
Composing Pieces for Peace: Using *Impromptu* to Build Cross-Cultural Awareness

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Abstract

Music has long played a role as an ambassador for peace and understanding between cultures. Yet, there is little research that gauges how creating music aids in the development of cross-cultural awareness. Given today's tense political climate post-9/11, further investigation of the role that music can play in fostering cross-cultural awareness is needed. Using a sociocultural constructionist framework, this study investigated how 22 youth (12 girls and 10 boys) from the United States, in communication with youth in Tel-Aviv, Israel, analyzed and composed music steeped in traditional Hebrew, Arabic, and Western traditions using the computer program, Impromptu. Participants took part in pre-tests and post-tests to measure their awareness and respect for Israelis at the start and end of the study using the Cross-Cultural Awareness Drawing Task (Bar-Tal & Teichman, 2005). Using qualitative techniques, the researchers analyzed the written reflections of participants on their music composition process over the course of the intervention. Findings suggest that the music composition and analysis exercises had a positive impact on the development of cross-cultural awareness over time among American students, helping to counter the common misconceptions about the Middle East fostered in today's media.

Music has long played a role as an ambassador for peace, often employed by Heads of State for the purposes of transmitting positive messages in times of cultural collision. One well-known example of this is the United States' "Rhythm Road" that, like the Jazz Ambassadors program launched during the Cold War, aims to promote a positive image of the U.S. to cultures across the globe through performances and workshops. United States Secretary of State, Hillary Clinton, recently pointed out the ineffable quality of music to communicate the value of a culture more effectively than through words alone (CBS News, 2010). Yet, practices like these call attention to a connection between non-explicit musical and cultural understandings that has been seldom investigated. In a time of heightened global conflict, it gives one pause to consider the ways that tacit understandings of something as ubiquitous as music could uncover a potential venue for better understanding and connecting to other cultures.

Seeking to explore this phenomenon, this study investigates the extent to which youths' reflections on music reveal their cultural biases and ways in which their understanding of music is engrained by larger sociocultural contexts. By extension, youths' ability to identify value systems of their own culture as exhibited in its music, as well as the values of other cultures as demonstrated through their music, helps us to take strides toward uncovering how multi-ethnic musical activities can help people develop their musical, as well as cultural, understandings. This exploration is informed by a constructionist framework in music, pioneered by Jeanne Bamberger and others, which emphasizes that the act of composition through the use of a computer can enable those, even with no musical background, to express and develop their musical 'intuitions' (Bamberger, 1972, 1975, 1976, 1995). The computer in these cases is used as a tool to facilitate a dialogue between youths' intuitive and formal understandings of how a piece of music is organized, notated and perceived. In contrast to traditional means of music education, musical constructionism

begins with the perceptual experience and, through reflection and re-composition, “works backward” to help the listener quantify their understandings of music that were previously mere instinct. A key relationship to the current study is the supposition that the intuitions that one has about a piece of music (e.g., the ability to clap a rhythm that is twice as fast as a given one or end an incomplete melody with a certain pitch because it “sounds right that way”) is a result of unconscious programming that is innate in some cases (e.g., vocal prosody and rhythmic “pulsing” in infants [Panksepp & Trevarthen, 2009]) and culturally informed in others. The assistance of the computer to help people identify the sources of many of these intuitions is of central concern, as is the notion that these intuitions will be different for the listener depending on the means they have available for musical sense-making, most of which are culturally specific.

Toward these aims, 22 youth from a midsized Midwestern elementary school employed Bamberger’s software, *Impromptu* (Bamberger, 2000), to reconstruct, remix, and compose their own works using short blocks of pitches and rhythms taken from Western, Hebrew, and Arab folk traditions, while communicating with Jewish and Arabic children in Tel-Aviv, Israel. Participants took part in pre-tests and post-tests to measure their awareness and respect for Israelis at the start and end of the study using the Cross-Cultural Awareness Drawing Task (Bar-Tal & Teichman, 2005). The researchers further qualitatively analyzed participants’ written reflections on their music composition process over the course of the intervention. Findings suggest that the music composition and analysis exercises positively impacted the development of cross-cultural awareness over time among American students, helping to counter the common misconceptions about Israel fostered in today’s media.

Background

Prior research has suggested that the arts, and specifically music, can provide an alternative to people-to-people interactions by allowing individuals to become aware of

underlying values within different cultures and act as a facilitator of continued exploration (Saunders, 2001). Furthermore, the research on music education in the areas of performance, teaching, pedagogies, and attitudes toward music education (see Duke, 2000; Colwell, 2006; Jorgenson, 2002; Allsup, 2002; Asmus, 1986; Goolsby, 1999) have helped further the notion that music is a seemingly untapped area to cultivate learning environments that foster knowledge development, social growth, and efficacious learners. The purpose of music education for the advancement of cross-cultural awareness and the advancement of social causes, however, has been of peripheral concern for the field at large. The extent of cultural enrichment in the music education classroom often consists of playing culturally diverse music and asking the listener whether they like or dislike that particular piece of music, which is then measured by some sort of scale, ranging from 1 to 10, on its level of pleasantness (Shehan, 1986). The abridged extent of this type of activity has been the cause for some debate about the nature and role of non-Western, non-Art-Music genres in the music education curriculum (Jorgensen, 1997; Small, 1997; Nettl, 1992). While these measures generalize what properties listeners prefer in culturally diverse music, it does little to inform how being exposed to culturally diverse music influences perceptions of other cultures. Moreover, simply listening to music may not involve learners in the active reconstructions of their conceptions of other cultures and styles of music. What is needed is a way to involve youth in the active construction of music, through both performance and composition, of culturally diverse compositions. Simply “teaching” facts to students about how cultures differ does not allow them to engage and ask questions of their own understanding of these differences. Allowing active engagement with culturally diverse music could generate connections, both musically and socially, to how cultures differ and how best to understand these differences within the learner’s specific culture (Brinner, 2009). This understanding can lead to recognition and, hopefully, an appreciation for the differences.

Music composition is a crucial ingredient in this formula, though it, too, is a rare component of most public music education curricula in the United States. Music education has been generally slow to move away from a more information-processing approach to learning to more knowledge-constructing environments with the teacher and students co-constructing their understanding. Technology has done little to advance these circumstances, as the use of the computer in the music education classroom is often viewed as little more than a performance enhancer (e.g., drill and practice software) or tool for consumption rather than creation (c.f., Webster, 2006 for full review of technology in music education). Even in her thoughtful views of teaching and learning music in a constructivist framework, Wiggins (2009), devotes very little to how the computer can help children develop their musical understanding. This is not to say that all music educators and researchers feel this way, but that they have not considered the important role the computer and its accompanying software can play in developing a learner's understanding through constructing musical artifacts.

