Negotiating Musical Meaning: a Case Study of Multilingual Student Communication Within a Music Composition Class

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NEGOTIATING MUSICAL MEANING: A CASE STUDY OF MULTILINGUAL STUDENT COMMUNICATION WITHIN A MUSIC COMPOSITION CLASS

by

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This dissertation entitled:

Negotiating Musical Meaning: A Case Study of Multilingual Student Communication Within A Music Composition Class

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The final copy of this dissertation has been examined by the signatories, and we find that both the content and the form meet acceptable presentation standards of scholarly work in the above mentioned discipline.

IRB Protocol #15-0033
Abstract

The purpose of this case study was to examine how fourth grade students negotiated musical meaning in a mixed-language group learning environment. Specifically, the research questions were: 1) What roles do home and Academic Language play in communicating musical ideas? 2) What cultural practices emerge around the sharing of musical ideas? 3) What roles do mediating artifacts play in facilitating student communication? This study examined the music composition process of ten fourth grade students without previous school music instruction, six of whom were English Language Learners (ELL), who participated in an after school music class. Students used iPads to compose soundscapes, soundtracks, and songs in small groups over five months. The GarageBand application was used to create melodies, record sounds and voices, manipulate prerecorded loops, and mix compositions. Students shared their compositions regularly and provided feedback during group editing sessions.

Data included student compositions, video recordings of classes, student artifacts, and researcher analytic memos (Miles, Huberman, & Saldaña, 2014). First level coding, based on observations and literatures, was initially used to code video recordings. Next, second level coding was used to identify examples of students negotiating music meaning (LeCompte & Schensul, 2013). Data were then analyzed using discourse and/or gesture analysis (Burnard & Younker, 2008)(Scherr, 2008). Results were interpreted through the theoretical framework of Cultural Historical Activity Theory. Findings included 1) Students communicate musical ideas physically when they lack the corresponding verbal lexicon; 2)
Students use shared popular culture to describe music; 3) Work attribution of musical products changes with time; 4) Students cyclically assume and release control of the locus of attention during composition experiences; 5) Students struggle with accepting musical interpretations of others that differ from their own; and 6) Students use technological tools to mediate peer assistance when composing. Gestures, pop culture references, and the GarageBand application were used as mediating artifacts for negotiating music meaning among group members. Implications for teachers include valuing gestures and personal experiences that contribute to learning Academic Language, particularly in students with diverse cultural backgrounds. Future research suggestions include an investigation into the development of formal assessment tools for alternative communication.
This thesis is dedicated to all the children who have never had the opportunity to share the song in their heart.
Acknowledgements

I wish to convey my sincere gratitude to the school personnel for welcoming and supporting my project. A special thank you to my amazing students for trying something new and sharing your creative, fantastic, zany, and musical selves.

Thank you to my dissertation committee for providing your time, insight, and analysis. Each of your unique perspectives strengthens my work and contributes to the scholarship of music learning.

I am extremely grateful to my advisor, Dr. Miranda. Your patience, guidance, and knowledge made this dissertation possible. Thank you for countless video meetings across the miles and handling toddler interruptions with humor and grace. You are a pro at playing patty cake and discussing educational theory at the same time!

Finally, thank you to my family.

Ben, you support me, challenge me, and accompany me on all of our great adventures.

You will always be the love of my life.

Alex and Susannah, you are my heart and my motivation to strive for a brighter future.
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Chapter I

Introduction

English Language Learners and K-12 Education

In public schools across the United States, there are students who represent multiple cultures, varied family structures, different ethnic groups, and levels of language facility. Student diversity influences learning environments and can present powerful educational opportunities for teachers, especially in the music classroom. Students with diverse cultural background can contribute unique viewpoints, experiences and roles with music in their lives. The number of students in the United States who are identified as English Language Learners (ELLs) has increased over the past several decades. For example, in 1990, public schools (K-12) reported an estimated 2 million ELLs enrolled (5%), a number that grew dramatically to 4.4 million by 2011 (9%)(National Center for Education Statistics, 2014; Goldenberg, 2008).

Challenges for the ELL. ELLs face a variety of challenges in addition to the social and educational challenges faced by Native English Speakers (NESs). ELLs may struggle with conflicts between their home and school cultural practices and may feel marginalized by their teachers and peers (Armario, 2013; Brisk & Proctor, n.d.). One of the largest challenges is communication, particularly oral communication between the teacher and student and written communication on assignments and exams. This struggle is, in part due to the extra challenges, which lead to the academic achievement gaps between ELLs and NESs. The National Assessment of Educational Progress (NAEP) reported that ELLs scored an average of 16% lower than NESs on standardized reading tests (National Center for Education Statistics, 2014).
There are many aspects of language development in schools that may contribute to the achievement gap. These include institutional problems: types of assessments, teacher training, curriculum; and implementation problems: lack of development opportunity, limited use of native language, premature transition to English; limited use of the vernacular and focus on Academic Language (Cárdenas, 1993; Brisk & Proctor, n.d.).

**A Historical Look at ELL Programs.** To address the challenges of ELLs, schools have implemented a number of programs over the history of the United States. Until the mid twentieth century, K-12 schools and the national government mostly focused on a policy of assimilation. Instruction was usually presented in English with the expectation that students would adopt the language and culture of the majority (Nieto, 2009). The assimilation policy was used especially on indigenous students, Asian immigrants, and Hispanic immigrants, with the long-term goal of eliminating minority cultural practices. However, European immigrant languages were tolerated to a greater extent, and in some cases dual languages were taught in schools (Ovando, 2003). Dual language instruction became more common by the 1960s as minority rights became a national discussion. A series of Supreme Court cases spanning over 50 years, including *Farrington v. Tokushige* and *Lau v. Nichols*, upheld citizens’ rights to teach and learn in their preferred language and receive an education with appropriate language accommodations.

In 1968, the Bilingual Education Act was passed, the first national legislative support of bilingual education (Nieto, 2009). Partial instruction in a student's native language was encouraged, and funding was provided for schools to explore bilingual education. In the years since, a variety of approaches to bilingual education have been implemented, including transitional, maintenance, dual language, and sheltered English
immersion. The differences in the type of instruction offered depend on the socio-political climate of the region and era, as bilingual education has fallen in and out of political favor several times (Ovando, 2003). Table 1.01 includes a basic overview of the most common types of bilingual education in the United States. Most of the literature used in this study focuses on Spanish as the ELL’s primary native language, but research completed on a variety of primary languages and it supports biliteracy programs for optimal outcomes (Rolstad, Mahoney, and Glass, 2005).

**Theoretical Framework: Cultural Historical Activity Theory**

Researchers have explored many theoretical perspectives in seeking to improve aspects of the educational experiences of ELLs. However, the core of many studies investigates the area of language and communication. The findings for this study will be interpreted through the lens of a theoretical framework comprised of Cultural Historical Activity Theory (CHAT).

This study draws on Cultural Historical Activity Theory to understand the role that students’ languages play in classroom settings (Leontev, 1978). Learning environments framed as dynamic systems called “activity systems” are composed of subjects, rules, communities, tools/mediating artifacts, divisions of labor/roles, and objects that are all interconnected and contributing to the systems’ outcome (see Figure 1.01). Aspects of CHAT that are central to this analysis include how student learning connects to group actions and how tools are used as mediating artifacts. Mediating artifacts are tools that students use to move towards their goal, such as language and technology. Students’ personal knowledge and language that they bring to the group can contribute to the social learning environment and move the group towards the academic outcome (Leontev, 1978).
Table 1.01
Common Forms of Bilingual Education in the United States (Baker 2011, p. 208-209)

<table>
<thead>
<tr>
<th>MONOLINGUAL FORMS OF EDUCATION FOR BILINGUALES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of Program</strong></td>
<td><strong>Typical Type of Child</strong></td>
</tr>
<tr>
<td>Mainstreaming/Submersion (Structured Immersion)</td>
<td>Language Minority</td>
</tr>
<tr>
<td>Mainstreaming/Submersion with Withdrawal Classes/Sheltered English/Content-based ESL</td>
<td>Language Minority</td>
</tr>
<tr>
<td>Segregationist</td>
<td>Language Minority</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEAK FORMS OF BILINGUAL EDUCATION FOR BILINGUALES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of Program</strong></td>
<td><strong>Typical Type of Child</strong></td>
</tr>
<tr>
<td>Transitional</td>
<td>Language Minority</td>
</tr>
<tr>
<td>Mainstream with Foreign Language Teaching</td>
<td>Language Majority</td>
</tr>
<tr>
<td>Separatist</td>
<td>Language Minority</td>
</tr>
<tr>
<td>Type of Program</td>
<td>Typical Type of Child</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Immersion</td>
<td>Language Majority</td>
</tr>
<tr>
<td>Maintenance/Heritage Language</td>
<td>Language Minority</td>
</tr>
<tr>
<td>Two way/Dual Language</td>
<td>Mixed Language Minority &amp; Majority</td>
</tr>
<tr>
<td>Mainstream Bilingual</td>
<td>Language Majority</td>
</tr>
</tbody>
</table>
CHAT suggests that students learn collectively and through action. As students are learning they will make and use tools to facilitate their learning, and they will use communication and the community as central instruments for learning (Leontev, 1978). Therefore, students need to be socially engaged and actively involved in order to maximize their learning potential. The interactions between the subject, object, community, rules, and division of labor within an activity system all contribute to the outcome. A change to any of the parts of the system may drastically alter the interactions between the other components of the system, thereby altering the outcome (see Figure 1.01).

**Figure 1.01** CHAT Diagram (Cultural-historical activity theory, *n.d.*)

CHAT has been used in a musical application as well to describe how new members transition into established choirs (Welch, 2007). Welch (2007) found that choristers used rehearsal practices, cathedral communities, choir rules, and roles within the choir to facilitate the new members’ transformation and adoption of choir culture (see Figure 1.02).
**Figure 1.02** Musical Application Example of CHAT (Welch, 2007, p. 29)

**Academic Language Development**

CHAT highlights the importance of collecting rich qualitative classroom data to understand how students interact in multi-lingual environments. CHAT may be used to help explain the benefits of competency in a student’s first language in learning new language skills in a bilingual education environment. ELLs that learn to read in their native language have higher levels of reading achievement in English than those that do not, as the students are able to transfer skills from one language to the next (Goldenberg, 2008). An important aspect of reading achievement is the development of vocabulary. Students who develop their vocabulary more slowly have lower scores on tests and are more likely to be labeled learning disabled (August, *et al.*, 2005). Part of vocabulary development is the use of Academic Language (AL). AL is a combination of discipline specific language and
discourse, the form of communication commonly used in schools and other workplace settings (Hopewell, 2012). AL is not limited to vocabulary, but includes communicating ways of thinking and reasoning as well. Students may use common phrases, ideas, gestures, or shared experiences to communicate an idea and develop it into AL.

Academic English involves such things as...being able to make comparisons between alternatives and justify a choice... and possessing and using content-specific vocabulary and modes of expression in different academic disciplines. (Goldenberg, 2008, p. 9)

As students develop AL, they move between everyday language and personal experiences (in English or their home language), into shared classroom experiences and AL. In a study investigating third graders as they explored length and tension in strings, Suarez and Otero (2013) found that ELLs used experimental and everyday language in their discourse with the other students. They used words such as tick, tack, and tock to represent the different sounds they encountered in their experiment. The words served as a bridge between their experiences and AL (Suarez and Otero, 2013).

In an effort to close the achievement gap, extensive research such as the tick, tack, tock experiment has been completed on language use and vocabulary development in students, leading to the ability to read, write, and communicate in AL. Exploring the link between AL and academic success is a prominent research thread in education. General AL (for example: vocabulary and activities such as predicting, sequencing, engaging in group discussion) is important as students navigate through the day, but each subject has discipline specific AL as well. For example, music AL may include vocabulary (dynamics, texture), aural skills, and conducting patterns. In particular, music education researchers
have investigated music vocabulary development and the corresponding curriculum (Hair, 1987; Flowers, 1998; Abril, 2001).

Children’s experience with sounds and representative symbols is another area of study for music and communication. A meta-analysis (Bolduc, 2008) showed music activities promote the development of communication skills in preschool aged children, especially skills such as auditory perception, phonological memory, and metacognitive knowledge. Similarly, O’Herron and Siebenaler (2007) determined music educators can support vocabulary and oral communication development through articulation, auditory processing, and prosody. However, Medina (1990) found that while music significantly improved vocabulary acquisition in ELLs, the same result was achieved through listening to a story, demonstrating that music is only one of many tools in vocabulary development.

Thus, it is beneficial for ELLs to use their native and/or English everyday language to develop their academic English and communicate with their peers. Similarly, using everyday sound based vocabulary and familiar experiences may promote classroom music vocabulary use. The development of music vocabulary is a useful endeavor as it has been show to improve listening tasks in students (Flowers, 1984). However, the benefits are not common knowledge.

“The relationship between listening and verbal description is important to music educators for several reasons: (1) musical descriptions, whether technical or nontechnical, can help us determine what someone "hears" or understands about music; (2) learning to label aspects of sound may help students become better listeners; and (3) improving our own music description skills might enable us to communicate more effectively with our pupils.” (Flowers, 1990, p 22)
Music educators need to be particularly aware of these benefits when teaching a wide diversity of students.

**Study Rationale**

As previously stated, the development and use of Academic Language (AL) is important in all subject areas since AL functions as both a learning tool and a means for students to communicate their developing understanding of concepts. In music classrooms, AL, for example music vocabulary, functions as a learning tool by focusing student listening and attention to music elements (e.g. form, pitch, tempo). At the same time, music AL facilitates communication between teacher and student and between students, particularly when engaged in such experiences as group composition. In such situations, students need to have the tools to not only demonstrate their comprehension but also their music preferences and personal connections to the music that develop through the experience.

By conceiving of musical “knowledge” as individual, abstract, relatively fixed, and unaffected by the activity through which it is acquired and used, music programs have devalued the experiential, exploratory, and collective qualities that make for compelling improvisation and, more generally, that inform the development of musical ears, memory, instincts, sensitivity, and, ultimately, creativity. (Borgo, 2007, p. 64)

Developing musical understanding through the use of AL and other tools that foster music exploration and creation can facilitate a lifelong connection to music. In a music classroom, the joy of musical discovery needs to be valued as well as the mastery of musical skills and knowledge.
Learning new skills and concepts is a challenge, which can be an even greater challenge in a non-native language. In addition to learning musical skills and concepts in a non-native language, ELLs may also experience feelings of isolation or marginalization due to the language barrier. Acquiring a new language is a process that extends over many months and offers challenges to the teachers as well as the students (Miranda, 2011). Many music educators are not prepared to meet the linguistically diverse needs of their students, precisely because there is scant research available on the development of music AL in ELLs. Recommendations for music teachers of ELLs on the National Association for Music Education (NAfME) website give basic tips, such as creating word walls, using visual cues and teacher led gestures, and using cooperative learning opportunities (Brown, 2012). The tips are useful and taken from various studies, but they are presented as individual suggestions.

Classrooms are dynamic systems filled with conflicts and shifting roles, and following any single tip seems like it could make a small impact if the dynamics of the classroom are not considered. Teachers need to consider many different aspects of teaching strategies, such as how different strategies work together, when certain strategies are more effective, and which strategies facilitate groups to be the most productive. The interplay of instructional strategies and student communication during a music class group activity was a gap in the literature. Research is needed on how communication, music, group work, and ELLs worked together, and how I as a teacher am best able to support their musical development.

