition design demonstrated an aesthetic feeling - was given to judges. The definition of Technical Goodness, - the degree to which the music composition demonstrated competence in rhythm and melody construction - was also given to the judges (Amabile, 1996).

All judges were instructed to rate the music composition products relative to one another, rather than compare them against an absolute standard. We suggested that when judges assessed each category, at least one of the compositions should receive a rating of "1" and at least one of the compositions should receive a rating of "5" to ensure a good variance of all the five ratings.

Judges were blinded to the cultural origin of the music composition products except for the composition titles, as titles were features of students' compositions.

Ⅲ. Results

The data were analyzed using SPSS Standard Version 22.0 software. As a preliminary analysis, an interrater-reliability coefficient was calculated for both

countries' judges using Cronbach's alpha. Overall, the 10 judges demonstrated a high consensus on all three criteria (creativity: α = .800, aesthetic appeal α = .727, and technical goodness α=.785). To ensure that Asian students in the U.S. group (n = 8) did not influence the composition scores for the U.S. group as a whole, we isolated the Asian students' total composition scores and compared them with the total composition scores of other students in the U.S. group (n = 27). An independent sample t-test showed that no significant difference was found in the total composition mean scores between these two groups (t = .818, p > .05). Since group differences between Asians and other populations of students in the U.S. group were not found, the Asian students' scores were not excluded from the U.S. total sample. Means and standard deviations of composition scores were presented by the judge country (Korea and U.S.), criterion (Creativity, Aesthetic Appeal, and Technical Goodness), and the student country (Korea and U.S.) in <Table 1>.

<Table 2> Mean and Standard Deviations of Composition Scores (N = 67)

CAT Criteria	Korean Judges	US Judges	All Judges
Creativity			
Korean Compositions	3.07 (0.19)	2.84 (0.54)	2.95 (0.40)
US Compositions	3.71 (0.29)	2.96 (0.45)	3.34 (0.54)
Aesthetic appeal			
Korean Compositions	2.91 (0.24)	2.75 (0.50)	2.83 (0.37)
US Compositions	3.20 (0.44)	2.86 (0.36)	3.03 (0.41)
Technical goodness			
Korean Compositions	3.11 (0.20)	2.78 (0.33)	2.94 (0.32)
US Compositions	3.28 (0.52)	2.70 (0.52)	2.99 (0.58)

*Standard deviations in Parentheses

1. Research Questions 1 & 2: Is there a difference in creativity ratings of music compositions between South Korean and U.S. judges? Is there a difference in creativity of music compositions between South Korean and U.S. students?

To answer the first and second research questions, participants' composition ratings in both countries were compared using a mixed-model analysis of variance (ANOVA),

with one between-subjects factor (Judge Country) and two within-subjects factors (Student Country and Criterion). The dependent variable was the Composition Score. There were two significant main effects for Student Country and Criterion: Student Country, $F(1, 8) = 6.155$, $p < .05$, $\eta_p^2 = .435$; Criterion, $F(2, 16) = 8.007$, $p < .05$, $\eta_p^2 = .500$. The effect sizes of the main effects were determined by partial eta squared (η_p^2). About 43.5% of the variance of composition ratings could be attributed to differences in Student Country (Korea vs. U.S.), and about 50.0% of the variance of composition ratings was due to differences in Criterion (Creativity, Aesthetic Appeal, and Technical Goodness). Greenhouse-Geisser corrections were made for the within-subjects variables. No interactions were found among independent variables.

To determine differences in student composition ratings associated with Student Country (South Korea or U.S.) and Criterion (Creativity, Aesthetic Appeal, and Technical Goodness), a follow-up analysis using dependent sample t-tests was conducted by splitting Criterion (Table 2). To control for Type 1 error, a Bonferroni correction was applied ($p < .0167$ instead of $p < .05$).

As shown in <Table 2>, the p value ($p = .017$) of the Creativity mean difference between the Korean and U.S. composition ratings ($M_{Korea} = 2.95$, $M_{US} = 3.34$) was close to the adjusted critical value ($p < .0167$). However, a statistical significance was not found between in this follow-up analysis.

<Table 3> Follow-up Dependent Sample T-tests between Korean and US Compositions ($N = 67$)

Source	Mean Difference	*t*	*df*	*p*
Creativity				
Korean vs. US compositions	0.39	2.931	9	.017
Aesthetic Appeal				
Korean vs. US compositions	0.18	2.714	9	.058
Technical Goodness				
Korean vs. US compositions	0.05	0.351	9	0.734

In sum, to answer the first research question, a Korean and U.S. judge difference was not found given that there is no significant Judge Country effect on composition ratings. For the second research question, music compositions among South Korean and U.S. students did not display a statistically significant difference. Among the

three criteria, the *p*-value (p = .017) in the Creativity dimension was close to the critical value (p = .0167), although that was not the case for the two other criteria of Aesthetic Appeal and Technical Goodness.