One researcher who recognized early the computer's potential in musical understanding is Jeanne Bamberger, who argues that people know more than they can actually talk about as demonstrated through their construction and reflection on music compositions (Bamberger, 1972, 1975, 1976, 1995). She argues that since music has its own rule sets, people who are not exposed to it often make their own sense of the sensory phenomena that happens in music; otherwise known as an intuition (Bamberger, 1995, 2000). As a caveat for music education, Bamberger warns that if people have intuitions about music and then are taught something that conflicts with these intuitions, it confuses the learner and makes learning more difficult (Bamberger, 1972, 1975, 1976). Wiggins (2009) agrees that young learners especially should not be exposed to the traditional notation system and favors allowing youth to create their own musical representations.

In this capacity, technology makes its greatest contribution to music education in the form of a bridge between learners' intuitive and formal understandings of music when it provides a welcoming environment for users to explore the conceptual underpinnings of composition (i.e., by arranging and layering pre-made groups of melodies and rhythms, as a foundation) in the absence of prior musical training. Many programs are now available, including Bamberger's *Impromptu*, that allow youth to become more than just consumers, but creators, of music—in effect moving creating music from the confines of professional recording studios to homes and classrooms throughout the world (Savage, 2005; The'berg, 1997).

Bamberger's *Impromptu* has a long history of successfully engaging youth in music composition and analysis by enabling users to reconstruct, remix, and construct tunes using 'Tuneblocks'—virtual blocks that contain portions of melodies and/or rhythmic patterns—all while building an understanding of important musical concepts such as form, melody, pitch, rhythm, and structure (Bamberger, 2000). Bamberger's *Impromptu* is unique due to the high importance placed on the learner reflecting on the decisions they make in the construction process. *Impromptu* tasks users to keep a running log of their responses to their experiments, which is used to help users improve their abilities to describe their choices for the purposes of teaching the computer or another person how to replicate their musical thought processes, as well as to track the development of musical conceptual knowledge over time.

These reflections can also reveal aspects of the learner's cultural identity. For example, Bamberger's prior work demonstrates that when listeners are dealing with unfamiliar atonal music passages (i.e., music that does not have a recognizable tonal center) listeners will actively tinker with the compositions to establish a tonal center, even in absence of a formal understanding of what sounded "wrong" about the atonal music, or what sounded intuitively "right" about their tonal creations (Bamberger, 2003). Cases like these highlight

how novice listener-composers will initially inject their own cultural preconceptions of music into their compositions in lieu of more formal intentionality. Their written reflections in this process then provide an illuminating link for the user on the alignment between their intuitions and their deep-seated cultural norms. This is due to when listeners interact with music at the functional level, they must restructure their thinking and adjust their perceptions so the music will “fit” into their cultural schemas.

As little is known about how systematic reflections reveal a sociocultural understanding of music and composition, the current investigation begins to use these tools to study how the sociocultural context forms the learner’s intuitions about music. For example, when the Tuneblocks in the program feature patterns foreign to the user’s aural sensibilities (i.e., tunes from outside one’s own culture), the user then becomes more aware of their cultural biases through their reflections (e.g., an individual might say something sounds “spooky” or “weird” when they are unfamiliar with it, whereas someone from that culture might find the music “comforting”). As the arrangement of Tuneblocks makes some of the more imperceptible aspects of music visible to the user—such as form and structure, as well as the construction of pitches and rhythms (Bamberger, 2000)—these reflections require users to listen critically and adjust their perceptions concerning what is being heard. In this way, they are becoming aware of the commonalities and differences between differing cultural traditions (Bamberger, 1974). Furthermore, the task of creating music from the “building blocks” of other cultures’ music is offered as a possible mechanism for restructuring thinking and adjusting perceptions in a way that culturally diverse materials become recognized and accepted as different, yet relevant to one’s own culture (i.e., developing an awareness and respect for artifacts of another culture other than one’s own). Technology may very well play an important part in maintaining the role of music in cross-cultural understanding as it can both be a means through which to distribute music across

traditional divides as well as a way to empower youth to write and share their music across cultural barriers.

Guiding Theoretical Framework

Given the heavy emphasis of this study on learning by making, this study is guided by a constructionist theory of learning, which emphasizes the design of artifacts in a social community as a means of constructing new knowledge and ideas (Papert, 1980; Kafai, 2006). As learners engage in the act of construction, they reformulate previously held ideas (i.e., building on prior knowledge) and formulate new lenses through which to see the world. Constructionism is a theory of learning that differs from, but builds on, the Piagetian frame of constructivism—making sense of the world through assimilation and accommodation of existing schemas—and adds that this happens particularly fortuitously when learners are actively engaged in constructing an artifact that is both personally and epistemologically meaningful (Papert, 1980, 1993; Kafai, 2006; Bers, 2007).

Learners pursue artifacts that are personally meaningful due to the learner's own interest, while artifacts that are epistemologically meaningful engage the learner in domain-specific (e.g., music) knowledge and the nature of knowledge itself. While constructionism is a theory of learning that is seldom used in the arts, it has a long history of guiding design and study of new technologies for making things (Papert, 1980, 1991, 1993; Resnick et al., 2009; Kafai, 2006; Bamberger, 2000), making it particularly relevant to the current study.

Building on this, sociocultural views of constructionism (Pinkett, 2000; Peppler & Kafai, 2007) argue that individual and community development is better understood when the artifacts are an expression of the individual and the community as a whole and our understanding of the artifacts changes because of the sociocultural nature of the activity. In other words, individual creative acts are a reflection of the culture in which they are created and the community is a reflection of the accumulation of these individual acts. In this case,

musical composition presents an opportunity to investigate how a single composition reflects the cultural values in which it was created and how the process of composing can lead to a reflection on one's own cultural values. Utilizing a sociocultural constructionist approach affords the opportunity to investigate how youth initially think about and eventually reshape their perceptions on differing cultures.

Research Focus

The current research seeks to understand how youth, while engaging in composing and analyzing tunes from other cultures, develop an understanding of ideas and people from differing cultures. Specifically, the researchers investigated the following two research questions:

- What impact does cross-cultural music analysis and composition have on American participants' self-reports of perceptions of children in Israel?
- What do the American participants' reflections on the music composition process reveal about their understanding and feelings toward differing cultural artifacts, particularly Arabic music? Moreover, are there any notable shifts or developments over time?

Setting and Participants

To investigate these questions, the researchers coordinated a cross-cultural research study in a fifth grade classroom ($n = 22$; 12 girls and 10 boys) in a mid-sized Midwestern city in the United States with 40 Jewish and Arabic youth in third/fourth grade classrooms in Tel-Aviv, Israel. While the focus of this paper is on the data from the U.S. site, it was important to the study's design that American youth in the study were in asynchronous communication with the Israeli youth. Though some limited written interaction was exchanged between students from each site, the majority of communication between the American and the Israeli sites was in the form of the youths' compositions using *Impromptu*. To enable

communication and sharing of musical compositions, each location was equipped with an Internet-enabled computer lab with *Impromptu* installed on each computer.