Understanding how students use gestures, language, and group members as they negotiate musical meaning and move towards a shared understanding has the potential to
inform teachers on how to identify musical understanding in students through both verbal and nonverbal methods.

**Study Purpose and Research Questions**

The purpose of this research was to examine how fourth grade students negotiated musical meaning in a mixed language learning environment while engaged in group composition using the GarageBand application on the iPad. More specifically, I investigated links between gestures, language use, music vocabulary application, group processes, and musical understanding.

The research questions were:

1) What roles do Home and Academic Language play in communicating musical ideas?
2) What cultural practices emerge around the sharing of musical ideas?
3) What roles do mediating artifacts play in facilitating student communication?

**Definition of Terms**

*English Language Learner (ELL)*- Student who speaks a language other than English as their primary language at home. Depending on the literature, this student may be labeled Limited English Proficient (LEP), English as Second Language (ESL) (also a methodology), English Learner (EL), Emerging Bilingual, or Culturally and Linguistically Diverse (CLD). In order to simplify terms in this dissertation, ELL will be the preferred terminology as it is the preferred terminology for the United States Department of Education (U.S. Department of Education, *n.d.*). The researcher used the California standard for determining if a student is ELL as the data was collected in California. Thus, a student who identifies a primary language (L1) other than English on their home language Survey
and whose scores on oral and written assessments are determined low enough to impact their academic success will be labeled as ELL (California Department of Education, *n.d.*)

*Native English Speaker (NES)*- Student who speaks English as their primary language at home. NES is a researcher created acronym used for the purpose of this study.

*GarageBand*- A digital audio workstation iOS application for the iPad used as a composition tool

*iPad*- A digital tablet produced by Apple

*Academic Language (AL)*- Language skills necessary for learning an academic subject (i.e. music). Elements of Academic Language may be oral, aural, written, or visual and may include vocabulary, syntax, and grammar. Additionally, Academic Language includes rhetorical conventions and modes of thinking, such as comparing or inferring. Also called Cognitive Academic Language Proficiency.

*Mediating artifact*- A tool created and manipulated by the subject in order to attain their object/goal. Mediating artifacts may include language, gestures, and objects such as computers. Mediating artifacts/tools are an element in Cultural Historical Activity Theory.

*Teacher-Researcher (TR)*- The teacher of the class who is also the principal investigator of this study.

*Two-Way or Dual Immersion*- A bilingual school program in which ELLs and NESs are instructed in English and the home language of the ELLs. The goal is fluency in both languages by the end of elementary school.

*TK-12*- Transitional Kindergarten through 12th grade. Transitional kindergarten is a kindergarten readiness class available to students in California.
Assumptions of the Study

There were several assumptions built into the development of the study. These assumptions were based upon observations from the pilot study and previous teaching experience of the researcher.

1. Students grew more confident with the composition application and the class structure of composing and editing compositions over time.
2. Students spoke freely in English and/or Spanish while working in groups.
3. Students were engaged with composition projects on the iPad and were motivated to refine their work.
4. Students developed group cohesion over the class of the study within smaller groups and the larger class group.
Chapter II

Review of Related Literature

Introduction: The Value of Music Education for All

A core assumption of this study is that students should learn about music, and thus music education should be included in the school curriculum. The case for including music education includes arguments in which music often improves aspects of life and is integral to the functions of our society.

“Music allows us to know, discover, understand, experience, share, or express such aspects of the human condition as feelings, aesthetic experiences, the ineffable, thoughts, structure, time and space, self-knowledge, self-identity, group identity, and healing and wholeness.” (Hodges, 2005, p. 111)

Music may hold an important role in a student’s life; providing an opportunity for emotional regulation, creative self-expression and cultural identity. The emotional benefits of music even extend into adulthood. In a study examining the role of music across adulthood, Saarikallio found that music was often used as a tool to maintain a happy mood (Saarikallio, 2010). Music helped the subjects process emotional experiences and life changes. The benefit corresponds with neurological research connecting music and emotional responses in the brain (Blood, et al., 1999; Brattico, et al., 2011; Koelsch, 2010).

However, despite the benefits of studying music, musical knowledge is often not valued. Musical experiences are not required for most schools, universities, or jobs. For example, the California Department of Education requires only one year of visual arts, performing arts, foreign language, or career technical education to successfully graduate high school (Graduation Requirements, 2016). There are no other state requirements for
music education, so a student may successfully attend public school from kindergarten through high school without participating in a formal music class. While this is only one state, it serves as an example that music education is not always valued.

As demonstrated by the California graduation requirements, music education is also not equally accessible to students. Music education can be an opportunity for all students to be creative, express themselves, develop musical preferences and regulate their emotions. However, by the end of high school, music classes are comprised primarily of white, middle class students. Particularly underrepresented in comparison to school demographics are male, Hispanic, English Language Learning students (Elpus & Abril, 2011). Access to music programs is extremely important, but it varies by state, district, and program. In order to address this disparity, NAfME (formerly MENC) has identified that teachers need tools for teaching culturally diverse classrooms and meeting the needs of individual students in order to keep them engaged in music (Spearman, 2000).

A foundational aspect of meeting student needs is the ability to communicate within the classroom. This study will investigate the nature of language and communication in a music composition classroom activity system with students of diverse backgrounds. In order to inform the study, this literature review will focus on recent research looking at Cultural Historical Activity Theory, English Learners in the classroom, music vocabulary acquisition, gestures and music, and collaboration and technology in music composition.

**CHAT: The Activity System**

One lens through which to view pedagogical tools and classroom engagement is Cultural Historical Activity Theory (CHAT). The origins of CHAT can be traced back to Vygotsky and his postulate that culture and society contribute to the development of the
mind (Vygotsky, 1978). A student is influenced by their experiences and interactions with others, and draws on those interactions throughout their learning. Interactions mediated with tools such as other people, language, physical and ideational materials, and actions can support the development of a Zone of Proximal Development (ZPD). ZPD is the space between what a student can accomplish on their own and what they can accomplish with the help of others. Vygotsky also spoke of the potential of tools (psychological or physical artifacts) to effect learning and interactions with others. These tools may include objects such as computers and chalkboards, institutions such as school policy, and social interactions such as language, which is especially pertinent to this study.

Vygotsky’s student, Leontiev, expanded the theory to include the object of an activity and the necessity to analyze the motivations and influences on the activity, including the social and cultural practices (Kaptelinin & Nardi, 2006). The previous experiences of the student within their social and cultural systems shaped how a student achieved their learning goal. The activity system, discussed in Chapter One, includes the subject, mediating tools/artifacts, rules, community, division of labor/roles, object, and outcome (see Figure 1.01). The activity system is often used in the context of formal education, in which the classroom is the activity system and the object is the understanding of the subject matter.

Engeström expanded the tenets of CHAT to include interactions between multiple activity systems and multiple perspectives in what has become the third generation of CHAT (Engeström, 2001). Engeström emphasized the tension between multiple realities, experiences, and objects that influence the subjects in a system, listing five main principles:
1. The artifact-mediated and object-oriented activity system is the unit of analysis.

2. The activity system is multi-voiced, built with a community of participants with different histories and traditions, engaging in different roles.

3. Activity systems are dynamic and change over time.

4. Tensions within the system are sources of change.

5. Activity systems have the potential to be expansively transformed.

CHAT includes the assumption that students bring their previous learning and experiences to the activity system. As they interact with the tools/artifacts and within the rules and community, tensions arise and the dynamic system adjusts or is recreated. For example, the roles of students may change dependent upon which students are in attendance in the community. The student who normally is dominant in the group and answers questions first will need to reassess their role when another dominant student enters the group. This may be further impacted by a change to the rules from a substitute teacher, or a new tool such as the introduction of a talking stick. “Collectives of people must become good expansive learners, so that they can design and implement their own futures as their prevalent practices show symptoms of crisis” (Engeström, 1991, p. 256). One symptom of crisis in music education is the previously mentioned overrepresentation of white middle class students. Students from diverse cultural and socioeconomic backgrounds are excluded, perhaps due to a breakdown of interactions within the music education activity system. This study examined diverse students and their role within the activity system to better understand how to value diversity in the music classroom.
Language Hybridity

The students in this study will feature diverse cultural and lingual backgrounds, specifically English Language Learners and Native English Speakers. Language is a tool that may be used for communication within the system. Academic Language is a tool that may make communication exclusive for some members of a system. English Language Learners (ELLs) are students who speak primarily other language/s at home and are learning English in school in addition to their regular core subjects. Language hybridity occurs when a student uses any mixture of their native language, English, and AL. Students may use words or phrases from different languages to express their ideas and develop understanding. Similarly, researchers who have looked at aspects of language hybridity have identified different important characteristics of those who exhibit it. For example, Moje, et al., (2004) refers to various student perspectives as funds of knowledge. Students bring their own perspectives based on relationships and networks from their families, peers, and experiences. These funds of knowledge shape how the students will learn their academic subjects, or discourses.

The researchers in this study focused on high school science students and the different funds of knowledge that the students brought and how they shaped their science learning (Moje, et al., 2004). They worked with thirty bilingual youth over six years and found several different funds of knowledge that impacted their science class. Home-based funds included information around their parents’ occupations, domestic activities, and travel the students had completed. Community-based funds of knowledge centered on cultural activities, Spanish classes, and local activism. Peer-based funds of knowledge were apparent as peers helped each other navigate school activities, particularly the students
who had recently immigrated into the United States. They also spent time outside of school together which strengthened friendships, evident as one student volunteered to read out loud in class because he knew his friend did not feel comfortable reading in English. Popular culture was another fund of knowledge found in the study, the largest category of which was music. Students placed great importance on knowing popular music, spending time listening and reading about new songs. Girls even played games at lunch with musical quotes, to see if they could identify the artist from just the lyrics.

The findings included patterns in connections between home experiences and classroom learning, patterns in the ways youth used multiple funds of knowledge and discourse, and the impact of urbanization and globalization on youths’ funds. Students did not volunteer their experiences in class even when it would have been applicable. The researchers recommend that teachers investigate their students’ funds of knowledge for class activities because students may be reticent to share. Teachers also need to include different funds of knowledge to make it clear that the classroom is a welcome space for hybridity of experiences. Teachers can link everyday and local concepts to content concepts to continue building an activity system that accounts for the community influence on the students.

Continuing with teacher strategies in accounting for all aspects of the activity system, the language arts classroom is often limited to academic English literacy (Gutiérrez, et al., 1997). In language arts the majority of work has focused on methods of teaching language, not on defining what language is and how language is learned. Language and its function are intertwined within the sociocultural context because it is a mediating artifact used for social interaction, self-expression, and transmitting experiences. Literacy includes
learning what and how to speak in different contexts as well. Teachers need to view literacy from more than one angle, not simply transmission of a monoculture’s practices. Vocabulary presented in everyday language in English and the home language may help explain concepts, legitimize home languages, and link local knowledge to formal knowledge. In order to incorporate language as a mediating artifact in the classroom, teachers may need to offer learning opportunities outside of the typical school day to help students with AL, such as after school programs (Gutiérrez, et al., 2007). After school programs offer the benefits of school resources and peer engagement without the challenges of graded material and structured school pressures. Often, AL may overlap between subjects but have different connotations or uses. For ELLs, school can be about learning to navigate ‘school’ culture and policies as much as learning subjects. After school programs offer the opportunity to explore the cultural practices as well as the subject matter.

Even when teachers work to create learning opportunities that account for cultural influences and backgrounds, there are still challenges to overcome. Fifth grade teachers in a dual language elementary school encouraged students to speak Spanish during class and to share stories of their home experiences (Fitts, 2009). Discussions were initiated on discourse styles between Spanish and English and the cultural purposes of code switching. Despite the efforts of the teacher, English was still prioritized through the curriculum and Anglo-centric perspectives. The author argued that teachers need to take the connections from the students and use them to transform the curriculum for a classroom that truly supports language hybridity.
Another set of challenges arose when a teacher attempted to initiate a mathematics classroom with supportive hybrid language practices during summer school as part of his action research (Flessner, 2009). Although he had planned to contact parents and establish trust before the class began, he was given the class list only a few days before the class began. Additionally, the teacher was monolingual and students spoke a variety of different languages at home. He began the class with students creating posters about themselves. However, students were not willing to share their posters until he created a type of poster session where students could ask questions instead of a formal speech style presentation. He also created math problems based on the students’ interests and tried to engage them in conversations about transferring math into daily life. He even initiated a discussion on immigration based on teacher resources he had discovered. Despite the challenges he faced, students were engaged in the class and willing to share some of their local knowledge in the classroom by the end of the summer, but it took time. The study is a reminder that constructing a classroom based on language hybridity and inclusive cultural practices is difficult and novel for schools. Teachers need resources and support to be successful through the inevitable setbacks.

Teacher resources about inclusive cultural practices should be incorporated in the preservice teacher education program (Skerrett, 2010). If teachers are taught to examine educational resources with a critical eye towards Anglo-centric perspectives, they will be able to apply that knowledge to their classroom as they work towards constructing a culturally inclusive setting. In music education, there is a strong emphasis on categorizing music into Western European music ‘high art’, multicultural native music, and popular
music. There is an inherent cultural preference in music textbooks that may be devaluing other cultural traditions.

Cultural preferences extend beyond the music textbooks into the school structure as well. Although ELLs are enrolled in school from K-12, most of the ELLs in music classrooms are found in the elementary general classrooms. ELLs are not equally represented in secondary school ensembles because secondary schools may require ELLs to take English class for all of their electives, effectively removing ensembles as an option (Abril, 2003). Within the elementary general music classroom, Abril encouraged music teachers to investigate the cultural identities of their students and incorporate appropriate music to engage their students. Additionally, students may be uncomfortable using content specific vocabulary, so teachers can create gestures that correspond to musical elements while responding to music. For example, a teacher holding their hands palms up may indicate a forte passage. This gesture may enable ELLs to actively respond to music even if they are unsure of the appropriate terminology.

In a study analyzing responses to musical preferences, Flowers (2007) investigated bilingual English-Spanish and monolingual English sixth grade students on their attention and preferences in music. Students listened to an English text, Spanish text, and instrumental only version of a song. They recorded attention distractions and preferences for the song versions. There were no significant results among the distractions, however bilingual students preferred the Spanish version and monolingual students preferred the instrumental. The researcher posits that the preference is rooted in their cultural identity. Choosing appropriate literature based on student cultural identities may improve class attention and increase interest in music.
Thus, there are a variety of avenues to incorporate the socio-cultural identities of multilingual students in the classroom. Culturally inclusive classroom materials and culturally sensitive discussion formats are tools that classroom teachers can use to nurture a classroom activity system that supports student experiences and serves as a bridge towards academic mastery.

**Music Vocabulary Acquisition**

Within the goal of academic mastery, the development of vocabulary is critical to academic success for ELLs (August, *et al.*, 2005). Slow vocabulary development leads to a greater risk of falling behind grade level, lowered test scores, and being identified as learning disabled. However, the authors found that strategies may help boost vocabulary development. Recommended strategies include using the students’ home languages as a bridge to support comprehension, focusing on basic word meanings, and extensive reinforcement.