2. Research Question 3: If there is a similarity or a difference among children's music compositions, which features in music compositions determine creativity across cultures?

Although we could not find a statistically significant difference among the Korean and U.S. students' compositions, we were curious whether the mean difference in creativity ratings might be noticeable because the *p*-value was close to the critical value. To further determine this subtle difference in the creativity dimension between the South Korean and U.S. compositions, we selected twelve music compositions based on their creativity scores (six from South Korea: 3 highly-rated in creativity and 3 low-rated; six from the U.S.: 3 highly-rated in creativity and 3 low-rated). We adopted Kratus's (1994, 2001) criteria: tonal cohesiveness, metric cohesiveness, melodic pattern, rhythmic pattern, expressiveness as a priori categorization for the further analysis of these twelve compositions. We modified these criteria to tonality, metrics, melodies, rhythms, and expressiveness, and inserted "others" to capture other features of the music compositions that did not fit the aforementioned criteria. By examining student compositions, two researchers composed sentences that described characteristics of compositions under the modified categories of Kratus (1994, 2001). More than one sentence was allowed in each category. Examples of sentences in each category are as follows:

- Tonal Cohesiveness: Pitches are too scattered around in high or low, so that it is hard to recognize the tonal center.
- Metric Cohesiveness: Metric cohesiveness is not easily recognized due to the irregular division of rhythm patterns.
- Melodic Pattern: The melodic interest centered on A minor or C major.
- Rhythmic Pattern: The rhythmic idea is not developing, rather it is reducing.
- Expressiveness: It sounds like a song.
- Others: The cadence is clearly presented.

As a result, we composed 196 sentences describing characteristics of the twelve compositions that scored high or low in creativity. Firstly, the two researchers evaluated all sentences; if one of them disagreed with a sentence, it was either modified or removed. Next, two outside judges (one from South Korea and the other from United States) evaluated each sentence by examining notations and listening to the audio files from which the sentences were generated. Afterwards, they expressed their agreement or disagreement to them. If both disagreed with a sentence, it was either modified or removed based on their opinions. This process reduced the total sentences from 196 to 193. These 193 sentences were coded to examine the style of student compositions in the following categorical groups: Korea-high creativity, Korea-low creativity, U.S.-high creativity, and U.S.-low creativity. Themes describing common characteristics of student composition in the Korean high creativity group, the U.S. high creativity group, the Korean low-creativity group, and the U.S. low-creativity group are as follows.

1) High-Creativity Groups

Further analysis generated the following themes for both the Korean high-creativity and U.S. high-creativity groups: Various Sound Options, Development/Contrast, and Organization/Structure. This analysis of selected compositions demonstrated that student compositions of both high-creativity groups shared these similar characteristics.

(1) Various Sound Options

In this study, students were asked to compose an 8-measure musical piece using rhythms, melodies, dynamics, and tempos learned from the music composition lessons. For this project, a laptop was given to each student to use MuseScore2, a program in which a variety of options of notes, pitches, dynamics, and tempos are readily accessible. Because a tutorial of MuseScore2 was also provided to students before their composition, students could use those program options by simply clicking. High-creativity group compositions in both countries included a variety of pitch/rhythm options available in MuseScore2, such as a wide range of pitches, various rhythmic note patterns, syncopation, harmonic accompaniment, and so forth. One Korean student in the high-creativity group used the wide range of pitches. One

composition in the U.S. high-creativity group adopted both the treble and bass clefs. The main melody and its harmonic accompaniment appeared in the composition. This is also an example of a U.S. student's use of a varied sound option.

(2) Development/Contrast

Most compositions in the high-creativity groups of both countries showed the development of rhythmic or melodic ideas. In some cases, contrasts were found between the flow and pause of sounds, and between high and low pitches. One composer from the Korean high-creativity group differentiated quarter notes and sixteenth notes, and he also utilized rests to change from one musical idea to another. Another composition from the U.S. high-creativity group exemplified melodic and rhythmic contrast. The U.S. student contrasted the first line of melody to the second line by using eighth and sixteenth notes for the first line and quarter notes for the second line.

(3) Organization/ Structure

Compositions in the high-creativity groups of both countries demonstrated organized and structured sounds. In most compositions, musical ideas were displayed and then developed, to the degree that musical cadences concluded those musical ideas. Some composers marked a half cadence at the end of the first line and a finished cadence at the end of the works, using both melodic and rhythmic ideas. The following are examples of Korean and U.S. high-creativity group.