Overview of the Curriculum

The 20-hour curriculum began with three exploratory exercises that introduced youth to how *Impromptu* works. During these exercises, learners were asked to write about each of the decisions they made during the composition process and why they made those decisions. After tutorials about the program, learners began to reconstruct and remix music from diverse cultural backgrounds, including melodies from Chinese, Arabic, Hebrew and American folk tunes. Once the exploratory exercises were complete, learners then began to compose their own piece of music using *Impromptu*. Compositions were shared both locally and cross-culturally and learners were encouraged to reflect on each other's compositions.

The music curriculum was administered one hour a day, twice per week, for 10 weeks. The first week was used to administer pre-tests, such as the Cross-Cultural Awareness Drawing (CCAD) task. In week 2, participants were introduced to *Impromptu* and how to navigate the interface. In weeks 3 and 4, participants began to analyze and compose tunes derived from Western and Arabic Tuneblocks. Weeks 5 through 7 continued with reconstructing and remixing tunes from Arab and Hebrew cultures. Weeks 8 and 9 allowed participants to create their own pieces of music using any of the Tuneblocks they would like. Week 10 contained the administration of post-tests and sharing out the participants' musical compositions. This paper will analyze the work produced in weeks four and seven in addition to the pre-tests and post-tests of cross-cultural awareness.

Impromptu: A Tool for the Interrogation and Development of Musical Intuition

This study utilized *Impromptu* to aid youth in the music composition and analysis processes. Tuneblocks, the structurally significant segments of larger melodies, are the

primary tool in *Impromptu*, which users organize into intuitively meaningful constructions. Tuneblocks, by visually representing structurally significant patterns in each tune, attunes the user to the “building blocks” of the music—the rhythms, melodic gestures and motives that define the tune’s style characteristics and method of organization. The software and curriculum contain exercises dedicated to arranging Tuneblocks to both reconstruct given tunes and create original compositions. In the latter of these types, written reflections elevate the task of composition from a potentially mindless activity of tinkering with various arrangements of blocks to one where critical observations of musical structure can emerge.

When opening *Impromptu*, users are presented with three main areas of focus (see Figure 1): the first is along the right side of the interface, where the Tuneblocks for a particular song are housed. Each tune contains a block that plays back the entire tune (the “All” block in Figure 1), as well as patterned blocks that contain the audio file and visual representations for every melodic pattern in the tune. This area of the program enables the listener to hear the contents of each Tuneblock free of its context within the larger melody. The accompanying curriculum implores users to make observations about each block, such as the contour of its melody and the potential function in the larger tune (e.g., start, middle, or ending material). Once the user feels more familiar with each pattern in the tune, they can grab and drop Tuneblocks into the Playroom. The Playroom is where users put the Tuneblocks in any order they would like. Blocks that have been dropped into the Playroom can then be “opened up”—represented visually in the Graphics area. This is important because it gives users the opportunity to investigate why a block sounds the way it does. The graphics area displays the contents of each block in a manner similar to a player piano scroll, revealing the number of notes, their relative melodic contour (up or down), their duration in time (space between notes) and what Tuneblock the pattern came from (indicated by coordinated colors with the Tuneblock). By tagging the contents of each Tuneblock onto the

end of the previous one, the graphics area “summarizes” the sequence of Tuneblocks in the Playroom, creating a complimentary mode of notation (more akin to traditional modes of notation) to the chain of small patterns displayed in the Playroom. Users can also edit blocks and save edited blocks.

Finally, along the bottom-left side of the screen is the Notebook, a mini word processor, which allows users to keep notes of the steps taken in making their composition.

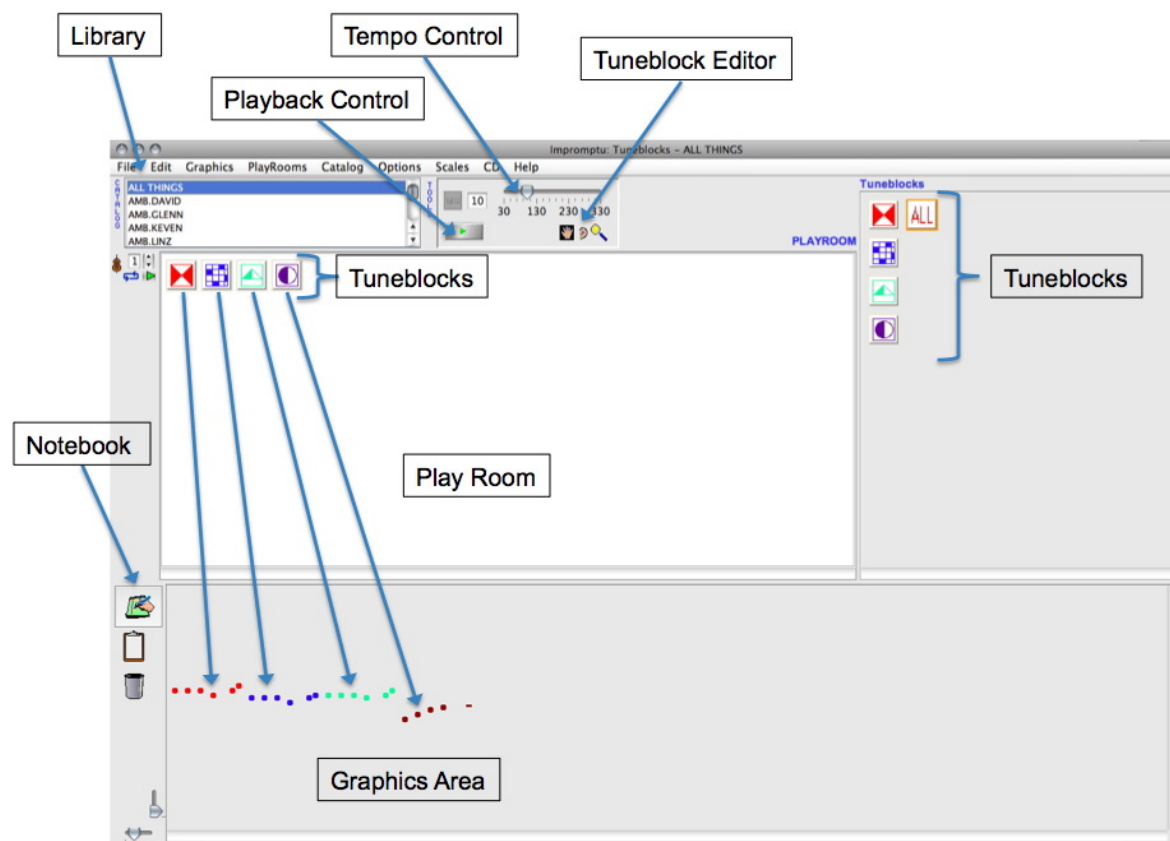


Figure 1. Screenshot of the software, *Impromptu*, with relevant tools labelled

A central idea of *Impromptu* is the metaphor of conversations with music. Bamberger points out that when making and understanding conversation with one another, listeners group myriad sounds, meaningless in themselves, into meaningful words, phrases, and sentences. Similarly, when listening to and making sense even of the most familiar melody, listeners intuitively group notes, meaningless in themselves, into structurally meaningful

entities—motives or phrases. Only after the fact and after the act does the listener take apart the whole structures, which in action and meaning, are inviolable (Bamberger, 2000). If listeners could also start with these meaningful blocks in creating music, rather than the single notes of notation, then their intuitive units of perception would effectively match their units of work.