Additional teaching strategies were recommended for the mainstream teacher in an article by deJong and Harper (2005). Citing that only 12% of teachers in 2002 had received more than eight hours of professional development on strategies for ELL instruction, the authors imply that ‘good teaching’ is not sufficient to close the achievement gap. One of their recommendations is to provide opportunities for oral AL development and scaffold discipline specific vocabulary demands. Similarly, Janzen found that AL has meanings and implications distinct from everyday language, which can be a source of confusion for ELLs (Janzen, 2008). Language and comprehension are linked as students have opportunities to explore deeper thinking though class discussions, readings, and group exploration. Thus, discipline specific AL is an important aspect of literacy.
There is limited research on the connections between AL in music and performance on musical tasks. However, the research that has been completed implies a link. Vocabulary was found to be a limiting factor in a study on first grade children (Hair, 1987). Children were asked to identify changes in aurally presented musical examples, either through words or by choosing the appropriate picture. The visual group outperformed the verbal group. The author suggests that vocabulary and language use might be more significant limiting factors in performance than aural discrimination or musical understanding.

Dr. Flowers (1984) has completed a number of studies investigating facets of music vocabulary acquisition. In order to explore the connection between vocabulary and musical concepts, Flowers tested third grade, fourth grade, and undergraduate students on a listening task for musical element identification. After the task, students were given instruction in music vocabulary related to dynamics, articulation, and tempo, with stickers provided as incentives. Following the instruction, students identified more musical elements in the listening examples. Instruction in music vocabulary focused student attention on musical elements. AL was a mediating artifact used by the students as they navigated their musical tasks.

Flowers (1998) continued an investigation into music vocabulary by comparing recommended music vocabulary for first graders with the actual oral practices of first graders. The author found that students did not regularly use all of the recommended words, but the words that students did use were applied in and out of the music room. Students had a specific vocabulary for describing their world and used it whenever applicable, regardless of the setting. Students may use other words to describe music specific tasks that are part of their normal lexicon until they develop music specific
language. Thus, students are incorporating home language and AL beyond the discreet activity systems of home and classroom. They are applying their tools across experiences.

In a study investigating music vocabulary acquisition with middle school students, Walby (2011) found that musical terms may focus attention and assist with forming musical concepts. Additionally, talking about music may support learning about culturally expected responses. Vocabulary is multidimensional, in that terms may have multiple definitions depending on the context. Teachers need to introduce terms in a variety of methods over time to strengthen student comprehension. The classroom community may be used as a tool to support language development through ZPD within group discussion.

In research focused on preschool children, Flowers and Costa-Giomi (1991) asked Spanish speaking and English speaking children to identify changes in the music. They were particularly interested in terms for high and low since the Spanish translations agudo and grave do not have the space connotation of their English counterparts. After comparing age, native language, length of time before indicating pitch changes, and number of correct identifications, the researchers found that Spanish speaking children were slower to identify the changes but more correct in their descriptions, and four year olds were correct more often than three year olds. Most of the children did not verbalize any of the changes, leading to the finding that preschool student verbalization of musical concepts lags behind their identification of musical changes.

Similarly, Abril (2001) found that first grade children responded faster to musical changes in English but were more correct in their descriptions when using the Spanish terms. Vocabulary that has multiple connotations (e.g. high and low) may be more difficult
for children to apply correctly in the classroom, particularly when translating from another language.

In an earlier study contradicting research in the field, Flowers (1983) found that students did not improve their ability to identify musical changes after four weeks of music instruction. Non-music major undergraduates were assigned to a control group, a listening instruction only group, vocabulary instruction only group, and a listening plus vocabulary instruction group. Each group completed a pretest and posttest in which they identified musical changes in Stravinsky's *Petrushka* and described the musical change. There were no significant gains on musical change identification. The use of musical vocabulary did increase with all groups except for the control, again indicating that music terminology knowledge lags behind music listening skills. However, this study did not show that music instruction effected critical listening. Further investigation into music choice or instruction style and its effect on the findings would be interesting to note.

Flowers (1988) later investigated whether studying or teaching music selections to children increased undergraduate students’ preferences for those selections. Preference ratings increased for both children and college students from the pretest to posttest, and faster tempi were rated higher than slower tempi music. Additionally, undergraduates expanded their vocabulary when describing the selections after more experience with the music, but the children’s descriptions were limited and focused primarily on tempi (fast/slow) and dynamics (loud/soft) as descriptors. The author supposes that the limited vocabulary may be linked to their limited listening differentiation skills. Guided listening with vocabulary instruction might be a possible tool for improvement.
Flowers (2000) continued investigating music vocabulary development with fifth and sixth graders. Students were given instruction in music descriptions, including the use of metaphors, then wrote descriptions on six musical excerpts. Expert readers were then asked to match the descriptions to the correct excerpt. As with previous studies, Flowers found that the older students were more advanced in their use of music vocabulary than the younger students. Additionally, fifth grade students who had received instruction in musical elements described significantly more elements per excerpt than fifth grade students without instruction. Both maturity and experience were found to be important factors in music vocabulary use.

Incorporating the community aspect of home experiences and language into the classroom activity system has been shown to be an effective tool to support ELL students in the classroom. Additionally, using social group activities to facilitate ZPDs and social learning may also be effective. These tools and teaching strategies were incorporated into the study in order to support the students and value their previous experiences.

Musically, vernacular language and content specific vocabulary were useful tools for highlighting and demonstrating content knowledge. The development of AL often lags behind concept comprehension, so within this study opportunities were created for home language descriptions of musical concepts. For example, in class we referred to the piano scroll view as the brick view because all of the students were familiar with a brick wall but few were familiar with a piano scroll.

**Gestures and Music**

Verbal and written communications are prioritized tools in the traditional music classroom activity system. More specifically, formal music notation is prioritized as the
preservation of notated music. However, Bamberger (1982) found that children used figural representation such as dots, scribbles, and boxes as they developed their musical understanding. The author found that the progression towards written musical understanding was not merely linear from figural to the “adult” formal, but rather a mixture and frequent revisiting of both forms. Similarly, the words of verbal communication are prioritized in the classroom, but students may use gestures while speaking to communicate when their verbal skills lag behind their comprehension. Gestures are “spontaneous hand movements of individual speakers”, and may represent concrete or abstract objects from speech, as well as nonrepresentational hand motions (Scherr, 2008, p. 1). Gestures may also reveal meanings when students are still constructing the appropriate language, and facilitate with idea construction. In a series of studies, Hair found that children perceive musical changes and concepts before they are able to label them, and their language choices are often different from adult choices (Hair, 1977, 1981, 2000). Wu and Coulson (2006) completed an event-related potential (ERP) study of the brain and found that gestures had the potential to pre-activate visual-spatial features of communication.

Gestures may be physical enactments of a concept, a tool frequently used by younger students. Students embodied the shape of multiplication tables as a bridging tool towards an understanding of the connection between numbers (Abrahamson, 2004). Abrahamson also called for mediating artifacts that were connected to student experiences and encouraged gestures as further bridging tools in math classes. This was in essence a call for a pedagogical combination of gestures and CHAT. Gestures may also demonstrate pre-verbal ideas, particularly with students learning a second language. Gesture analysis
for ELLs may focus on speech-gesture matches and mismatches, however, gesture analysis for ELLs is still relatively novel (Gullberg, 2010).

Similarly, Schunk (1999) investigated the relationship between speaking, singing, and signing for ELLs, finding that singing words combined with signing a particular gesture increased vocabulary recognition. Researchers have also found that nonverbal movements helped improve understanding in a foreign language (Allen, 1999). Allen postulated that the gestures were “activating concepts already stored as mental representations in the students’ memories” (Allen, 1999, p. 472). Gestures are also intentional by the speaker and may be used to accentuate the message, keep the listener’s attention, or signal that the speaker is thinking (Goodwin & LeBaron, 2011).

Unlike general education gesture analysis, music gesture analysis has focused primarily on stylized movements found in conducting or dance (Naveda & Leman, 2010). Gesture analysis in music vocabulary and concept enactment is relatively new. Some work has focused on younger children and moving to show musical concepts (Flowers & Costa-Giomi, 1991). Kerschner (2013) recommends an eclectic mix of movement strategies to develop music listening. The author differentiates between teacher generated movements, in which the teacher creates movements to direct student attention to an aspect of the music, and student generated movements, in which students create movements that reflect their listening experiences. Kerschner also notes how verbal and body language can be used to sabotage or support movement.

Within composition, students may move to experience elements of sound such as tension and release, dynamic changes, or rhythmic accents. This movement enables students to develop or communicate an understanding of musical elements and gestures
(Kaschub & Smith, 2009). However, the role of gesture in students with varied lingual backgrounds as a communication tool for actively sharing First Space culturally based musical knowledge in the classroom is unexplored.

**Group Composition**

As previously discussed, language (academic, home, gesture) may be a mediating artifact or tool within the music classroom activity system. However, there are many possible tools beyond language.

“...objects such as keyboards, instruments, worksheets, and computers; semiotic systems, such as language, music notations and computer interfaces; social interaction, such as the communicational modes used in group work, and institutional structures, such as the school music policy.” (Gall & Breeze, 2008, p. 29)

Working in a group is a social activity that has been shown as an effective classroom tool for developing literacy in ELLs, particularly as they share and engage in active discourse. Traditionally group work in the music classroom is used most often within formal ensembles. The ensemble format is a top-down approach that limits individual student contributions from cultural backgrounds in the home space and focuses on academic mastery (Borgo, 2007).

On the other hand, group composition, or groups of students composing music, is a format with more opportunity for individual contribution.

“As a medium for intellectual inquiry, composition provides a means for exploring historical and cultural practices within new contexts and from new perspectives. Composition affords composer, performer, and audience an opportunity to chart
explorations of the inner, subjective facets of human experience in order to make sense of the world.” (Kaschub & Smith, 2009, p. 10)

Students are able to draw on their cultural backgrounds and experiences and contribute to the composition as a whole. This adds value to their experiences and supports their role as a participant within the group composition activity system. Students are more likely to participate and contribute if their musical experiences are related to the activity system object, or goal.

“By starting with activities that are not too far removed from the child's immediate experience, creativity becomes integrated within the child’s existing musical experiences and skills.” (Burnard, 2000, p. 21)

Expanding upon the importance of the individual student, Wiggins (1999/2000) investigated six examples of shared group composition assignments, finding that in whole class composition activities, musical motives were generally created by individual students and then suggested to the class. The motives could be manipulated by other individuals or the class as they worked towards their stated goal. The students had a shared understanding of their goal, and they evaluated musical motives and how they fit the goal based on prior cultural and child experiences. Interestingly, Wiggins also found that students were more likely to sing a motive repeatedly as they evaluated and manipulated it rather than verbally describing it.

In an ethnographic study documenting playground singing games in Australian children, Marsh (1995) found that children used four general processes for creating new music. The processes were: Re-organization, such as synthesizing two songs, Elaboration, such as adding new text, Condensation, such as omitting movements, and Recasting, such
as changing the melodic contour. The compositions were collaborative and social, with several children contributing to the final product. The compositions were context based, with students revising to fit within the parameters of the playground games. The author recommends allowing children to compose using a group composition and performance cycle that will enable social sharing and revising.

Similarly, students who are composing individually use a variety of compositional processes (Nelson, 2007). Students may revisit, elaborate, and transform musical material, or search for new material through divergent exploration. Nelson emphasized that students need to have time and opportunities to develop their musical ideas through non-traditional means as well, including movement and personal connections to the music and title.

Another example of composing and revising arose from a compositional project with sixth graders (Hamilton, 1998). Hamilton rote taught a selection on the Orff keyboard instruments, then asked the students to compose a different consequent to the antecedent. Students opted to work in groups and play different ideas on the percussion instruments before completing the formal compositions. Their peer interactions were a tool for exploring, developing, and refining their musical choices before committing them to the final composition.

Similarly, Burnard (1999) worked with eighteen 12 year-old students in an extracurricular music making class and found that they often used collaboration in their music creation. The voluntary group also chose the instrument for each improvisation and composition based on context and intention of the piece. The instrument choices were related to the body movements the students used to convey their improvisations, and they
most often chose percussion instruments. The students expressed a preference for percussion instruments because they facilitated their ideas more readily without becoming mired in playing technique difficulties found in some of the other instruments. Thus, children composing alone or in groups may prefer instruments that translate their ideas with the least amount of necessary technique.

In another group composition study, Kaschub (1997) studied two class sized group composition projects, one a high school choir and the other a sixth grade general music class. Professional composers guided the class projects. Kaschub found that the older students spent more time in the exploration phase, and the composer became frustrated with their lack of music terminology and poor standard notation use when describing their ideas. The teacher helped translate between the students and composer to facilitate the project. The younger group's composer focused more on general musical ideas with fewer specifics and did not struggle as much as the older group. Both collaborations allowed for students to experiment with sounds and suggest revisions to their peers. The knowledge gap between the professional composers and students may be too wide to be beneficial and may serve to intimidate students instead.

In an analysis on age and composition style, Kratus (1989) determined that the age of the child directly affects their time use while composing. Seven year olds spent the majority of their time in the exploration phase, rarely repeating their music and generally improvising. However, nine and eleven year olds were able to move between exploration, development, and repetition in order to compose and be able to replicate their performance. Contrastingly, Younker (2000) did not identify a difference in time spent on the compositional phases between age groups. However, the use of rhythm and pulse
became more regular correlated with the subject’s age. More research is needed to determine how much age versus musical ability impacts music creation.

In smaller groups, Miell and MacDonald (2000) discovered that friendships influenced the final compositional product. Students were paired with one musically advanced and one musically novice student. Those pairs were further split into pairs of friends and non-friends, and then were given a compositional task. The friends talked significantly more than the non-friends, and included more transactive statements and responses, and informational exchanges. Non-friends used more simple agreements and unelaborated disagreements. The researcher concluded that friend groups communicated more efficiently and at a greater depth, enabling a more complex compositional process in the same amount of time as the non-friends. The author recommended incorporating social relationships into classroom assignments to facilitate collaboration and communication. Following up on the study, MacDonald further suggested pairing students with minimal musical experience with friends due to evidence that they were more willing to ask questions and try new strategies when paired with friends over non-friends (MacDonald & Miell, 2000). Thus, social interactions can ease the musical process and engage reticent students in composition.

There can be socio-cultural influences embedded directly into the compositions as well. Sixth graders composing over the span of a year used their experiences as inspiration for their compositions (Stauffer, 2002). In accordance with the previous literature on composition, students wove their knowledge, preferences, backgrounds, and experiences into their compositions. Students had a tendency to compose for instruments they were learning in band compared to other instruments. In terms of other influences, they used
musical styles their families listened to at home, musical motifs from popular media, and titles. Students even incorporated radio stations into their discussions, which inspired me to ask students about their favorite radio stations in class in order to triangulate favorite styles of music.

The research shows that the social sphere, including friendships, may help students navigate through unfamiliar compositional processes. In accordance with the research, students within this study were allowed to self select their group members in this study to encourage friendship based groups. Previous research reported that personal experiences watching popular media and local culture may have inspired students with compositional ideas to share with the group. Therefore, students within the study were encouraged to share their personal experiences with popular culture within the classroom activity system.