[Figure 1] Examples of Korean high-creativity group



[Figure 2] Examples of U.S. high-creativity group

2) Low-Creativity Groups

Further analysis of exemplary compositions in both student country groups also generated themes for students who scored low in Creativity in each group. These common themes for both Korean and the U.S. low-creativity groups were Limited Sound Options and Simplicity/Repetition. However, the pattern of Adopting the Pre-Existing Melody was found only in the Korean low-creativity group.

(1) Limited Sound Options

Regardless of having a variety of sound options in MuseScore2, low-creativity group compositions from both South Korea and the U.S. did not display the use of various sound options as much as the high-creativity groups did. Rather, the compositions included limited sound options and their simple repetitions. For example, many in these groups predominantly used quarter notes, which were only a default option in MuseScore2, along with just a few other variations.

(2) Simplicity/Repetition

Compositions in both low-creativity groups demonstrated a tendency to repeatedly use simple musical ideas. Generally, the ranges of using pitches and rhythmic patterns in the low-creativity groups was not as diverse as those in the high-creativity groups. This may have resulted from the limited use or experience with various options in Musescore 2 by the low creativity-group students.

(3) Adoption of Pre-Existing Melody

Although the aforementioned themes of Limited Sound Options and Simplicity/Repetition were found in both the U.S. and South Korean low-creativity groups, this theme of Adoption of Pre-Existing Melody was found among the Korean low-creativity compositions only. Two out of three Korean low-creativity compositions included the pre-existing melody of the *Orpheus in Underworld Overture*, composed by Offenbach. The Korean instructor witnessed that the entire class rehearsed this piece for its end of year performance, thus most students had memorized the familiar tune. Judges in the two countries seemed to assign relatively low scores in the criteria of Creativity when students adopted a pre-existing melody. The following are examples of Korean and U.S. low-creativity group.



[Figure 3] Examples of Korean low-creativity group



[Figure 4] Examples of U.S. low-creativity group

After further analysis, a noticeable difference was found among the exemplary compositions of Korean and U.S. students: Adoption of Pre-Existing Melody because it appeared only among the Korean low-creativity group. We checked all 67 music compositions of all participants (Korean and U.S. students) to search for other occurrences of Adoption of Pre-Existing Melody. No such cases were reported among the U.S. compositions, but among Korean compositions, pre-existing melodies other than *Orpherus in Underworld Overture* were also found *Orpheus in Underworld Overture*. Three other compositions among the Korean students resembled melodies from piano literature for beginners published in South Korea; thus, we found a total five cases out of 32 Korean compositions that used familiar tunes.

Ⅳ. Conclusion

In this pilot study, we cross-culturally examined notation-based music compositions of upper-level elementary students in South Korea and the U.S. using the ratings of judges from both countries. By having judges rate compositions from both countries, we investigated whether cultural differences among judges played a significant role in the evaluation of music compositions. Also, we compared the music compositions of South Korean and the U.S. students to determine whether the compositions themselves reflected and manifested cultural differences.

First, we did not find differences between Korean and U.S. judges in evaluating students' creative outcomes. Judge Country in the ANOVA analysis indicated no main effect on the judges' consensus on evaluation in student's compositions. This finding aligns with several previous studies that reported judges' cross-cultural agreement in evaluating creativity of drawings, collages, and writings (Chen et al., 2002; Hennessey, et al., 2008). In our study, the two groups of judges from two different nationalities – with potentially diverse social structures, histories, educational systems, and cultural values – did not differ in their evaluation of music compositions. This result may suggest the possible existence of universal standards among music teachers in evaluating notation-based music compositions. In our study, the judges recruited in both countries were currently elementary general music teachers or had teaching experience in equivalent settings.

Furthermore, using the three criteria of creativity, aesthetic appeal, and technical goodness, we did not find significant differences music compositions of students from the two countries. It might be worth noting that the p value of the mean difference in creativity score (p = .017) was close to the critical value (p < .0167) although it was not statistically significant. The value might represent the possible existence of a difference in the Creativity dimension in which the U.S. students scored higher than the Korean students (M_{US} = 3.34, M_{Korea} = 2.95). This observed mean difference would resonate with previous research findings. Among the studies that found cultural differences in creativity between Western and Asian students, Western students tended to score higher than Asian students either in individual creativity scores (Deng, Wang, & Zhao, 2016) or creativity product evaluation scores (Hong & Lee, 2015; Niu & Sternberg, 2001).