In this study, the researchers introduced participants to *Impromptu* through a series of tutorials that introduced them to how to navigate the interface (c.f., Bamberger, 2000). Once the tutorials were complete, learners began to analyze and reconstruct the given tunes. In turn, participants re-composed these tunes to make their own music, as well as composing tunes using new and less familiar Tuneblocks. Tunes derived from traditional folk tunes of Middle Eastern (e.g., Arabic and Hebrew), Asian, and Western cultures. Analysis required participants to listen to the whole tune and then, using the given blocks, reconstruct the whole tune. Not simply a memory task, participants had to listen closely and differentiate between the different blocks in order to reconstruct it, thus analyzing the tune in action—what Bamberger (2000) calls “constructive analysis.” Music composition exercises then allowed participants to reorder the blocks any way they liked and to forge new connections to the blocks in the process. The researchers routinely collected the running reflections participants kept about the composition process for the purposes of this study.

For the purposes of this study, the researchers focused on analyzing the participant reflections on using the Arabic Tuneblocks to make their own tunes. The Arabic Tuneblocks were most dissimilar from standard Western tunes and were representative of some of the music important to this study’s design. The two tunes, roughly translated as “This Beautiful Lady” and “I am writing your name as Beloved in my book” respectively, were similar in that they were both from traditional Arabic folk tune traditions. The tune “This Beautiful Lady” was the used first in order to determine the ways in which participants viewed Arabic music

near the start of the study in week 4. While the tune “I am writing your name as Beloved in my book” was used in week 7 to see if there were any shifts or changes in the ways in which American participants viewed Arabic music nearly a month later.

Music a World Apart—Description and Analysis of the Arabic Tunes Remixed by American Youth

Without an in-depth knowledge of the range of prior musical exposure acquired by each participant in this study, it is necessary to explore the differences between the Arabic music presented to American youth in this study and the general conventions of the Western canon that the majority of American-born citizens have ascertained, even subconsciously. The bulk of this exploration will center on *formal* and *tonal* conventions exemplified in the Western tunes remixed by youth participants over the course of this study. The first of these parameters, formal conventions, is limited to the extent that many listeners formulate expectations of the periodicity of a consequent phrase based on the material presented in the previous, conditional phrase. Exploration of the second parameter, tonal conventions, regards the culturally engrained tendencies for open cadences to be complimented by closed ones, as well as the more localized expectations for some tones to resolve in specific ways, which is linked more broadly to the Western listeners’ exposure to a finite range of church modes and methods of harmonic organization at the phrase level. Examples will focus the discussion on the first Arabic tune in the curriculum, “This Beautiful Lady”.

This Beautiful Lady (Week 4)

The Arabic tune first presented to the American participants, “This Beautiful Lady”, is comprised of a haunting minor-mode melody that moves entirely in stepwise motion, save for a few small expressive leaps. The tune consists of two phrases; in the first phrase, the melody begins with a small leap from the dominant to the tonic, turns briefly underneath the tonic before continuing upward to scale degree 2, then engages in a series of 3-note resigned

“sighs” that are repeated four times. Each time, the melody is transposed a step lower so that, after the final sigh, the melody is once again at its starting point. After a short pause, the same music is then repeated in the second phrase, though with substantial interruptions—either in the form of new material or fragments of previous motives—breaking up the flow exhibited in the first phrase and creating a significant asymmetry between the two “halves” of the tune. This irregular phrase structure is one of the most intriguing properties of this tune, as well as its unique modality, which is discussed at greater length below.

Phrase Structure and Grouping

By design, *Impromptu*’s Tuneblocks mimic the capacity of music, like speech, to be divided coherently into smaller sections or units. Some type of “punctuation” created by significant rhythmic and harmonic alignment typically separates these sections. The way these sections are organized into a whole then lends a unique structure or formal shape to a piece of music. An important point about this common rhythmic-harmonic grouping is that the Western listener has been culturally entrained—by Mozart and Haydn, mainly, as well as the multitude of music makers who have followed suit in the centuries since—to expect that successive phrases should be the same length. These types of regular *phrase periodicity* provide the listener with somewhat of a compass, inciting in a listener deeply engrained expectations for what type of events should come next.

However, “This Beautiful Lady” does much to violate these expectations (see figure 2). At its most surface level, the first phrase stands very much in contrast with the norms of the Western canon by being an atypical three measures long. Within this phrase, there are essentially two ideas that are substantially different in length: a brief rising gesture (“a”, 3 beats long) and a more drawn-out descending pattern of sighs (“b”, 8 beats long). In contrast to the paired proportions patterned after the Western Baroque, the shape of this introductory phrase is somehow both profoundly directional—one can’t break the descending pattern in a

place that sounds complete until it reaches its final destination—while being both fragmentary and amorphous. Coupled with the melody starting and ending on the dominant without any emphasized landing on the tonic, the Western listener is left without many of the clues that he or she can use to make structural sense of the materials or to form expectations for what will happen next.

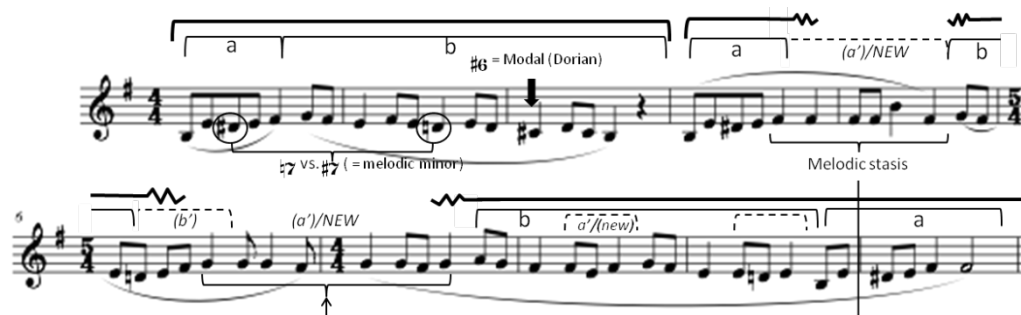


Figure 2. Transcription of the tune, “This Beautiful Lady”

However, the beginning of the second phrase is an exact repetition of the first, a common practice in Western tonal music. This, in addition to the short cadential pause that precedes it, might lead most stylistically aware listeners to infer that the second phrase would sound similar to the first with, in all likelihood, a slight modification at the end to counterbalance the tonal openness of the first. This, as evidenced by the broken phrase brackets in figure 2, is not what ultimately happens. Instead, the music parallel to the first phrase is interjected by harmonically static embellishments—like commentaries or improvisations—of the most recent melodic idea, which breaks up the regularity in which the melody changed implied harmonies in the first phrase, as well as further disorients the listener with regard to their place in the phrase structure. The bewildering length of each interjection compounds this. The first interjection is longer than the “a” motive, and the second (seven beats long, contains a syncopation, which weakens the sense of pulse, and even requires an extra beat in the sixth measure, which further weakens the determining of meter) is almost longer than all the music that came before it in the phrase. The music after

the second interjection, though a pattern like the “b” motive in the first phrase, also violates the Western listener’s tonal expectations by resolving not on the tonic at the end of the sequence, but tacking on a repeat of the “a” motive near the end and coming to rest on another harmonically open-ended pitch, scale degree 2. Thus, the first phrase’s half cadence is not answered in the second phrase, but is instead reiterated in a new form.