**Composing with Technology**

Creating music that is easily reproduced may be challenging if a student lacks the proper formal music skills. With this in mind, I chose to have the students use iPads and the GarageBand application for their compositional activities. The application facilitates the creation of sophisticated music, even when students do not have formal music training. Technology (e.g. GarageBand) can act as a mediating artifact to scaffold some of the composition experience so students can actively create music while still developing content knowledge. They are able to create and learn simultaneously. In an overview of research on children's descriptions of music, Hair (2000) wrote that the multi-media presentation formats in technology may help students as they develop their concept of musical elements. However, there is some disagreement in the literature about the importance of teaching musical elements. The holistic perception of music may be more automatic and natural
than perceiving individual musical elements such as dynamics and form. The playback feature on GarageBand allows students to hear their compositions as a whole so they can focus on their natural perceptions and evaluations of the music. “We perceive music according to preconceived parameters that filter and interpret everything we hear” (Cutietta, 1993, p. 50). Categorizing music into perceptual elements including motion, energy, flow, fabric, and color, may align more appropriately with student perception. In this study, opportunities to compose holistically based on the emotions and actions of movies were included. Instruction focused on creating music using pre-recorded loops and self-recorded selections that matched the intention and role of music in the project. Composing for emotions and roles was greatly facilitated by the use of technology that contains loops of instruments and has a built in record and playback functionality.

Hickey (1997) hypothesized that composing with a computer may offer authentic music making opportunities and be intrinsically motivating for students. The study followed two eleven-year-old boys as they followed a computer tutorial on composition and created a final composition. Prior to the study, the boys were identified as not very creative and below average musically both by their teacher and as stated in personal interviews with the students. Throughout the program, all of their exploratory sounds were unknowingly recorded, and several sections were knowingly recorded. Hickey found that the boys created creative and thoughtful compositions when they did not know they were being recorded and had the lowest possibility of external rewards. The author recommends teachers should watch for students who may be hesitant to share their creativity and try to provide a safe space such as a computer program as a creative outlet.
In another study where subjects were unknowingly recorded, forty-eight 13-14 year old students were instructed in a computer composition program and then told to create music that ‘sounded good to them’ (Seddon & O’Neill, 2003). Approximately half of the students had formal training on a musical instrument, and the other half had no formal music training. The students without formal training spent significantly longer in the exploration phase, perhaps due to no preconceived notion of musical compositions. On questionnaires administered after the task, students expressed that they appreciated they were able to make music without needing to have experience or music specific knowledge. Similarly, in another study, students expressed that computers helped them compose without needing the knowledge of how to play a traditional instrument (Gall & Breeze, 2006).

Similarly, technology can be used to fill a gap in classroom instruments or provide access to sounds for students with physical limitations (Carlisle, 2014). In a case study of a third grade student, ‘Meg’ composed using the computer software Making Music over the span of a year (Stauffer, 2001). She began with exploration and developed a signature style over several months that she applied to multiple compositions. Meg also began to shift to internalizing the music over the course of the year as demonstrated by composing with intent and an awareness of musical sounds. The author recommended that students have ample time to become familiar with a technological composition tool and further time to develop their own technique. Thus, several class periods in this study were dedicated to exploring the GarageBand application.
Summary

To summarize, students may use everyday language or gestures as a communication tool and to facilitate idea formation. Language and tools are used as students develop the traditional classroom preferred tool of AL. Working in groups affords opportunities to practice vocabulary, and the ZPD that may develop can be effective in developing literacy for ELLs. Exposure to musical terms may improve performance on listening tasks. Teachers can incorporate cultural connections for students to help develop an inclusive classroom which values minority voices, but the dominant culture may still be expressed despite teacher efforts.

Group work has also been shown to be effective in facilitating productive musical compositions, particularly within social friend based groups, but strong personalities may inhibit group work. Students follow exploration, generation, and revisiting stages in the shared nature of music generation across cultures. Editing can be social and there is evidence that students revisit their work using different strategies, which may account for the positive benefits of group editing. However, there is still a gap in the literature for how students may use home language and gesture in the music classroom activity system and what previous experiences within the community they have that may be used. Thus, the study focused on group composition projects with ample opportunities for collaboration.

Computers and software programs may act as mediating artifacts to facilitate compositional tasks for students who are not as comfortable with musical instruments and notation. The exploration period may be longer when students are unfamiliar with music or the technological tools. Digital audio workstations enable students to create sophisticated sounding compositions without musical knowledge or instrument
availability. Prolonged use with the tools combined with social interactions may also help students develop their musical understanding and a personal sense of musical style.

“The visual representation of the music providing an important focus for the creation of musical meaning and the construction of musical products. This is congruent with Vygotsky’s observation concerning the symbol having the potential to create meaning in the culture in which it is articulated.” (Gall & Breeze, 2008, p. 38)

Investigating what students from mixed cultural and lingual backgrounds know and how they contribute in class through the mediating artifacts of the iPad and GarageBand application may help identify strategies for how they learn music.
Chapter III

Methodology

Introduction

This chapter will describe the methodology of the study in detail, including study design, research questions, conceptual framework, study participants, data collection, data analysis, trustworthiness, and researcher bias.

Study Design

In order to investigate the research questions, a qualitative instrumental case study design was implemented (Stake, 1995). A case study was chosen because it copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result; relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result; benefits from the prior development of theoretical propositions to guide data collection and analysis. (Yin, 2003, pps. 13-14)

Thus, the case study was used to explore an occurrence nested within its natural environment in order to investigate the various forces influencing the outcome with the goal of understanding this occurrence and possible trends upon others (Barrett, 2014). In this design, the nature of communication and the transformation and influence of personal experience was explored through the study using multiple data points and guided by a conceptual framework. Video recordings of student communication of musical ideas were used as data. Additional data included the analytic memos describing class discussions. Student compositions and notes were also used as artifacts.


**Research Questions**

As previously stated, the purpose of this research was to examine how fourth grade students negotiated musical meaning in a mixed language learning environment. Specifically, the research questions were:

1) What roles do home and Academic Language play in communicating musical ideas? 2) What cultural practices emerge around the sharing of musical ideas? 3) What roles do mediating artifacts play in facilitating student communication?

**Theoretical Framework**

The instrumental case study design was used to analyze key conversations of the class, in an effort to provide insight into the larger scope of communication during compositional tasks. Although the study was limited to a single group of students, there were patterns that the reader may identify and apply to their own experiences.

The data was interpreted through the lens of a theoretical framework based upon Cultural Historical Activity Theory (CHAT). In the literature, Cultural Historical Activity Theory is a dynamic activity system that is comprised of subjects, rules, mediating artifacts/tools, community, division of labor/roles, and the outcome. Each element in the system contributes to the outcome. As changes affect one element in the activity system, the entire system will be changed.

The dynamic activity system in the study enabled the students’ methods of communication to be explored through the intersections of their roles, backgrounds, tools, and the community and rules. The lexicon chosen by the students provided clues to the socio-cultural circles of their backgrounds while illuminating their conceptual grasp of AL. I
posit that gestures were also used as communication tools within the activity system. Their hybrid language and gesture practices highlighted communication gaps and were used as a bridge from their native languages and vernacular English to Academic English. Thus, CHAT was used as a theoretical framework to guide the data interpretation.

**Study Setting**

A pilot study was completed in an effort to develop and test curriculum that encouraged collaboration in mixed lingual students with varied music experiences. I worked with the after school program at a dual immersion elementary school in Colorado to create a music composition class. Six fourth grade students enrolled and participated in the course in the spring of 2015. Using iPads and the GarageBand application, students composed music in small groups. The curriculum used was based upon classes I had previously taught to students in summer school in Colorado ranging in age from 3rd grade to 8th grade from 2012-2014. The pilot study was used to test curriculum on a small group composition format as opposed to the individual composition format of the summer school classes. Additionally, the pilot was used to test data collection methods and address any other technical difficulties that arose within the group composition and after school program settings.

After completing the pilot study in a dual immersion elementary after school program in Colorado, I wanted to find a dual immersion school with an after school program for the primary study. Dual immersion was preferred because I wanted to include students with diverse backgrounds who felt comfortable sharing their musical experiences. Dual immersion schools offered the opportunity to have access to multilingual students whose primary language and culture had been valued throughout their schooling. After
some investigation, Redwood Elementary Dual Immersion School (all names of locations and students have been changed to maintain student privacy) was selected as a possible candidate. I contacted the principal and explained my study (see Table 3.01). He directed me to the new principal, and after email correspondence, I met with the new principal and discussed the parameters of the research. With the approval of the principal, I submitted the school district research application forms.

Table 3.01

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/12/15</td>
<td>Met with pilot school principal to discuss pilot</td>
</tr>
<tr>
<td>1/30/15</td>
<td>Submitted pilot school district research proposal</td>
</tr>
<tr>
<td>2/8/15</td>
<td>Met with music teacher at pilot school</td>
</tr>
<tr>
<td>2/24/15</td>
<td>Email correspondence with pilot school district</td>
</tr>
<tr>
<td>3/19/15</td>
<td>Email correspondence with pilot school after school coordinator</td>
</tr>
<tr>
<td>4/3/15</td>
<td>Met with pilot school after school coordinator</td>
</tr>
<tr>
<td>4/23/15</td>
<td>Met with pilot school after school coordinator</td>
</tr>
<tr>
<td>5/7/15-21</td>
<td>Completed pilot study</td>
</tr>
<tr>
<td>6/3/15</td>
<td>Email correspondence with Redwood school principal</td>
</tr>
<tr>
<td>7/2/15</td>
<td>Met with Redwood school principal to discuss study</td>
</tr>
<tr>
<td>10/1/15</td>
<td>Submitted Redwood school district research approval packet</td>
</tr>
<tr>
<td>10/2/15</td>
<td>Email correspondence with Redwood school principal</td>
</tr>
<tr>
<td>10/5/15</td>
<td>About presenting program information to teachers</td>
</tr>
<tr>
<td>10/10/15</td>
<td>Prospectus defense passed, study plan approved</td>
</tr>
<tr>
<td>10/11/15</td>
<td>Submitted Institutional Review Board (IRB) application</td>
</tr>
<tr>
<td>10/13/15</td>
<td>Email correspondence with Redwood after school</td>
</tr>
<tr>
<td>10/15/15</td>
<td>Program coordinator</td>
</tr>
<tr>
<td>10/16/15</td>
<td>IRB approval</td>
</tr>
<tr>
<td>10/16/15</td>
<td>Redwood school visit, met with principal and after</td>
</tr>
<tr>
<td>10/22/15</td>
<td>School program coordinator</td>
</tr>
<tr>
<td>11/2/15</td>
<td>District approval granted, background check completed</td>
</tr>
<tr>
<td></td>
<td>Permission and assent forms signed and collected</td>
</tr>
<tr>
<td></td>
<td>Data collection day 1</td>
</tr>
</tbody>
</table>
Redwood Elementary was located in the central valley of Northern California, in Hermano City. At the time of the study, Hermano’s population was approximately 90,000, of which 15% identify as Hispanic or Latino. The Hermano City demographics based on the 2010 Census data are included in Figure 3.01.

![Hermano City Demographics](image)

**Figure 3.01. Demographics of Hermano City**

Hermano was home to a medium sized university as well, which was the largest employer in the county. Like most of the central valley, Hermano had a mild climate and a strong agricultural presence. Farm revenue in the county exceeded $800 million through a variety of crops. Thus, both the farming community and university interests were influential in the politics of the city. The population increased by 45% over the last census. Due to the impressive population growth, amenities such as parks, pools, hospitals, schools, housing, and parking were overwhelmed. The local government was working to address
the shortage, evident through the multiple construction sites around the city, and the plans for new schools, roadways, and a recreation center.

The school district had twenty-two schools with an approximate enrollment of 12,000 students. The district included twelve TK-6 elementary schools, three junior high schools, and two comprehensive high schools. The other five schools offered alternative educational opportunities and special services. Due to the population increase, the district planned to expand the junior highs to include sixth grade the following year in order to alleviate the over crowding in the elementary schools. They were also trying to raise funds for school improvements through bond measures. The district demographics from 2013 included students reporting 63% white and 22% Hispanic/Latino. Additionally, 52% of the district qualified for free and reduced lunch and 14% were ELLs (see Figure 3.02).

Redwood school was a TK-6 elementary school within the district. In 2011, Redwood was labeled as a two-way Spanish immersion magnet school. ELLs and NESs wishing to learn Spanish were encouraged to attend the school. Data from the 2012 school year reported 30% white, 63% Hispanic/Latino, 2% African-American, 2% American Indian, and 3% other. Sixty-one percent of the school was eligible for free and reduced lunch and 41% of the students classified as ELLs (see Figure 3.02).

When comparing district and school data, it is important to note that the white and Hispanic/Latino percentages approximately flipped between the district and Redwood school data. Free and reduced lunch eligibility and ELLs increased from the district to the school percentage. The after school program demographics are included as well, which showed an increase in Hispanic/Latino, free and reduced lunch, and ELLs percentages.
Figure 3.02. *Demographics of Hermano School District, Redwood School, and Redwood After School Program*

**Study Participants**

The study was conducted with a small number of students in a specific school program and thus the results are limited to that population. Study participants were composed of a purposive sample of fourth grade students. Fourth grade students were chosen for two reasons. First, music instruction starts in fourth grade in the chosen district, so students began formal music instruction as a class during the spring semester of this study. The students were generally unfamiliar with music specific vocabulary. They also had few shared formal music experiences, defaulting to their home experiences and socio-cultural backgrounds for discussions and compositions.

Another reason fourth grade was chosen was because fourth grade literacy is colloquially known as the “Fourth Grade Slump”, a time when texts transition from a focus
on learning to read to becoming a resource to learn about other subjects (Goodwin, 2011). The transition is difficult for many children, and therefore results in an achievement gap between those who transition more quickly and those who struggle with the transition. This achievement gap is commonly greater among students with lower socio-economic status and developing language skills. Several potential causes for the gap have been postulated, some of which include vocabulary development and prior knowledge. Thus, fourth grade is an important year for vocabulary growth and music education, making it ideal for the study.

The fourth grade participants attended a two-way Spanish immersion K-5 elementary school in a Central Valley Northern California community. The school had a student body of approximately 570 students, including 40% of the students who are ELLs and 60% of the students who qualify for free and reduced lunch (School Accountability Report Card, 2013). Music education began in fourth grade spring semester partway through the study. Based on interviews with the students, it followed a pre-band curriculum, in which students were instructed in theory in preparation for a western art music influenced instrumental ensemble. After a semester of pre-band musical study once per week, students were given the option to join band in fifth grade.

The participants in the study were drawn from fourth grade students who attended an after school program. The school-sponsored program provided academic support for the first hour after school and enrichment classes for the next hour and a half. The enrichment classes changed throughout the year, offering more outdoor physical classes such as running and soccer during the fall and spring, and more indoor options such as art during the winter. The participants voluntarily joined an after school enrichment music
composition class. Recruitment letters were passed out to all of the fourth grade after school program participants (see Appendix B). Students who expressed interest were also invited to a recruitment video created by the teacher-researcher (TR) (see Figure 3.03).

After watching the video, students were given parental consent forms and were enrolled in the class once the form was signed and returned. Students read and signed assent forms the first day. The class met twice a week for forty-five minutes from November through March. The TR taught the music class. Permission was granted by the after school program coordinator, principal, and district superintendent. Parents signed consent forms and students signed assent forms to join the study and class. Students were free to leave the study at any point.

Figure 3.03. Recruitment Video Screenshots
Ten students joined the class; six girls and four boys. Three of the four boys were ELLs, and three of the six girls were NESs, shown in Figure 3.04.