This possible difference in creativity led us to conduct further analysis of twelve high and low scored compositions in creativity in both countries. Music compositions with high creativity scores displayed the following common characteristics: Various Sound Options, Development/Contrast, and Organization/Structure. Themes such as exploration, experimentation, development, and refinement that are commonly reported among Korean and U.S. students are largely aligned with composition strategies found in previous Western literature (Bamburger, 1991, Barret, 1998; Tsisserve, 1997, Wiggins, 2007).

On the other hand, among Korean and U.S. low-creativity groups, there were both similarities and differences. Themes such as Limited Sound Options and Simplicity/ Repetition were commonly found in both countries' low-creativity groups. According to Colley et al. (1992), novice composers allocated smaller units of musical sounds, whereas experienced composers structured sounds from a broader perspective of part movement, sound balance, and musical styles. Hickey (2001) also reported that the low-creativity group in her study mostly adopted simple repetition of small motifs with no additional attempt to experiment or develop of those motifs. Similar to these previous results, our low-creativity group compositions in both countries included many simple repetitions using limited sound options. Perhaps, the themes of Limited Sound Options and Simplicity/Repetition may be the composition strategies adopted by both low-creativity groups, whether consciously or unconsciously.

However, we found a possible culture-specific phenomenon in the Korean low-creativity group. Two of the three compositions that were selected for further analysis in this group adopted a melody that students had rehearsed in music class; perhaps, this adoption of the familiar melody may have caused them to receive lower scores in creativity. We also found three more cases of the adoption of familiar melodies in the Korean group (n = 32), thus five out of 32 Korean compositions included pre-existing melodies. This phenomenon of melody adoption in composition among Korean students has also been reported in Park's (2010) study. Such a result can be found in the differences of Korean and U.S. music standards. In Korea, 4th grade students learned rhythm-changing expressions[4music-01-04] in expression area among expression, appreciation, and habituation, whereas in the U.S., music standards aim to cultivate students' ability to carry out the three artistic processes of creating, performing, and responding. Creating consists the ability to imagine, plan and make,

evaluate and refine, present. And within the limited scope of this pilot study caused by a small number of composition samples, it is unclear whether the adoption of familiar melodies in the Korean group appeared within certain cases or could be understood as a general phenomenon in Korea.

The current pilot study suggested that music compositions from the two different countries, South Korea and the U.S., did not display significant differences in musical characteristics. However, the fact that the mean difference of the creativity scores of both countries was close to the critical value proposed a possible difference in the dimension of creativity between the students in two different countries. Through further examination of the composition pieces with high and low scores in creativity of both countries, we also found many similar characteristics in the following themes: Various Sound Options, Development/Contrast, Organization/Structure from two high composition score groups) and Limited Sound Options and Simplicity/Repetition. One unique characteristic of Adoption of Pre-Existing Melody was found among composition pieces with low creativity scores only in South Korea.

Within the scope of this pilot study, we could suggest that the music composition strategies based on Western notation system might exhibit many similar strategies across cultures due to the homogenization of musical sounds (McCarthy, 1997). To test generalizability of this pilot study's results, replications of this study should include a larger sample size with a varied population of research participants. Notation-based music composition was adopted for this current study in order to implement common creating learning content in two different countries based on their standards. For future studies, a variety of musical genres and creating activities (e.g. improvisation, arrangement, creating variations, etc.), especially activities that reflect students' lives and culture, such as composing a song, can be employed to broaden the scope to a more cross-cultural perspective.

In this pilot study, two music instructors taught 4-week notation-based music composition lessons in South Korea and the U.S.. Although four music education experts in both countries reviewed the lessons and many conferences were conducted to ensure the consistency of the lessons, the extent to which each instructor's personal traits influenced the quality of lessons is ambiguous. We also note the technology effect. All participants in both countries used MuseScore2 (composition/

notation software) to compose music in order to minimize the effect of prior musical skill and knowledge of students in their music compositions. Although both South Korean and the U.S. schools participating in this study offered technology lessons once a week, individual students' capabilities of using the technology would vary. Thus, the extent to which the use of technology influenced students' musical outcomes and cultural expression is unclear. To clearly investigate the effect of technology, scholars need to compare students' cross-cultural music compositions by setting technology as the independent variable through testing with and without the aid of technology.

The length of treatment sessions should be expanded in future studies. We implemented four weeks of composition lessons and then collected students' music compositions, which is a relatively short time in which to nurture music composition skills and strategies. To further understand the cognitive process in music composition as to how it can be developed over time, future study could implement a longer period of treatment, include observations of composition process, and collect multiple music compositions.

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