Modality

The way that Western listeners hear tonal pulls around a central pitch is also culturally engrained by hundreds of years of composers exploring the boundaries of tonality. However, the precedent of arranging hierarchical relationships around a foundational pitch are much older, as early as 350 BC, dating back to the seven church modes discussed in writings of Plato and Aristotle. Though the ancient Greek church modes eventually formed the foundation of tonality in both the West and the Arab worlds, the tonal music of the Baroque era through the 19th century effectively narrowed the language of tonal movement in the West to the diatonic major and minor, either melodic or harmonic, scales. The rest of the Arab world, however, developed their musical traditions with more faithfulness to modality and its historical connection to *ethos*, or relationship between each mode and its impact on the listener’s character.

“This Beautiful Lady” sounds largely in the melodic minor mode, which substitutes a raised 7th scale degree when ascending the scale to give more tonal gravity to the tonic, and replaces it with the natural, lowered 7th scale degree when descending the scale to give more direction to the 5th scale degree, the dominant. The opening phrase of “This Beautiful Lady” originally follows this convention by placing the raised and lowered 7th scale degrees in the expected places. However, the stepwise descent of sighs in the opening phrase (the “b” motive) is unexpectedly colored by the combination of the lowered scale degree 7 and raised scale degree 6, a startling modal shift that foils the culturally encoded pull of tonal gravity

toward the dominant when in the presumed melodic minor mode. Later, the lowered scale degree appears consistently when the melody is returning to the tonic, each time weakening the Western listener's grip on a tonal anchor. The overall effect is one of exoticism, a darkly familiar—to the extent that the minor mode is familiar—sound world with unexpected blasts of light.

In sum, the combination of irregular phrase length, the lack of structural periodicity, and the unfamiliar tonal modality were the three most foreign characteristics of this tune, setting it apart from the Western music tradition.

Data Sources and Analytical Techniques

This study utilized three qualitative data sources: artifact analysis, reflections of artifacts, and discussions of shared music compositions. The researchers analyzed and coded music compositions for development of the learners' intuitive understanding of musical concepts. Professional composers provided formal analyses of the pre-composed melodies. The researchers coded learner reflections for the informal development of musical concepts and issues of aural perception (e.g., "it sounds familiar to the people listening and that pulls a song together"). The researchers also coded written reflections to identify how the learners viewed themselves individually as well as socially, culturally, and historically, as a composer of music. The researchers looked at instances that would point to changes of their identity and compared it within and between groups, such as "my music sounds happy" or "this music seems to not have an ending and I can fix it by adding this note." Finally, the researchers coded the written and verbal reflections to point out how learners' cultural understanding of music changes over time by identifying statements such as "there are too many notes and it's hard to follow" or "this doesn't sound like anything I've heard before, but it's interesting."

The study utilized mixed methods, including a pre-test and post-test design with paired samples using the CCAD task as well as qualitative data collection, which focused

mainly on the collection of youths' *Impromptu* compositions and the participants' written reflections that accompanied each project.

Cross-Cultural Awareness Drawing (CCAD) Task

The researchers used the Cross-Cultural Awareness Drawing (CCAD) task to measure American student perceptions of both Americans and Israelis through a series of drawings and short-answer questions. This instrument drew upon the work of Teichman (2001), which used a similar instrument, originally called the Human Figure Drawing Task, to measure the development of Israeli children's impressions of Jews and Arabs over time. In the current study, the researchers used the same drawing task to determine if there were any initial differences in the ways that American students viewed both themselves and Israeli students and whether those perceptions changed over time. Accordingly, the researchers administered pre-tests and the post-tests, which consisted of asking participants to draw an American person and then to draw an Israeli person, not specifying whether they were Jewish-Israeli or Arab-Israeli. Once the drawings were complete, the researchers asked participants a series of seven questions (see Table 1) about how the person in the drawing makes them feel, whether or not they would be friends with this person, and the disposition of the person in the drawing. The researchers asked these questions separately for both the American and the Israeli drawing.

Table 1

Questions from the Cross Cultural Drawing Task

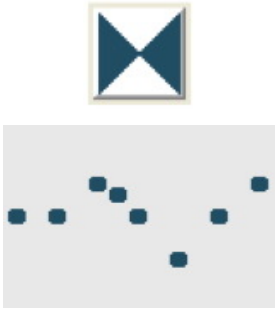
1) What is the person doing in your drawing?
2) What is the most important quality or characteristic of the person you just drew?
3) Would you like to be like the person in the drawing?
4) Would you invite a person to your house that is like the one in your picture?
5) Would you like to play with the person in your drawing?
6) How does the person in your drawing make you feel?
7) How would you treat the person in your drawing?

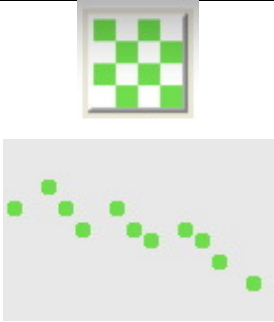
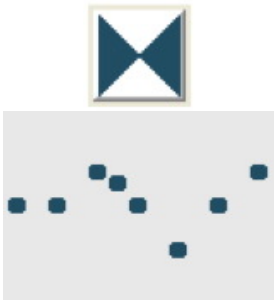
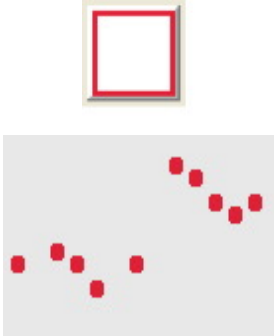
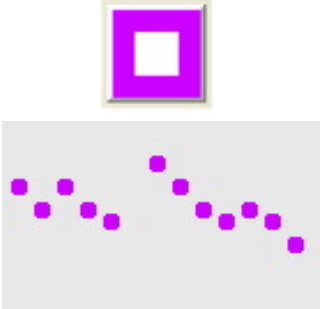

Written Reflections


During each *Impromptu* exercise, participants kept a log of all the decisions they made in composing their tunes and why they made them. During the written reflections, the researchers asked participants to pay particular attention to why they made the choices they did, as this type of reasoning can illuminate possible connections made during the process. On a daily basis, the researchers collected participants' *Impromptu* music files and their reflections on the music composition process (see Table 2 for sample reflection). For the purposes of this study, the researchers chose to focus on those written reflections created during the "This Beautiful Lady" and "I am writing your name as Beloved in my book" composition exercises that occurred at week 4 and week 7 of the study to examine whether any changes occurred during the music composition exercises over the course of the study.