![Bar Chart: Class Gender and Language Learning Assignment](image)

**Figure 3.04.** Class Gender and Language Learning Assignment

**Data Collection**

There were several sources of data collected in this study. First, artifacts in the form of group compositions were collected at the end of each class. They were downloaded as GarageBand files and analyzed for musical elements discussed during class. Additionally, groups created notes in the notepad application about future revisions. They also created several notes on papers provided by the researcher. The notes were analyzed for content and evidence of the musical concepts discussed during class and music vocabulary use. Video recordings from throughout the study were coded and analyzed. I recorded my thoughts, observations, and experiences through analytical memos at the end of each class (Miles, Huberman, and Saldaña, 2014).

The class was formatted with a series of projects (see Table 3.03). The projects began with small compositions intended to improve listening skills and develop
musicianship. Additionally, the progression of activities slowly introduced the capabilities of the application. The technology exploration classes were also structured to facilitate group cohesion between the students and with the teacher, and to establish class rules for editing and discussion involving constructive criticism. Subsequent projects increased in complexity and the freedom to use all of the features of the application. The longest projects spanned six classes each (see Figure 3.05).

The students composed with self and pre-recorded sounds and loops on the software and did not create music outside of the tablet. The first several classes included group bonding activities combined with iPad exploration. For example, students were tasked with creating a short story and acting it out for their peers. They then identified the sounds from their stories and created the sounds in GarageBand through instruments and loops. After a few minutes of composing, they shared their sounds with their peers. The other students were tasked with commenting one positive comment and one constructive comment, or “one thing they liked and one thing they would change.” Class rules for respectful sharing and commenting were established the first day of class and frequently revisited. Respect for compositions was a major rule within the class activity system. For example, when I observed a student playing with their iPad during an editing session, I stated,

“When we are listening to someone else’s, I want you to have your iPads down and off because I want you to be respectful to the other people. If you are unable to do that then you are unable to use iPads for the rest of the day. Is that clear? Thank you.” (11-18)
Table 3.02

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/2/15</td>
<td>Technology Exploration</td>
<td>1/13/16</td>
<td>Edit and Snack Day</td>
</tr>
<tr>
<td>11/4/15</td>
<td>Technology Exploration</td>
<td>1/25/16</td>
<td>Movie Project</td>
</tr>
<tr>
<td>11/9/15</td>
<td>Technology Exploration</td>
<td>1/27/16</td>
<td>Movie Project</td>
</tr>
<tr>
<td>11/16/15</td>
<td>Technology Exploration</td>
<td>2/1/16</td>
<td>Movie Project</td>
</tr>
<tr>
<td>11/18/15</td>
<td>Technology Exploration</td>
<td>2/3/16</td>
<td>Movie Project</td>
</tr>
<tr>
<td>11/30/15</td>
<td>Soundscapes</td>
<td>2/10/16</td>
<td>Movie Project</td>
</tr>
<tr>
<td>12/2/15</td>
<td>Soundscapes</td>
<td>2/10/16</td>
<td>Edit and Snack Day</td>
</tr>
<tr>
<td>12/7/15</td>
<td>Book Project</td>
<td>2/22/16</td>
<td>Song Project</td>
</tr>
<tr>
<td>12/9/15</td>
<td>Book Project</td>
<td>2/22/16</td>
<td>Song Project</td>
</tr>
<tr>
<td>12/14/16</td>
<td>Book Project</td>
<td>2/24/16</td>
<td>Song Project</td>
</tr>
<tr>
<td>12/16/15</td>
<td>Edit and Snack Day</td>
<td>2/29/16</td>
<td>Song Project</td>
</tr>
<tr>
<td>1/4/16</td>
<td>Book Project</td>
<td>3/2/16</td>
<td>Song Project</td>
</tr>
<tr>
<td>1/6/16</td>
<td>Book Project</td>
<td>3/7/16</td>
<td>Song Project</td>
</tr>
<tr>
<td>1/11/16</td>
<td>Book Project</td>
<td>3/9/16</td>
<td>Edit and Snack Day</td>
</tr>
</tbody>
</table>

Working on the iPad began with a demonstration. I opened the application, created a new song, and played a few notes on the piano keyboard. I played the notes again, recorded them, and played the recording to the class. Students then were given the opportunity to perform the same series of tasks. Each student had the opportunity to play and record measures on the piano keyboard, then they switched “drivers” and gave the iPad to the next person in their group. Each student shared his or her composition with the class and everyone commented. This activity began familiarizing students with the application, composing, and recording. It was also an opportunity to practice listening critically and giving and receiving constructive criticism on a simple project, before the students were invested in their work. Students were encouraged to share where they would hear a song like that, or what it reminded them of, as an inquiry into the role of music. After the piano composition, students composed and added a drum track. This
served as an introduction to texture and harmony for compositions and listening. The next step was the addition of strings, which includes pre-recorded chords you can play with a standard string orchestra. Students experimented with chord progressions, and then the options of changing instrumentation and using looped repetition as a “smart” instrument.

The next tool on the iPad we used was the ambient sound recorder, with which students could record their voices or other sounds, and then manipulate them with different effects. The effects were pre-packaged, with names such as monster or small room, and included adjustments to the speed, pitch, and reverberation of the recording. Students used the effect names throughout the study. Finally, students were encouraged to explore the pre-recorded loops in GarageBand. There were many loops made with different instruments and styles, and students continued exploring their options throughout the study. The progression of instruments was chosen to maximize familiarity with composition tools and sound experimentation before the addition of pre-recorded loops. Students regularly mixed self-made tracks and pre-recorded loops on projects.

The first official project was the soundscape project. Students composed soundscapes to accompany scenic pictures, and explored the constant and intermittent sounds within diegetic sounds. Diegetic sounds include sounds assumed to be sourced from the action in the scene, such as footsteps and voices. Non-diegetic sounds are soundtracks that are not part of the action, such as musical scores. The introduction to the project focused on identifying sounds and silences in their everyday lives, such as the classroom or their home. Caroline identified rain as an intermittent sound, but one that felt constant in the past few days, “Recently, it’s been raining a lot at my house… and I can hear the rain on my roof.” She followed with a joke, “I know a place where it rains all the time--rain land!”
Further discussion on the sounds at home included a discussion of refrigerators. Each student in this example shares a different sound they have heard and associated with a refrigerator. They ultimately applied their listening and critical thinking skills to creating a soundscape for one of four scenes: a beach, city street, jungle, or arctic ice floe.

Jorge
Sometimes, when it’s like, it just stays there and it goes like whoooo.

Lita
And when you have it open for a long time it beeps, and then you close it, and then nothing happens.

Galenia
My refrigerator, um, when you take ice out of it, and you close it, um, and it makes the sound of ice falling or something.

Lita
What’s an ice maker?

Jose
You put water in it and it makes cubes.. and it also has water coming down like shhhh.

In the next project, groups chose a children’s book from the TR’s collection and composed a soundtrack to accompany the book. They also added a track of reading the book. The Soundscape Project and Children’s Book Project were modified from composition lessons in the book Minds on Music (Kaschub & Smith, 2009). I spoke with the students’ teachers and collected a selection of books and stories that coordinated with their curriculum. However, the first day of technology exploration I realized that the students’ technology skills were not sufficient to undertake such a large project with only a few weeks of instruction on the iPads. I modified the project and chose a selection of children’s board books that had very few words but a story line that included sounds in the narrative. When I introduced the project, I told the students that the goal was to create a recording of the book with words and sound effects for the kindergarten classes. The element of creating a project for an audience was extremely motivating, and students took extra care
making it sound fun because the students were younger. I observed students starting to record something inappropriate, but stopping when their group members reminded them it was going to be played for kindergarteners. Jose asked, “Can we be there so we can see them laugh?” (12-7)

![Figure 3.05. Project Type and Duration by Days](image)

**Figure 3.05. Project Type and Duration by Days**

The following project was a movie soundtrack. Groups composed music to accompany a short class movie. This project involved creating music that represented emotions and actions. Each group was assigned an emotion and tasked with finding a pre-recorded loop that best represented the emotion. We shared loops and the class guessed the emotion. As a class we discussed the musical elements that were present in the representative loops, such as tempo, dynamics, and instrumentation. Groups then created motifs to accompany a scene, and we worked on linking the four scenes together. Finally, each group was responsible for composing four emotional motifs to accompany a short cartoon video.
The class ended with a final project in which students created songs. As an introduction to theme and variation form, students were asked to draw stars on paper, and then change their stars in some way (see Appendix I). Twinkle Twinkle Little Star had been pre-recorded on their iPads, and they were tasked with changing the song in a manner reminiscent of the way they changed the drawing. The class listened to the recordings and talked about how they chose to show changes such as sparkles or extra lines adapted to music. Next, students listened to summer pop songs and identified common musical and lyrical elements and the verse refrain form. Students composed a short pop hit. The last day of class students were asked to create a song reminiscent of their home using any form, instrumentation, and style as needed. A class outline example is included (see Table 3.03).

### Table 3.03

<table>
<thead>
<tr>
<th>Time</th>
<th>Lesson Activities for 2/1/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:00</td>
<td>Read the story of Pedro the Dog. Discuss 5 emotions the dog feels in the story within group.</td>
</tr>
<tr>
<td>4:10</td>
<td>Class discussion about dog and emotions.</td>
</tr>
<tr>
<td>4:15</td>
<td>Within group, compose 4 measures for each emotion the class identified.</td>
</tr>
<tr>
<td>4:35</td>
<td>Share with other groups, other groups guess the emotion from the sound and suggest edits.</td>
</tr>
<tr>
<td>4:45</td>
<td>Dismissal.</td>
</tr>
</tbody>
</table>

At periodic points during the projects and at the end of the projects, the class would join together to edit everyone’s work (see Table 3.02). Students were asked to share one positive comment on the compositions and one constructive comment. Snacks were provided by the teacher-researcher on four project completion editing days in order to strengthen the community during potentially divisive activities (see Table 3.03 and Figure 3.05)(Watland, Hallenbeck, and Kresse, 2008).
Students formed groups on the second day. They were assigned to form groups with two or three total students. Groups were quickly formed along gender and then cultural divides. The girls split into two groups, one comprised of ELLs and one NES. The boys tried to form a group of 3 ELLs and 1 NES, but they were reminded that each group needed to be at least two students, so they formed one group of two ELLs and one with an ELL and a NES. Groups chose their names: FIFA Heroes (1 ELL boy, 1 NES boy), These Moms (2 ELL boys), Redwood Rockstars ICK (3 NES girls), Sassy Girls (2 ELL girls). They remained within these groups for the entire study. As with many groups that are together in a certain place over time, they developed cohesion and bonded over the class projects. However, attendance was so varied that group members were often absent and students would work with other groups as well.

Compositions were completed on the researcher’s set of iPads, specifically using the GarageBand and Notes applications. As described in Chapter 2, computer compositional software can assist students with their musical creativity that are not as comfortable with music notation or musical instruments. The students were able to create heterophonic compositions using multiple timbres and styles without being restricted to notating or performing the parts in a traditional format.

The iPads were collected after each class. Files were saved and downloaded onto the researcher’s personal computer. The researcher then wrote their analytic memo based on observations and impressions of the class. One to two video cameras were used throughout the study, and videos were also downloaded, compressed, and catalogued on the researcher’s computer.
Data Analysis

Data was collected through video recordings of group discussions, analytic memos, and artifacts of student work in the form of compositions and notes (Miles, Huberman, & Saldaña, 2014). Data was analyzed using three levels of analysis, narrowing in from a macrocosmic to a microcosmic perspective (LeCompte & Schensul, 2013). Analytic memos were analyzed and a first level set of codes was developed based on emergent themes from observations and discussions about the data with peer researchers and the study advisor (see Table 3.04). Video data was examined using the first level of codes, in addition to in vivo, and descriptive analysis (see Appendix F). The second level of codes included the addition of Movement as communication/Gestures, Dancing, Gender discussion, and Arguments (see Appendix G). Video analysis with the coding system led to the selection of several video clips. The clips were then subjected to a modified discourse and gesture analysis (see Appendix H) (Burnard & Younker, 2008) (Scherr, 2008).

Coding

Throughout data collection, I created personal memos of thoughts and observations. I also discussed these thoughts and observations with peers. Out of the discussions and based upon my experience as a participant and observer in the activity system, a set of themes were built to describe what was observed. These themes became a first level set of codes for the first round of video and memo analysis (see Table 3.04).

The first code referred to the TR and is the struggle between identifying as a teacher or a researcher. Examples included discouraging dancing in order to give directions (teacher) versus watching as a group argues for an entire class and does not finish their
work in order to see how group dynamics evolve (researcher). The next code, ego preservation for students, involved moments such as distancing from a composition by claiming another created the work. Sounds from different cultures included the use of the word kikarikiki instead of cockadoodledoo. Language switching was a mixture of Spanish and English, such as, “Come on mi hija!” The code for helping other groups included examples such as offering technical help with iPad and helping a group create sounds by stomping on the ground. Group roles especially focused on leaders and followers, such as the dominance displayed when a student sat in another student’s chair and took their iPad. Finally, the code for composition discussions included examples such as choosing which sound to add within groups.

In addition to the first level of codes, the first round of video viewing was also used to create a basic timeline of classes. The timeline including attendance during class, taken at 4:00, 4:15, 4:30, and 4:45. I also noted the basic lesson plan and class events for each day. Finally, I recorded in vivo comments in line with the first level themes (see Appendix F).
As I coded and analyzed the videos, more common themes were identified. The secondary themes were Movement as Communication/Gestures, Movement as Dancing, Gender discussion, and Arguments (see Table 3.05).

**Table 3.05**

<table>
<thead>
<tr>
<th>Second Level Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TR</td>
<td>Struggle between identifying as a teacher or a researcher</td>
</tr>
<tr>
<td>E</td>
<td>Ego preservation</td>
</tr>
<tr>
<td>C</td>
<td>Sounds from different cultures</td>
</tr>
<tr>
<td>L</td>
<td>Language switching</td>
</tr>
<tr>
<td>H</td>
<td>Helping other groups</td>
</tr>
<tr>
<td>R</td>
<td>Group roles</td>
</tr>
<tr>
<td>CD</td>
<td>Composition discussions</td>
</tr>
<tr>
<td>M</td>
<td>Movement as communication</td>
</tr>
<tr>
<td>D</td>
<td>Dancing</td>
</tr>
<tr>
<td>G</td>
<td>Gender discussions</td>
</tr>
<tr>
<td>A</td>
<td>Arguments</td>
</tr>
</tbody>
</table>

The second level of coding included the combined codes. These were used to select video examples (see Appendix G). Next, video clips were reviewed for sound clarity and clear examples of the themes. The top examples were transcribed and analyzed to determine similarities. Examples were chosen for clear representation of the findings. An independent peer reviewer watched the top twelve selections and categorized them for major themes as well. Selections were watched with the sound turned off to identify form and function of gesture (Gullberg, 2010). The discussions were then transcribed and the gestures were matched to the points of discussion.

Discourse analysis was applied if the information in the clip was mainly verbal, and gesture analysis was used if the information was mainly physical. Discourse analysis was necessary to give perspective on CHAT and how language choice was used as a tool.
Gesture analysis was applied when students used gesture as a form of communication. Specifically, the discourse analysis served to identify the communication flow within the activity system (Burnard & Younker, 2008). Based upon the concept of transactive communication from Berkowitz, Gibbs, and Broughton (1980), Burnard and Younker developed a set of codes that highlight comments as collaborative, horizontally powered communication or commanding, vertically powered communication. The original codes from Burnard & Younker were modified for this study. Transactive, horizontal communication was interpreted as discussions within the group role in the activity system, and vertical communication was interpreted as leadership roles. Group discussions were coded for statements, questions, and responses (see Table 3.06). The leadership roles were coded for proposed ideas, reiterated proposals, and information given. Additionally, agreements/disagreements were coded, connecting/distancing to others, connecting/distancing to work, and references. References included any connection to music, movies, pop culture, personal experiences, or other outside influences that students made.