Table 2

Jocelyn's reflections on composing with Tuneblocks from "I am writing your name as Beloved in my book" during Week 7 Activities

Jocelyn's notes	Tuneblocks/Melodic Contour	Interpretation
I chose these set of gray notes to make it sound like your stereo is broke and it's playing over and over again and again. Because of it playing then it stops and goes to the next tune.		<p>Gray notes refer to the gray Tuneblock and she repeated it over and over again (17 times total).</p> <p>The tempo she has set is at 330 beats per minute (bpm), which is very fast.</p> <p>The original "I am writing your name as Beloved in my book" tune starts off with 2 of the gray blocks, which may have been her inspiration when she heard it at the 330bpm.</p> <p>When these blocks are repeatedly put together they do sound as if the stereo (or CD player) is stuck and continuously</p>

		skipping.
I chose the small group to throw something in there to make it super ex[c]iting!! Because it makes it fun and weird!		<p>The ‘small group’ is the green checkered Tuneblock (see sample block in center column).</p> <p>It breaks up the repeated section listed above because it is a sequential pattern going down (like going down a flight of stairs) (4 times). Positive things being said here (“...<i>super ex[c]iting</i>”)</p>
I chose eh next group of gray blocks to make it sound like its stuck on your stereo again and it makes it sounds so fun because of the notes playing over and over again and again and again.		<p>She goes back to the first set of Tuneblocks. She seems to be developing a pattern but only about half as long (9 times). Again, more positive things being said (“...<i>makes it sounds so fun</i>”)</p>
I chose the red one because it throws a little awkward moment in there and it makes it get thrown off.		<p>The red block is 2 groups of 5 notes with different rhythmic contours and at ranges different pitch (hence the awkwardness). Jocelyn provides a description of the role of the block in relation to the rest of the song.</p>
I chose the little group of purple because just like the one red one because it makes it go off track and make the song more fun and mysterious.		<p>The purple block provides Jocelyn with a transition between the first section (e.g., the gray blocks) and the 2nd section. She also provides more positive comments (“...<i>make the song fun</i>”) about the song’s development.</p>
I chose the red one because after the 1 red one then the purple and now the red again it makes a person think its getting [s]tuck again but kind of working because of the		<p>She repeats this block 20 times (hence the getting stuck).</p>

notes and sound.		
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Analyzing the Pre- and Post- CCAD Task

The researchers analyzed the CCAD task (see examples in Figure 2 and Figure 3) by coding the participants' responses to their drawing on a 3-point scale (with 1 being negative, 2 being neutral, 3 and being positive). Once the drawings were collected, the researchers went through participant answers to the questions. Any response that had a negative connotation (e.g., saying that the person they drew scares them or the person in their drawing is doing something negative like fighting) were scored as a "1". Responses that were neutral neither ascribed negative or positive connotations (e.g., answering that the person in their drawing was doing "nothing") were scored as a "2". Finally, answers that were positive (e.g., answering "yes" to whether they would play with the person in their drawing) were given a score of "3". The researchers double coded all data and interrater reliability between coders was 100%. The researchers used a paired samples t-test to characterize and measure changes from pre-test to post-test in participants' cross-cultural awareness as reflected in their drawings and short answers over time.

Analysis of Participants' Written Reflections on Composing with Arabic Tuneblocks

The researchers created codes for analyzing participants written reflections based on their guiding constructionist theoretical framework as well as the current literature in music education, which both establish that personal connections to culturally diverse materials are important to the learning process and, moreover, to the development of cross-cultural awareness. Specifically, the researchers created codes to determine whether there was any developmental change in participants' cross-cultural music appreciation (i.e., liking vs. disliking the use of Arabic tunes as material in the composition process) over time. First, the

researchers coded passages as having or not having “personal connections,” tagging passages in which youth ascribe some sort of liking or disliking to what they have encountered. For example, a comment such as “this song sounds weird” or “it sounds spooky” implies a negative impression of the tune, whereas “it sounds pretty” or “I like the way the tune flows” implies a positive impression of the tune. Next, the researchers doubly coded each document for either positive or negative connections. Therefore it was possible for a written reflection to receive a “1” for both containing negative and positive comments (although this rarely happened within the researchers’ dataset). The researchers then compared their two time points in the data to determine whether any development occurred over the course of our study. To do so, the researchers tallied both the number of cases containing positive and negative comments made while composing with Arabic Tuneblocks at two separate time points and created a 2 x 2 table. Since the data is both binary and paired, the researchers chose to run a McNemar test, which is a non-parametric test to determine the equality of marginal distributions in a 2 x 2 table. The researchers were particularly interested in whether the participant responses changed in one direction (i.e., negative comments decreasing) non-proportionally to that of the other directions (i.e., positive comments increasing) [Field, 2009].

Findings

The first research question regarded the impact of cross-cultural music analysis and composition have on participants’ self-reports of fostering cross-cultural awareness. The differences between pre- and post-test scores on the CCAD task address this question. The researchers used a paired samples t-test to determine if there were any significant changes in their views of both Americans and Israelis over time. While the researchers observed no changes in American participants views toward Americans, by contrast, the results indicated significant increases ($p < .05$) in the positive views of Israelis by American participants using

the CCAD measure (Pre-test: $M = 14.41$ $SD = 3.63$; Post-test: $M = 16.11$, $SD = 2.91$) (see Table 1). In particular, the participants were more likely to want to befriend the Israeli person they drew at the end of the study than at the start. This was particularly significant when contrasted against the results of the draw an American task, which demonstrated no change. This suggesting that this is not a general developmental trend, rather it was more likely the result of increased exposure to Israeli youth and culturally diverse tunes.

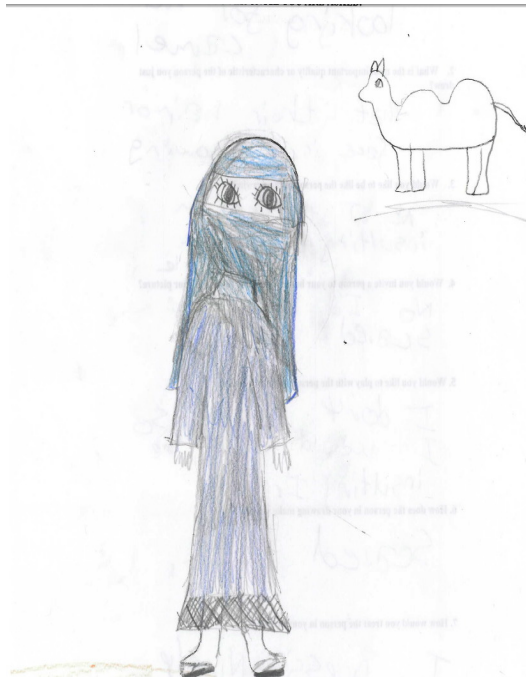
Table 3

Paired sample t-test scores of the Cross-Cultural Awareness Drawing Task

Cross-Cultural Awareness Drawing Task	Mean	N	Standard Deviation	Significance (2-tailed)
Draw an American Pre-Test	13.79	22	3.32	1.00
Draw an American Post-Test	13.79	22	4.39	
Draw an Israeli Pre-Test	14.41	22	3.63	.013*
Draw an Israeli Post-Test	16.11	22	2.91	

* = Significant differences at the $p < .05$ level

The case of Gail, an 11-year old female, further illustrates this shift. This example was representative of the drawings and self-reports of the classroom as a whole and particularly highlights the marked changes in both the illustrated drawing as well as participant's responses to the questions.



Questions	Answers	Score
1) What is the person doing in your drawing?	<i>Looking for her camel</i>	2
2) What is the most important quality or characteristic of the person you just drew?	<i>That their hair and face isn't showing</i>	2
3) Would you like to be like the person in the drawing?	<i>No. I think I'm insulting Israeli people</i>	1
4) Would you invite a person to your house that is like the one in your picture?	<i>No. I'd be to scared</i>	1
5) Would you like to play with the person in your drawing?	<i>I don't think so. I would still be instulting Irael [sic]</i>	1
6) How does the person in your drawing make you feel?	<i>Scared</i>	1
7) How would you treat the person in your drawing?	<i>I guess nicely.</i>	3

Figure 2. Sample Cross-Cultural Awareness Drawing Pre-test Response

Notice that, in the pre-test of this example, the participant depicts the Israeli woman in a full burka, with her face and body fully covered and a camel in the background, which, based on her answer to the first prompt, is possibly the Israeli woman's pet or mode of transportation. Combined with Gail's generally negative descriptions of the figure in the drawing, the pervasive trait of Gail's rendering of an Israeli person is its sense of *otherness*,

featuring modes of dress—and possibly, by extension, cultural beliefs—and environment that are distinctly different from her own. In a number of answers to the prompts, Gail acknowledges that she suspected that Israelis might find her drawing “insulting”, even though the burka is an established form of dress for Arab Israeli women, as well as orthodox communities in Judaism—both of which factor heavily into the cultural makeup of Israel. In addition, camels, though perhaps more widely associated with other nations across the Persian Gulf, can be found in Israel, especially in the Negev desert. To suppose that the image might insult those in Israel, therefore, indicates that Gail is in some ways aware that her drawing is possibly nothing more than a stereotype of several cultures in that part of the world. This supposition also indicates that her understanding of the beliefs and appearances of Israelis, or the distinction between Arab and Jewish Israelis, is either vague or nonexistent. However, this lack of familiarity does not equate to a blank slate—Gail says that she fears this person, either due to previous exposure to media depictions of Islamic extremism, where the burka can be often depicted as a by-product of oppressive and “anti-American” Islamic regimes, or because her head-covering brings to mind negative associations with things that are obscured or hidden. Regardless of her motivations, Gail’s drawing and responses betrays Gail’s belief that the people of Israel are *not* like her, and that is something to be feared or distanced from.

For this activity, please draw a person from Israel. You will have 15 minutes to complete your drawing. When you are done, put your pencils down and remain quiet. DO NOT TURN YOUR PAPER OVER UNTIL YOU ARE ASKED.



Questions	Answers	Score
1) What is the person doing in your drawing?	<i>Nothing</i>	2
2) What is the most important quality or characteristic of the person you just drew?	<i>Brown hair</i>	2
3) Would you like to be like the person in the drawing?	<i>No</i>	1
4) Would you invite a person to your house that is like the one in your picture?	<i>Yes</i>	3
5) Would you like to play with the person in your drawing?	<i>Sure</i>	3
6) How does the person in your drawing make you feel?	<i>Happy</i>	3
7) How would you treat the person in your drawing?	<i>Nice</i>	3

Figure 3. Sample Cross-Cultural Awareness Drawing Post-Test Response

The post-test, by comparison, demonstrates that a shift in Gail's beliefs has occurred. The most salient characteristic of the girl in the drawing is not her foreignness, but the fact that she and Gail may not be that different, that she is someone who is happy, can be played with and, because Gail expresses interest in inviting the girl into her home, trusted. These

positive associations outweigh the general lack of cultural specificity of the drawing; indeed, the universality of the image only briefly distracts the viewer from the fact that there is nothing about the girl's image that specifically ties her to Israel, unless her colourful outfit is supposed to exemplify Gail's perception of foreign fashion tastes. Gail's first two responses to the drawing underscore this point, given that the girl exists without an environment or activity and has, as a defining characteristic, "brown hair." Though dark hair and eye color are pervasive physical characteristics of the citizens in a indisputably cosmopolitan Israeli nation, Gail's imagining of the people of Israel still appears to be somewhat vague, though the most essential take-home point from this image is that somewhere between pre-test and post-test, Gail removed a veil of mystery that led her to assume little common cultural traits between the people of Israel and the United States. These results, combined with the quantitative findings presented above, suggest that interventions like the one posed here can have a positive impact on youths' cross-cultural awareness.

From the changes between the pre-tests and post-tests, it is clear that such a shift occurred over the time of the study. To further tie these shifts to the cross-cultural music composition exercises that were core to the study, the written reflections of the participants reveal what kinds of shifts or general development occurred over time. First, the researchers coded all participant documents based on whether participants made positive and/or negative comments about using the Arabic Tuneblocks in the composition process at time point one and time point two. Second, the researchers completed a frequency count and added the percentages and proportions to a 2 X 2 table (see Table 4). The findings indicated that 59.1%, or 13 out of the 22 of the documents, at time point one contained negative comments about the tune or Tuneblock, while only 4.5%, or 1 out of the 22 documents, contained a positive comment. Conversely, at time point two, only 4.5%, or 1 out of the 22 documents, contained negative comments, while 27.3%, or 6 out of the 22 documents, gave positive comments.

These numbers demonstrate a decrease in the number of negative comments and an increase in the number of positive comments made over time in the written reflections. Based on this distribution, the researchers ran two McNemar tests that verified a significant decrease ($p < .05$) in negative comments between time points one and two. While the number of positive comments increased between the two time points, it was significant at the $p = .063$ level, indicating more cases had positive comments at time point two than at time point one.

These findings show that when listeners encounter music that is outside their cultural norm, they may initially respond in a negative way (e.g., time point one). When given the chance to interact and create using culturally diverse materials, individuals may become more aware and accepting of the cultural diverseness, which leads to decreased negativity (e.g., time point two). These results parallel the findings of the CCAD task results and suggest that participants made new personal connections to more culturally diverse materials. This provides some evidence that the shifts to more positive portrayals of Israelis observed in the CCAD task were due to the music analysis and composition tasks.