Gestures were coded based on the categories identified for physics education researchers (see Table 3.07)(Scherr, 2008). For example, gestures that represent objects may include acting out a sunrise, and gestures that represent abstract ideas may include showing how two compositions may fit together by moving shapes like puzzle pieces.

Nonrepresentational gestures may include raising a hand or pointing. Idea construction is when the gesture facilitates idea formation, such as showing waves with their hand and singing a minor second interval when they do not know the reference as Jaws (see Table 3.07).
Table 3.06

*Discourse Analysis, based on Burnard & Younker, 2008.*

<table>
<thead>
<tr>
<th>Label</th>
<th>Code Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDS</td>
<td>Group discussion statements</td>
</tr>
<tr>
<td>GDQ</td>
<td>Group discussion questions</td>
</tr>
<tr>
<td>GDR</td>
<td>Group discussion responses</td>
</tr>
<tr>
<td>P</td>
<td>Proposed idea</td>
</tr>
<tr>
<td>R</td>
<td>Reiterated</td>
</tr>
<tr>
<td>I</td>
<td>Information Given</td>
</tr>
<tr>
<td>A</td>
<td>Agreement</td>
</tr>
<tr>
<td>D</td>
<td>Disagreement</td>
</tr>
<tr>
<td>CO</td>
<td>Connecting to others</td>
</tr>
<tr>
<td>DO</td>
<td>Distancing from others</td>
</tr>
<tr>
<td>CW</td>
<td>Connecting to work</td>
</tr>
<tr>
<td>DW</td>
<td>Distancing from work</td>
</tr>
<tr>
<td>F</td>
<td>Reference</td>
</tr>
<tr>
<td>AS</td>
<td>Attention Seeking</td>
</tr>
</tbody>
</table>

Table 3.07

*Gesture Analysis, based on Scherr, 2008.*

<table>
<thead>
<tr>
<th>Label</th>
<th>Code Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>Represent Objects</td>
</tr>
<tr>
<td>A</td>
<td>Represent Abstract</td>
</tr>
<tr>
<td>N</td>
<td>Nonrepresentational</td>
</tr>
<tr>
<td>I</td>
<td>Idea construction</td>
</tr>
</tbody>
</table>

Artifacts were analyzed for musical language use, references, and evidence of roles.

The compositions and video recordings were stored on the researcher's password protected personal computer. The video camera remained in the researcher's possession. The videos were uploaded to the researcher's password protected personal computer and deleted from the camera. Compositions and notes were uploaded from the iPads and dated after each class to preserve each version of the compositions as they developed over time.
Speech and gestures are often linked in communication. Gesture analysis may take many forms, and may focus on the formation of a single gesture or the intent of an entire collection of movements. The analysis mainly focused on gestures as pre-articulate ideas, and facilitation of idea construction (Scherr, 2010). Therefore, the focus was on how gestures may show ideas the students do not have words for yet, and how gestures may show how students are building their ideas. There was also an element of Topographical Gesture Analysis (TGA) included in analysis. TGA maps gestures in space to determine patterns and other connections. In this study, TGA was used particularly to determine how musical accents may overlap onto gestures (Naveda & Leman, 2010).

**Trustworthiness**

Trustworthiness was established through triangulation, a member check, thick descriptions, negative case analysis, and peer examinations.

Data triangulation was applied across participants and across sources (Guba & Lincoln, 2005). Data was triangulated across participants by comparing group recordings and outcomes for each project. Data was triangulated across sources by including artifacts, notes, and videos on the themes (Guba & Lincoln, 2005).

A member check was completed to ensure that the researcher accurately reported the conversations in the videos and interpreted them correctly. The researcher shared several video samples and the conclusions of the study with the students in the class. On the last day of the class, students watched videos and discussed their conclusions with the TR. Namely, the conclusions were presented as gestures (when students don’t know how to describe something, they tend to dance or move to show it) and deflection (when they’re nervous they argue and say they didn’t write that part, another student did). Students
discussed the findings in their groups and each student shared conclusions and reflections individually with the class. In general, students agreed with the conclusions of the TR. One student, Jorge, disagreed with the deflection finding, but agreed with the gestures finding. His group member, Chico, felt that the deflection finding was accurate. During the member check, students expressed surprise at the amount of arguments they had witnessed. Katelynn stated that they needed to listen to each other more.

In order to contribute to the credibility and overall trustworthiness of the study, a thick description of setting and participants is included in Chapter 4. I attempted to describe the students in depth in order to enable the reader to create their own conclusions as well.

Another strategy for developing credibility was the negative case analysis. A negative case analysis was applied to the findings to determine if other mitigating factors might have contributed to the outcomes. For example, there are several other possibilities for using gesture as a form of communication. Students may be particularly emotive physically or they may include signs as a tool in their classroom. I attempted to mitigate the other possibilities through triangulation across sources and interviewing the students on their experiences during the member check.

Peer examination was primarily completed by the head advisor to this project. The advisor had access to the researcher’s notes, data, coding schemes, videos, transcripts, analysis, and conclusions. Additional peer examination opportunities included periodic checks with other professors and doctoral students for additional peer examination opportunities as well. Samples of gesture analysis were reviewed by three education professors at different institutions, and samples of discourse analysis were reviewed by
three doctoral students at the University of Colorado who were enrolled in a discourse analysis class. Additionally, a speech language pathologist reviewed gesture analysis samples for an additional perspective by a trained speech and gesture observer.

This project is limited to the small group of students and their experiences as interpreted through the conceptual framework and my biases. The findings are not generalizable beyond this study.

**Statement on Researcher Positionality**

My experiences have influenced how I developed, participated, observed, and analyzed this study. I began my music education with public school weekly music classes in kindergarten. These classes involved sitting in rows and singing songs, with few opportunities for creative expression or collaboration. I was involved in multiple ensembles in high school as a horn player, including an award winning youth orchestra. The orchestra was my first opportunity to see student led musical decisions applied to large group rehearsals. I was fascinated with how our thoughts about the music could impact the sound of the whole orchestra. I decided to major in music education in college.

I chose to student teach on the Navajo reservation through a cultural immersion program from the university. I had not visited a reservation before, and as an upper middle class white woman from the Midwest, I was interested in exploring the country and learning more about the lives of others. The cultural immersion program included teaching at the public and Bureau of Indian Affairs (BIA) schools during the day, then staying in the BIA boarding schools at night and helping the students with their after school activities. I also completed service projects in the community on the weekends. By seeing the children during the school day, with their friends in the evenings, and with their families on the
weekends, I began to understand how personal experiences and culture can influence school performance. It was also an opportunity for me to see vastly different cultural customs and experience a sense of otherness.

After student teaching, I taught K-5 general music, K-8 general music, beginning orchestra, middle school choir, middle school band, high school band, and middle school keyboarding at schools in Indiana, Oregon, Virginia, and Colorado over the span of eleven years. Each location included students from different cultural backgrounds. I also taught classes at an Apple store in Virginia, which showed me the potential of technological tools in a classroom setting.

I first became interested in the specific topic of this study while teaching in a dual language immersion elementary school in Colorado. I noticed that my students would often mix Spanish and English words in class, especially during discussions in small groups. I do not speak Spanish fluently, however I do understand some Spanish and I tried to incorporate Spanish into my instructions. I also began teaching a summer composition class on the iPad, and became fascinated with the music that students based on their previous musical experiences. I wanted to know how a group might choose to include or dismiss the musical contributions from each member in the process of composing, particularly if the students came from diverse backgrounds. I completed a short pilot study of small group compositions on the iPad at a Colorado dual immersion school in the spring of 2015. The pilot study served as an opportunity to experiment with data collection methods and curriculum flow. Following the pilot study, I selected another dual immersion school with classroom iPads at a dual immersion school in California, and began the
process of obtaining permissions and setting up the study. I taught and collected the data for the main study.

I was limited in my observations in person and on the videos due to the specific lens of being a teacher and researcher for the study. I intervened as a teacher to provide equivalent opportunity and keep students safe. For example, I required that students alternate every few minutes who held and controlled the iPad in order to give each student the opportunity to work with the composition. However, this reduced tension between students and effected the dynamics of power in the system. Another example of intervention occurred when I stopped students from throwing candy at each other on a day of sharing and editing compositions. I refused to hand out more candy and ended the activity with an explanation of class rules and safety. It would have been interesting as a researcher to watch a food fight and see group alignments, but as a teacher I felt obligated to keep the classroom safe. Various issues frequently arose that led me to view situations conflicted as a researcher and teacher. Having spent more years as a teacher than a researcher, my teacher side often dominated my researcher side and may have changed the dynamics in the classroom system.

My previous teaching experiences with ELLs, Apple customers, and summer school composers will have biased my study from the design through the analysis. My lack of Spanish fluency and the prominence of English in my discourse also impacted my classroom and how the students interpreted the role of Spanish in the system. Biases were mitigated when possible through member checks and triangulation. For example, I observed and recorded comments from my students within their groups about the type of music they preferred. I then interviewed them as a member check about their favorite
songs and radio stations. I completed another level of triangulation by asking students to compose a song that sounded like their favorite type of music and played the recordings for an independent researcher. I attempted to ask my students questions about their music and have them explain their compositions to class in order to capture their own opinions and mitigate my biases whenever possible.

Additionally, my personal music preferences match with the western European music tradition that is used in movies. Thus, when a student asked if I agreed that music sounded angry, I often based my response on that tradition. My musical preference and training effected how I viewed student compositions, particularly during the editing phases. I attempted to ask questions, such as, “What else can you do to show that emotion?”, but I was applying my interpretations over their compositions.
Chapter IV

Context and Findings

The purpose of this research was to examine how fourth grade students negotiated musical meaning in a mixed language learning environment during an after-school composition class. To better understand the influence of the children's lives on their composition work and communication, this chapter is divided into two sections. The first section introduces the composition class including the school community, the first week of class, group selections, and exemplars of communication patterns during composition experiences. The second section includes key findings that are grouped into six overarching themes that capture the experiences of the Redwood Elementary Music Class.

Welcome to Redwood

Redwood School is on the far west side of Hermano City. Most of the newer housing developments are found to the north and east, and a large shopping area is in the south. The central area of town has a large public park, city hall, boutique shops, and restaurants. Just west of the center of town is the university, with old brick buildings flanking a creek and students walking under mature trees on the way to class. As I continue driving west, the neighborhood transitions to small rental houses, and then becomes more industrial with several warehouses and car repair shops. The neighborhood around the school lies further west over the railroad tracks. Within two blocks of the school, there are a number of businesses, including a Burger King, a Mexican restaurant, a coffee shop, a dance studio, several apartment complexes, a tattoo shop, a day care, a liquor store, a Mexican food truck, two tobacco shops, a laundromat, and a motorcycle repair shop.
As I drive up, I see the school itself sits on a quiet tree lined street. The original school building, almost sixty years old, is U shaped. The office and cafeteria make the bottom rung of the U and the sides are comprised of classrooms. The bottom of the U is the only section of the school campus that has indoor rooms and an indoor hallway. The rest of the classrooms open directly outdoors, although the entire school grounds are fenced in. I walk into the only open entrance, the cafeteria, and say hello to the after school program workers. One person always monitors the entrance. When a parent arrives to pick up their child, they enter the cafeteria and give their name at the staffed table. The worker announces the child's name on the walkie-talkie. Whichever class has the student sends them to the main building and reports that they are on their way in the walkie-talkie.

Sitting in the cafeteria are several children working at the tables as part of homework club. Children are allotted 60-90 minutes each afternoon for homework as needed before continuing to other activities. However, if children are falling behind in their classwork, they are supposed to attend homework club instead of other activities. Once a child finishes their work, they are released to continue on to their other activities. Throughout the year, several students needed to attend homework club and missed part of our music class, or left homework club early to attend class. I was not given a current list of students at homework club each day, so students were occasionally unexpectedly called to homework club. The question of whether or not a student was supposed to attend music class or homework club was a frequent topic of conversation in our class and source of disagreements and tension among students.

As I leave the cafeteria and walk further in to the building, I can see the school garden through the windows in the center of the U shape. I stop in the after school program
office to pick up a walkie-talkie. I return it at the end of each day to charge. The after school program coordinator is on maternity leave, and the office is a bit chaotic. The assistant director has been working at the after school program for several years and is covering for the maternity leave. The transition has been mostly smooth for the students, although paperwork is constantly getting piled up and misplaced. As I walk into the office, one person is digging through piles of paper in search of the weekly schedule while another is talking with a student about the choices he just made on the playground. A third person is answering the phone and looking for the master keys. I dig through the tangled pile of walkie-talkies and chargers, until finally the fourth one I find is working and fully charged. I wave at everyone and head out the door of the building.

As I walk, I pass under a covered walkway. Several other buildings and trailers on the campus are connected by the walkways, some covered, some open to the sky. The buildings include more classrooms, bathrooms, and a library. Each walkway is named, and “street signs” are posted at walkway intersections. The walkway names are character traits or school related words in either Spanish or English. For example, Valor Street, Calle de la Paz, Raccoon Road (the school mascot is a raccoon). One of the walkways opens up to a large paved area with a painted map of the United States and other assorted designs. There are several playground structures on a woodchip base scattered around the buildings, and a large grassy field behind the school.

The room that our class meets in serves as a literacy intervention room during the school day. It is in a trailer on the edge of the school campus, and the trailer is split in half between our room and the room next door. Our room is smaller than a typical classroom. There are two long tables and one short table with twelve chairs set up in a U shape. A table
and several chairs sit along one wall with three older desktop computer monitors on top and the corresponding CPUs under the table. A teacher’s desk, two teacher chairs, and a filing cabinet complete the rest of the furniture. The furniture fills the room, allowing just enough space for an aisle around the tables.

The room has shelves across two walls which are filled with books and binders labeled with student names. The children explain that the binders track their literacy work, and they frequently walk around looking at names of their classmates. The last wall features a large white board. I write class assignments and other discussion points on the board throughout class. Additionally, the compositions are projected on the white board so students can follow along with the GarageBand piano scroll view.

There is one large window over a sink and countertop. The sink features a water fountain, which the students use freely throughout class. The sink is also used to create water sounds for recordings. The window looks out onto the ramp to the door and playground. Outside sounds are quite audible in the trailer, particularly children screaming on the playground, lawn mowers, and trains on the nearby tracks. These sounds can be useful for recordings, but can also be a distraction.

The students walk to the trailer after homework time, and walk back to the main building after class. Since the students need to walk out in the open on their way to and from the trailer, rainy weather is often a topic of conversation and concern. The area directly outside the door includes a ramp connecting to the other half of the trailer. Children are allowed to record sounds outside as long as they stay within sight of the large window in the wall or the small window in the door, and stay on the ramp. The ramp is often used for recording stomping and running sounds.
The classroom is isolated from the main building on the south edge of the school campus. The walkie-talkies are used for communication between the main building and the outer buildings because the trailers do not have a PA system linked to the rest of the school. Walkie-talkies are used for general communication among the teachers. For example, when a storm was building the director of the program cancelled the outdoor activities and called all the students and teachers inside. Another time a dog was loose in the field and teachers radioed the warning to the next group. There were also times when the radio was used for bonding among the teachers and staff, such as when they were debating on a group Halloween costume idea or reading funny poetry in Spanish.