Table 4

Percentage and McNemar results of positive and negative comments when analyzing and composing with Arabic tunes at two time points.

	Percentage of Cases Containing Negative Comments	Percentage of Cases Containing Positive Reflections
Reflections on Music Composition Task using Arabic Tuneblocks at Time Point 1	59.1% (13/22)	4.5% (1/22)
Reflections on Music Composition Task using Arabic Tuneblocks at Time Point 2	4.5% (1/22)	27.3% (6/22)
Results of McNemar's Test	$p = .000^*$	$p = .063$

* = Significant differences at the $p < .05$ level

Excerpts from Jocelyn's reflections on composing with Arabic Tuneblocks across the two different time points better illustrate the quantitative findings presented in table 4. Her responses are representative of the rest of the class, as her level and amount of writing is similar to that of her peers. Jocelyn's responses are of particular interest due to her initial unwillingness to participate fully in the music making process. As the study progressed, she became very interested in using *Impromptu* for creating her own music compositions.

Jocelyn was an 11-year-old Caucasian female who liked to listen to popular top 40 music. Her interest in music education, however, seemed to be indifferent. She was exposed to music at home and reported that members of her family played the drums and guitar. Her only formal music instruction was in her school where she, along with the rest of the class, played xylophones and other rhythmic instruments. She also reported that she would like to learn to play the guitar and flute. This, however, all began to change as she became engaged in music composition tasks. While interacting for the first time with the tune called "This Beautiful Lady," Jocelyn noted in her first paragraph of her reflections:

Well the song gets lower and lower in the tune so *it makes it kind of scary type song*. And also what I think about the song is that *the tune goes strange* and I think sometimes it gets a different melody (Italics added for emphasis).

This particular passage highlights how Jocelyn experienced a cultural dissonance with the Tuneblocks that she used in her composition. This may have been a result of her heavy listening to American pop music, which would make these tunes seem particularly strange by contrast. Moreover, her use of terms like "scary" and "strange" have negative connotations to them, implying that her initial perception of something that is unfamiliar is negative.

By contrast, nearly a month later, Jocelyn worked with the tune "I am writing your name as Beloved in my book," which is similar in structure to the previous tune she worked with:

I chose these set of gray notes to make it sound like your stereo is broke and it's playing over and over again and again. Because of it playing then it stops and goes to the next tune, I chose the small *group to throw something in there to make it super ex[c]iting!!* (italics added for emphasis).

At this point, Jocelyn was interacting with culturally diverse materials and commenting positively. She began appropriating culturally diverse material for her own use (i.e., “I chose the set of gray notes...”) and speaking positively about it (i.e., “...to make it super exciting”).

Her first reflection indicated that she was trying to make sense of what she was hearing, but since she was unfamiliar with this musical style traits, she could only ascribe negative connotations to it. Her second reflection reveals that she had not only accepted the cultural differences, but was using them in a positive manner for her own creation; the personal connection had become more salient. There also seems to be a level of enthusiasm in the second reflection that is not exhibited in the first reflection.

The shifts in Jocelyn's reflections over the two time periods were indicative of the rest of the American participants; as time progressed, negative comments about the culturally diverse material decreased, while positive or enthusiastic comments increased. This may have been in part due to the increasing familiarity participants had with the composition process in general, but they were certainly seeing fewer barriers to using culturally diverse Tuneblocks in their musical compositions over time.

Jocelyn, like her classmates, began to make connections to a powerful idea in the process of composing her own music: the powerful idea of music as a means of cross-cultural and personal communication. This idea was demonstrated when participants began to make connections that contributed to accepting and recognizing culturally diverse material, in this case, music.

Summary of Findings and Limitations

Findings suggest that using a constructionist approach to music composition and analysis that utilizes culturally diverse materials positively influences youth self-reports of cross-cultural awareness. Results also indicate that youth, when given the chance to reflect on their work, make personal connections to music from outside their own culture over time. The design and the tools used in the study afforded the opportunity to view music composition and its effect on cross-cultural awareness in a unique way.

However, the study is explorative and the findings and conclusion are only suggestive of the impact that the visual and performing arts can have on fostering cross-cultural awareness as well as the role that the arts can play in this landscape. Future research on other art forms and other cultures, as well as the addition of a control group, is warranted to further support the findings suggested in this study.

Significance of the Study

The purpose of this study was to explore whether cross-cultural awareness could be fostered through music composition and analysis activities that built both individual identity development and cross-cultural appreciation. Findings from this study suggest that when youth are engaged in creating music from Tuneblocks steeped in diverse musical traditions, there is a positive impact on their awareness and respect of other cultures, as well as new personal connections forged to the artifacts created by such cultures. Interwoven in these reflections are the ways in which youths' socio-historic background influences their ideas about tunes from cultures outside their own. Initially, youth pointed out how culturally dissonant the tunes from the Middle East were, but as they become further exposed to more diverse music, the dissonance evolved into musical appreciation. The study provided an opportunity for youth to become creators—in this case, composers—of artifacts that can be shared locally and globally. This study provides some evidence that music can be a

mechanism to help youth recognize the commonalities and differences in culturally diverse musical forms and talk about them in a way that reflects a positive learning experience.

As prior research has demonstrated, cross-cultural awareness and understanding can be a difficult and abstract concept to teach (Avery, 2001; Oppenheimer, 2010). However, this study, like Rodgers (2002), suggests that teaching cross-cultural awareness and understanding should involve an active process that allows people to make strong connections between ideas and experiences. This study demonstrates that one approach might be through engaging people in the activity of making music using culturally diverse materials. This activity can allow people to recognize, accept, and make connections to varying culture's norms and practices as viable and relevant to their own culture.

Further, the field of peace education could benefit greatly from further exploration of the arts as a means to promote peace. Some countries, such as the United States, have used music or other art forms as an ambassador for peace. However, budget cuts to arts programs may soon undermine this potential, particularly if new generations of students are not prepared to listen closely and analyze music or to use music as a means of communication. Music, and the arts in general, provides outlets for youth to not only engage in discussion about the arts, but to connect to diverse cultures in their own activities.

Multicultural music education has long been an interest of the field of music, yet there are few resources that document the effectiveness of fostering more globally aware citizens through music. Reporting the preferences, as well as likes and dislikes of students' hearings of multicultural music, provides an approach to introducing multicultural music into a classroom setting. However, active engagement in the music process—dancing, singing, using instruments, listening, and composing—may foster a better understanding of culturally diverse music (Shehan, 1986). In addition, those in the field of music education should examine the role of the computer and software like *Impromptu*, which engage the learner in

music analysis and composition simultaneously. It may be key that software like *Impromptu* requires the learner to reflect on their thinking (Bamberger, 2000), making the culturally diverse material more salient and therefore more accepted and relevant to the learner.

In sum, music, like other art forms, is central to all cultures and carries with it a rich and storied history that can help facilitate awareness of other cultures. While music is not the only avenue through which to promote cross-cultural awareness, the findings from this study suggests that it is a viable one.

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