The banter resulted in a very active walkie-talkie. Teachers were required to have them on at all times in case of an emergency, but there was so much talking that it often interfered with class discussions and recordings. There was also a shortage of walkie-talkies, and the one I was given to use was often broken or barely charged. When it was not working, or I missed the call due to the noise of the classroom, the program director would send other students or staff workers to the classroom to report the message. I felt embarrassed that I missed the call and was an inconvenience to other staff members. In the forty-five minutes of class, it was common to hear the walkie-talkie every two to three minutes and have several students leave to go home. The distractions became very frustrating to all of us as the sound interfered with composing and editing. This source of conflict manifested as students (and sometimes I as well) yelled at the walkie-talkie when it made loud noises during recording and editing sessions.

Part of the reason the walkie-talkie was so active was that the after school program staff changed daily and needed updated information. The after school program was staffed
by a mixture of teachers, community members, and counselors, many of whom came in to
teach a single class once or twice a week. The majority of the students enrolled in the
school also attended the after school program. The children were split into different groups
by age and activities in the after school program. The groups were labeled with color
names, and the children in the composition class were all from the yellow group.

Our First Week

The Sunday evening before the first class, I broke my ankle. Thus, on the first day of
class Monday afternoon, I walked in with crutches and a huge air cast, and the students
were very curious about what happened. We began class by sitting on the floor and I
introduced myself and shared the story of my broken ankle. I told everyone to make up an
exciting story for how I broke my ankle since my story was too boring (I stepped in a hole).
Then everyone shared his or her story with the class. Students created great stories that
were filled with adventure or made everyone laugh. For example, in one story I rescued a
baby from a volcano with my helicopter but at the last minute caught my foot on a rock. In
another, I foiled a robbery by pushing my cart into the robbers but then slipped on the
cereal that had spilled. After everyone shared their stories, I told the students to create
groups of two or three people. Once in groups, they chose one of their stories and acted it
out for the class with sound effects. We talked about some of the different sounds that were
common in the stories.

While the students were engaged in the class activities, there was a violent
rainstorm that day which kept drawing the students’ attention. Towards the end of class,
the power went out, adding to the excitement. We talked about safety and remaining calm
and continued with our adventure stories. The storm was especially exciting because the
weather was generally mild in this region. At one point in the study I asked the students if class was ever cancelled for weather, like fog or snow days. The students said no. One student, Lita, asked what a snow day was, and another, Katelynn, answered, “It’s when your school is so flooded with snow” (2-10). The intensity of the rainstorm the first day was novel and very exciting. I later discovered the power outage deleted the entire video recording from the first day. We ended class with everyone sharing the name of a song they liked or that would work in their story next time.

Our next class on Wednesday afternoon met in the computer lab. I chose the computer lab because we were working with the iPads for the first time and I wanted to project my iPad’s screen for demonstration. Students entered the class and were asked to create small groups of 2-3 again, with the understanding that these groups would last for the rest of the year. Each group was assigned an iPad. They were asked to choose a name for their group and write it in the notes application of the iPad. Students grouped themselves together as follows: These Moms, FIFA Heroes, Sassy Girls, and Redwood Rockstars ICK.

I watched the students attempt to write in the notes app, my first glimpse into the technological experience of my students. They struggled to unlock the iPad and only two students were familiar with the notes app. I demonstrated the steps on the projected screen. Students followed my steps, then struggled to write down the names they had chosen. They were very concerned with spelling. One group, These Moms, asked if they could use emoticons instead of writing their name. I told them they could use emoticons after they wrote, as long as the emoticons were appropriate. They assured me they would
not use the poop or gun emoji, even though other students had used them in previous notes on the iPads. Their chosen emoticons were various smiley faces.

After the groups finished writing their names, I asked them to chat about music within their group. For example, share the name of their favorite song, or instruments they might want to learn. I ended class with a demonstration of GarageBand by creating a new song with sound effects about my ankle story in preparation for the class next week. We spent several more classes recording and manipulating sounds based on the ankle stories in an effort to familiarize the students with the technology, work within groups, and practice sharing and editing work. After the first few classes, each group consistently used the same iPad so they were able to extend their projects over several classes.

**Student Groups**

Students were asked to create small groups of 2-3 students on Wednesday. The groups were instructed to create names for their groups the next class period (see Table 4.01). Students remained within their chosen groups for the remainder of the study. I observed interesting combinations as they self selected by gender and language learning status. Groups were homogeneously stratified by gender, and the female groups separated into NES and ELL as well. The male groups included one heterogeneous language group and one homogeneous language group.

**These Moms** This group contained Jorge and Chico, both male ELLs. When they requested their group name, they were laughing and whispering together. Translated into Spanish, “These Moms” can be interpreted in a variety of ways depending on geographical region and conversational context. Thus, it is not possible to state the intended
connotation. Due to their laughing, I assumed it meant something funny or mildly inappropriate, but I let it stand since it had multiple interpretations.

Table 4.01

<table>
<thead>
<tr>
<th>Student Groups</th>
<th>These Moms</th>
<th>FIFA Heroes</th>
<th>Sassy Girls</th>
<th>Redwood Rockstars ICK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jorge, ELL, male</td>
<td>Miles, NES, male</td>
<td>Lita, ELL, female</td>
<td>Caroline, NES, female</td>
<td></td>
</tr>
<tr>
<td>Chico, ELL, male</td>
<td>Domingo, ELL, male</td>
<td>Galenia, ELL, female</td>
<td>Katelynn, NES, female</td>
<td></td>
</tr>
</tbody>
</table>

Maria, ELL, female Ivy, NES, female

Jorge was the leader of the two students in this group. He was often the first student in the class to offer an opinion on music, and often volunteered answers to questions and danced to music during editing session. He started using the iPad immediately upon entering the class, and demonstrated technological fluency greater than many of the students. Jorge frequently offered to help other groups and me with technical questions. For example, the second day of class he fixed broken speakers for me, and a few classes later he showed another group how to create different sounds on the piano. He was frequently energetic in class and moved around the room, even choosing to clean the sinks when his partner was editing their composition. When his partner was absent during the book project, Jorge completed much of the project on his own. He was tasked with creating sounds that matched the action in his book. He recorded himself running up and down a ramp, washing his hands, slamming drawers, and crinkling curtains for sound effects. He helped other groups as they recorded as well, both with adding sounds such as jumping up
and down, and giving advice, such as suggestions for creating sounds and recording tips. Jorge preferred to sit next to me each class. He often asked me questions about my family and talked about the food his father cooked. Linguistically, Jorge was still developing English fluency, and would often converse with his partner in Spanish. In one situation, Jorge volunteered to read a section of a book out loud but stumbled over the word “thought” and stopped reading. He later asked if the book was an advanced reading level. He was extremely nervous during class editing sessions and frequently stated that his partner composed the work. He also called his partner the feminine form of his name, Chica, whenever they disagreed about their compositions.

Chico, the second member of These Moms, deferred to Jorge for many of the compositions. However, when Jorge was gone, Chico worked diligently on his projects. He favored percussion sounds and started a conversation about the nature of music during class. Chico had difficulty finding a constructive way to frame his criticism of other groups. He often started his criticism with a negative comment. When he was asked to create music that sounded like home, he created a loud percussive track. He said, “It’s not music, it’s annoying… it’s supposed to be as annoying as my brother is” (3-9). He was also reticent for speaking and sharing in class and rarely demonstrated enthusiasm for editing. He enjoyed exploring loops and recording sounds during project work time.

**FIFA Heroes** was the next group. Miles and Domingo were two boys were both on a competitive soccer team that played in the regional finals in the winter. Their name was a direct reference to the Fédération Internationale de Football Association. This was the only group with a mix of ELLs and NESs. Originally, Domingo tried to join These Moms and Miles was without a group, but I said that there needed to be at least two students per group.
Domingo then joined with Miles. They spent most of their time talking about soccer and drum styles.

Miles was a NES, and was the boy originally left out of a group before I made the boys reform into two groups of two students. Miles was very outgoing and frequently interrupted another student to share his opinion. He often recorded a drumbeat or played a percussive loop and turned the volume up in the middle of class. Once everyone laughed and commented he would turn the volume back down. He enjoyed dancing and moving to other students’ compositions. Miles was not familiar with the GarageBand application in the beginning of the class. Early in the study, he did not know the difference between the play and record button, and needed instructions for basic features of the iPad. However, by the sixth class, Miles had discovered how to add more measures to a composition within the application, and shared his discovery with the class. “How many bars?...I’m going to go to 500!” (12-2) For subsequent compositions, he created a new song and immediately added several hundred measures, usually filled with a percussive loop. Miles spent a significant amount of time each class exploring the different loops and sounds. One day in class he was exploring the guitar options and said, “Hey look, this is how Southeast Asians listen to their guitar!” (12-2). When sharing the FIFA Heroes composition with the class, Miles frequently claimed his partner created the song, until someone complemented the music. Then he claimed that he created that section of the music. He was very interested in old comedy movies as well, frequently referencing Adam Sandler in class.
<table>
<thead>
<tr>
<th><strong>Table 4.02</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participant Music Preferences</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>What style of music or song would you like to write?</th>
<th>Have you taken music or dance lessons?</th>
<th>What kind of music do you hear most around your home?</th>
<th>What artists do you hear the most?</th>
<th>Siblings?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jorge</td>
<td>I’m Different by 2 chainz</td>
<td>Ukelele for 2 months at after school program</td>
<td>Rap</td>
<td>Bruno Mars, Michael Jackson, Skrillex</td>
<td>Y</td>
</tr>
<tr>
<td>Chico</td>
<td>Smooth Criminal by Michael Jackson</td>
<td>1 drum lesson</td>
<td>Rap, hip hop, electronic</td>
<td>Justin Bieber</td>
<td>Y</td>
</tr>
<tr>
<td>Miles Domingo</td>
<td>pop</td>
<td>No</td>
<td>Hip hop</td>
<td>Selena Gomez, Ariana Grande, Becky G, Pedro Hernandez</td>
<td>Y</td>
</tr>
<tr>
<td>Lita Galenia</td>
<td>commercial jingles</td>
<td>Baile folklórico for 1 year</td>
<td>Becky G</td>
<td>Jenni Rivera</td>
<td>Y</td>
</tr>
<tr>
<td>Maria</td>
<td>15 or 22 by Taylor Swift or Shake it Off or Roar by Katy Perry</td>
<td>Dance class for a few classes at after school program</td>
<td>Rap</td>
<td>Megan Trainor</td>
<td>Y</td>
</tr>
<tr>
<td>Caroline</td>
<td>Piano for 4 years, ballet for 1 year, Irish dance for 2 years</td>
<td>Piano for 4 years, ballet for 1 year, Irish dance for 2 years</td>
<td>Old pop on the record player, Taylor Swift and Selena Gomez</td>
<td>Disney Channel, Taylor Swift, Katy Perry</td>
<td>N</td>
</tr>
<tr>
<td>Katelynn</td>
<td>Violin for 2 months, piano, ballet</td>
<td>Violin for 2 months, piano, ballet</td>
<td>Taylor Swift, Katy Perry</td>
<td>Bruno Mars</td>
<td>Y</td>
</tr>
<tr>
<td>Ivy</td>
<td>22 by Taylor Swift</td>
<td>Piano for 2 years, ballet for 7 years</td>
<td>Rap</td>
<td>Taylor Swift</td>
<td>Y</td>
</tr>
</tbody>
</table>
Domingo, an ELL, was also a soccer player in a competitive team. Domingo and Miles played on the same team and frequently discussed soccer games they had seen on television. Domingo spoke less in class than Miles, but had thoughtful critiques during the editing process. For example, Domingo suggested an instrument that sounded like shaking for music that was supposed to accompany a scared dog. Domingo worked cooperatively with other groups as students left for the day and group work shifted to cross group and full class work.

**Sassy Girls** included Lita, Galenia, and Maria, three female ELLs. The girls were very friendly with each other and often spoke in Spanish about their work. Sassy Girls planned their compositions before they began working, and generally followed their plans throughout. During their compositions, they used Rock/Paper/Scissors to solve their disagreements. During class editing time, this group giggled as they shared their work, and repeatedly stated that their work was not good.

Lita missed five classes after winter break because she was in Mexico visiting family. Lita often entered class late after finishing her work at homework club. Linguistically, Lita was still developing her English fluency, and often mixed Spanish and English while talking. For example, while acting out a scene, she said, "Come on, mi hija, come on!" (11-9). She suggested on one occasion that the students could use a strategy for help from their regular classroom. If they did not understand a word I used in class, they used a language tool in which they held their hands up in a W shape and the teacher would explain it further. Lita worked diligently on projects, especially when the rest of her group was absent. In one class she almost completed the entire book project, creating multiple sound effects and tracks in thirty minutes. When her group members were in attendance, she was often
distracted and worked less efficiently. She was the social leader of this group, and frequently queried her group members about boys and their social plans. Lita struggled with the iPad and GarageBand technology and needed frequent help from Jorge or Miles in the first few weeks. Gradually throughout the class she became more confident and needed less help. If other students interrupted her while she was talking, Lita would remind them that it was her turn to talk, as when she said, “It’s my turn now Katelynn,” and “I’ll wait for you to be quiet.” She frequently danced to loops that people were playing, usually with her hands up in the air and moving in circles while bouncing to the beat. She usually had a positive comment ready first, and spent extra time thinking about constructive criticism. Her comments were usually clear and manageable, and thus transactive. Lita was very interested in my family and my pregnancy (I was four months pregnant at the beginning of the study and full term by the end of the study). She asked questions about my older son and wanted to see pictures of him. She also touched my stomach and asked me questions about the baby during several classes. Lita asked me to send a picture of the baby once it was born, which I did.

Galenia rarely spoke in class, she actually spoke the least of any student in the project. She conversed actively with her group, asked me questions during work time, and would answer if I called on her, but otherwise did not share comments during class. She was often picked up from the program by her parents part way through class and did not finish working on projects. Galenia had creative ideas for sound construction and recording. For example, she suggested pencils when her group needed to create the sound of rubbing sticks to spark a fire. She was not content with merely rubbing them together, but suggested they try it a variety of ways to get the exact effect she wanted. Galenia was
also interested in my pregnancy and once everyone left for his or her next class asked me if I was scared to have a baby.

Maria, on the other hand, was very outspoken. She shared specific ideas with her group. Maria freely offered her comments and criticisms to other groups during the editing process. Her comments frequently revolved around pop culture, particularly movies. For example, she referenced the movie Pitch Perfect while describing how to start everyone in the group singing at the same time. Maria danced and moved to the other groups’ music while it was played. Maria was a competitive swimmer and described swim team practices to the group. She also traveled to Mexico over winter break and one of her cousins became very ill, and she started class one day describing her cousin’s surgery in detail. While she was listening to the song California Gurls, she expressed disappointment that it lauded girls from California. “Wait, what if you're from Mexico? That’s sad… But I live in California, so that counts” (2-22).

**Redwood Rockstars ICK** was a group comprised of three NES girls. Unlike the other groups, each member of this group had taken music or dance lessons for several years. However, this group struggled the most to complete projects. They were all friends, but each member had strong opinions. Their name was an amalgamation of their first initials (I-Ivy, C-Caroline, K-Katelynn), the school name, and rock stars. They spent much longer than any other group trying to create a plan that was equitable for composing, and then deleting and recreating when they were dissatisfied. For example, Redwood Rockstars ICK spent thirty minutes trying to record a “chomp” sound to accompany a description of eating in the book *The Very Hungry Caterpillar,* deleting several attempts and only moving on when prompted by the TR. This group did not fully complete any of their projects. Two
of the members were frequently absent, and one member attended class regularly, so Katelynn often composed and then Caroline and Ivy would delete her work and recreate it. The group also preferred creating their own sounds instead of using prerecorded loops.

Caroline was a very large presence in the room and was the leader of this group. She spoke first for most questions, interrupted other students, and frequently stood or moved to the front of the room when speaking. Caroline offered strong criticisms of other students’ work, and was very resistant and combative to hearing criticisms on her own work. For example, she said, “It’s offensive when you have to change something.” about a constructive comment, and then, “Thank you, that’s not offensive” to another student when they said they did not want her to change anything (12-16). Caroline was very interested in asking me questions, and asked to be interviewed first when I began student interviews. When she had completed her interview, she asked to do the exact same interview again. She fixed her hair, sat up straight in her chair, and answered the same answers but in the manner of a news anchor. At the end she said, “This is Caroline, on the… station. See you next Wednesday” (1-11). She was physically affectionate with her friends and often gave them hugs. However, she would also push them out of their chair if she wanted to sit in the same spot. Caroline missed several class days and was upset that the class had moved on to a new project.

Katelynn attended class regularly, and was often the only member of her group in attendance. Katelynn had dance and music experience, and often used gestures and body movements to clarify her comments during group editing time. She also used movies to describe her comments, such as Jaws and Billy Madison. Katelynn was frustrated with her group’s inability to complete projects, and stated, “I kind of like working by myself, because
then there’s like no arguments” (12-16). She composed using the grand piano option in the application most often.

Ivy only attended half of the classes in the study. She went to ballet every Wednesday, and frequently talked about her ballet recitals. She expressed disappointment when she missed the class editing time, and stayed after class one day to play her composition for me and receive feedback. During a class discussion on volume, Ivy told the class about sound torture at the Guantanamo prison. In another class, I used a five pointed star to demonstrate theme and variations, and Ivy called it a Jewish star. Ivy frequently disagreed with Caroline and wanted to move onto the next section for recording. She also noted the amount of time each of her group members spent on the iPad and asked to rotate when it was time in order to be equitable.

Although each of the four groups worked together on projects, they spent the majority of time working individually or in groups with other class members due to the variable attendance. The dynamics of each group changed as the group leaders; Jorge, Miles, Lita, and Caroline, left the class. The changing attendance created opportunities for cross group interaction and leadership roles for the rest of the students, as well as conflicts and tensions within and across groups as the room dynamics changed.

**Communication During Composition Experiences**

The general focus during class was to create music. Each project spanned several classes in which students worked on their compositions. In this selection, the group Sassy Girls identified and recorded sounds to accompany their book, *The Bear Snores On*. Over the course of twenty-seven minutes, they record two sounds for their book. However, within
that time they negotiate sounds through discussion, encounter technical difficulties, seek help from the teacher, and observe another group’s recording.

After a brief class discussion about the new project, Lita, Maria, and Galenia go over to the books and flip through the pages. They choose *The Bear Snores On* in English, pick up their iPad, and bring the iPad and book to the table. Next, they negotiate who should be the first iPad “driver” who gets to hold the iPad and hit record. Maria made a suggestion of a compromise first, “How about one person records the sound and one person reads?” Further discussion ensues, and ultimately the group does rock, paper, scissors to decide who reads and who holds the iPad. Maria assigns future pages in the book, “One page, one page, one page.” The group disagrees over where to start with the project. Lita suggests that they skip reading the story now and just start recording the first page since they will be reading as they record, “How about this, let’s not read it because we’re going to be reading.”

After four minutes of discussion, the Sassy Girls practice their snoring sounds for the bear. Galenia speaks to the TR, “Um, we’re going to record the first two pages and make sounds, then do the next two, and then the next, ok?” I agree and moves to observe the next group. Galenia chooses Maria to record the snoring because she is the best snorer, but Lita objects. Maria tries a compromise, “How about we both do it together?” Lita agrees by saying, “That’s what I said!”

At this point, technical issues ensue for two minutes. The recording caught the metronome sound and ambient noise from other groups. Galenia and Lita begin to argue over the recording. Maria starts singing “Castle on a Cloud” from *Les Miserables* while they argue. Jorge comes over to give advice on the snoring sound. He suggests using one of the filters over the voice recording, “Use the chipmunk one.” Lita acknowledges Jorge’s idea by
saying, “good idea.” The group is not satisfied with the chipmunk sound, but keeps exploring the other filter options. Maria makes a suggestion, “Try the monster.” All three girls enthusiastically agree with the monster effect. Maria helps Lita apply the filter and loop the recording for the rest of the story. She uses the everyday language applied to the iPad that is used in the class, “Brick wall, put the brick wall, push the one in the middle.”

At this point eleven minutes have passed since they began their project. Galenia and Lita notice the camera and make a series of funny faces into it. Maria tries to get their attention, “Ok guys, let’s read our next bit.” Lita asks me if they can record outside to avoid recording the ambient noise from other groups, “Can we go outside now?”

The Sassy Girls take the iPad outside to record sounds without interference from other groups. As they are leaving, they argue about whether or not they need their book with them to record. Caroline hears their argument and brings the book outside as a kind gesture. After three minutes the group returns inside. They discuss their next step. Maria begins by saying, “So, um, we’re doing drink.” Lita disagrees and offers another suggestion, “How about we vote what to do.” The group votes and decides to record the stick sound next. They walk to the door to go find sticks in the playground, but I tell them they need to find an object in the classroom to make the sound instead of collecting sticks from the lawn. Lita suggests using pencils as a substitute for sticks. The group discusses how to make sound that is loud enough from the pencils, and how it fits in the recording. Galenia states, “Each do it lightly, because he snored on.” Lita counters that it needs to be loud enough to hear over the other recording, “We’re going to put the snoring together.” Maria clarifies that she has removed the other sound from consideration, “I muted this, so we can do another one.” The group leaves the room to record stick sound with the pencils.
The group returns. At this point nineteen minutes have passed since they began their project. As they enter the room, Jorge is recording a water sound and running the water in the sink. Lita admonishes him, “That’s a waste of water.” After two minutes of watching Jorge, Maria discovers that their recordings have been deleted, “Uh oh, where’s our thing?” Galenia suggests they re-record their sounds, “Ok guys, let’s do it again, we’ll be outside.” As they walk toward the door, Maria’s name is called over the walkie-talkie. Her parents have arrived to pick her up for the day. After she leaves, Galenia and Lita review the sounds they have. Jorge walks by and hears their snoring, “That sounds good.” Lita and Galenia want to record the snoring again, but they want Maria for the snoring sound and she has left. Lita laments, “But we don’t have anyone who snores good.” They re-record both sounds even though Maria is missing. As they leave for the day and return their iPad, Lita states, “So we got the snoring and the pencil”.

This was a typical representation of composing for the Sassy Girls. Over the course of twenty-seven minutes, the group members only composed two sounds; snoring and sticks rubbing together. However, much more was actually accomplished (see Appendix I). The group first established a system of fairly deciding the roles for reading and making sounds. This equitable inclusive action was reflected through the activity as they tried to honor each opinion and vote on their differences. They chunked their next task into smaller portions. The group encountered technical challenges multiple times, and applied technical help from Maria, Jorge, and the teacher to resolve issues. They were distracted only a few times by the video camera and Jorge’s water use. Their disagreements were brief and the tension quickly dissipated through the tool of collaboration, as when Lita suggested they
work together. Comments were often transactional, but it did take time to establish roles and agree on procedure.

Beyond procedural communication, the original intention of the study was to determine how students were using music vocabulary, particularly students who were also ELLs. However, there were very few instances where students used music vocabulary during the study. Most music specific discourse during class was comprised of vernacular language. Thus, students were using language hybridity by applying home language to classroom concepts.

An example of the language used is shown in Table 4.03. For this assignment, each group was given a worksheet in which they needed to list five emotions that Pedro the Puppy might experience (see Appendix E). They then composed a short melody or chose a prerecorded loop to represent each emotion. Students were asked to write down descriptions of their music.

As evidenced in Table 4.03, each group chose some variation of Joy (lavender), Sadness (cornflower), and Fear (goldenrod) within their five emotions. The descriptions in the table include the spellings as written. Interestingly, although each group included descriptions of their emotions, the Redwood Rockstars ICK group assigned a name to each emotion. That student was responsible for composing the music, and then they were supposed to pass the iPad to the next student. Their process took longer than the other groups and they did not finish choosing music or describing it. As often occurred, their focus on equality delayed their project and left unfinished work, despite having more musical training than any other group (see Table 4.02).
### Table 4.03

**Pedro the Puppy Emotions and Descriptions**

<table>
<thead>
<tr>
<th>These Moms</th>
<th>Musical Description</th>
<th>FIFA Heroes</th>
<th>Musical Description</th>
<th>Sassy Girls</th>
<th>Musical Description</th>
<th>ICK Redwood Rockstars</th>
<th>Musical Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excitement (excitement)</td>
<td>Cool</td>
<td>Happy</td>
<td>Lots of singing</td>
<td>Sad</td>
<td>slow and lowed (loud)</td>
<td>Happy-Katelynn</td>
<td>The first one sounded happy and</td>
</tr>
<tr>
<td>Anger</td>
<td>Www</td>
<td>Scared</td>
<td>Is afraid</td>
<td>fear</td>
<td>a drum in the jungle</td>
<td>Alert- Ivy</td>
<td>The second one sounded long and sad.</td>
</tr>
<tr>
<td>Fear</td>
<td>Fiar (Fear)</td>
<td>Exit</td>
<td>rock and roll music</td>
<td>in love</td>
<td>dark and quiet</td>
<td>Scared-Katelynn</td>
<td>Short, high-pitched</td>
</tr>
<tr>
<td>Sadness</td>
<td>Angr (Anger)</td>
<td>in love</td>
<td>marag (marriage) music</td>
<td>happy</td>
<td>the piano very lowed (loud) and slow</td>
<td>Sad- Ivy</td>
<td></td>
</tr>
<tr>
<td>Joy</td>
<td>Awesome-cuayet then laud (quiet then loud)</td>
<td>heartbroken</td>
<td>Heart Attack</td>
<td>angry</td>
<td>the piano and something very lowed (loud) and so fast</td>
<td>Confused-Katelynn</td>
<td></td>
</tr>
</tbody>
</table>
The written descriptions included a few musical AL terms (singing, drum, piano, pitch), musical vernacular terms (quiet, loud, slow, fast, short), references (rock and roll music, marriage music), and general terms (dark, cool, exciting, awesome).

Similarly, students struggled to name a percussion instrument to match a shaking sound (see Table 4.04). An interesting point about this conversation is that it included students from two different groups: Miles from FIFA Heroes and Jorge from These Moms. Conversations and support occasionally spanned multiple groups, especially as attendance fluctuated and limited groups.

Table 4.04

<table>
<thead>
<tr>
<th>Instrument Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>TR</td>
</tr>
<tr>
<td>Jorge</td>
</tr>
<tr>
<td>Miles</td>
</tr>
<tr>
<td>TR</td>
</tr>
<tr>
<td>Miles</td>
</tr>
<tr>
<td>TR</td>
</tr>
<tr>
<td>Domingo</td>
</tr>
<tr>
<td>Miles</td>
</tr>
<tr>
<td>TR</td>
</tr>
<tr>
<td>Miles</td>
</tr>
<tr>
<td>TR</td>
</tr>
</tbody>
</table>

In this example, I am directing the question at Miles but two other students offer help as well. Jorge references an earthquake, a shared cultural reference point for all the students (the school is in California). Domingo offers the suggestion of shakers. Miles tries to sing what he wants with three different sounds, duh nuh nuh, shshshsh, and blblblbl. He
also names a tambourine and maracas. In the end, he is mostly unsatisfied and unable to communicate exactly what he wants, but settles for my suggestion.

The students were limited in their ability to create descriptions from AL and enacted other mediating tools in order to communicate their intentions and negotiate musical meaning as a group.

**Findings: Six Overarching Themes**

As I observed the class and then subsequently analyzed the data, commonalities emerged in each class. The findings are based on these common themes. The major themes include: 1) Students communicate musical ideas physically when they lack the corresponding verbal lexicon, 2) Students use shared popular culture to describe music, 3) Work attribution of musical products changes with time, 4) Students cyclically assume and release control of the locus of attention during composition experiences, 5) Students struggle with accepting musical interpretations of others that differ from their own, and 6) Students use technical tools to mediate peer assistance when composing. Exemplary examples of each finding are included and discussed.

**Students communicate musical ideas physically when they lack the corresponding verbal lexicon.** As previously stated, few of the students had any formal music training (see Table 4.02). When speaking about music, the students rarely used musical AL. When they were trying to share ideas but having difficulty expressing themselves, they often added physical movements to their speech, using gestures as a communication tool within the activity system. Their embodied active gestures then transmitted the musical concepts to their group members.
For example, the group members of Redwood Rockstars ICK were creating a sound for their book project. They were trying to depict the sunrise in *The Very Hungry Caterpillar* by Eric Carle. Caroline composed a selection on the grand piano, but her group members asked how the sound represented the sunrise. In fact, Katelynn danced to the music in a jerky, disjointed fashion, like a marionette instead of a sunrise. Caroline insisted it was a sunrise, but her group members were still in disagreement about the connection between the music and story. Caroline walked to the front of the room and sang her selection while demonstrating a sunrise with her arms. The motif is in green, shown in the full GarageBand view in Figure 4.01 and then the isolated motif in Figure 4.02. The pitches ascend, with accented lower notes played on the strong beats (see Appendix I).

First, Caroline walked to the front of the room away from her group (see Figure 4.03a). Although this was presumably to have more space to gesture, choosing to be in the front of the room was also in accordance with Caroline’s role as a group leader. Caroline then paused with her arms horizontal to the floor and fingertips touching chest high, in a self made ready position. She looked at her classmates, then looked down, a nonrepresentational action that commanded attention (see Figure 4.03b).

Then she sang the song while moving her arms up and out incrementally with the music (see Figure 4.03c), representing the object of the sunrise. She ended with a final swoop of the arms out and open with the downward glissando in the music (see Figure 4.03d). Caroline then repeated the singing and the accompanied action, this time at a faster tempo and moving more fluidly.
Figure 4.01. *GarageBand Sunrise Full View*

Figure 4.02. *GarageBand Sunrise Motif*

Figure 4.03. *Gesture Sunrise*
She returned to the group, they discussed the music, and ultimately they kept the motif in their final project. She was unable to articulate how the accents in the music formed an ascending melodic line that represented the sun rising higher in the sky, culminating in a brilliant show of light. However, she was able to communicate her intentions with her gestures.

Another example of gestures as a mediating tool for communication occurred during the introduction to the movie project. Students were assigned with creating five short selections that demonstrated five emotions; happy, sad, angry, scared, excited. Once the compositions were completed, other groups guessed which emotion was which by listening to the music. In this selection, the Sassy Girls were playing their anger music. Their music was a repetitive electric bass part with strong accents, shown on the third line in blue (see Figure 4.04) (see Appendix I).

While the selection was played, Domingo danced, flinging his arms up and down with the accented beats (see Figure 4.05a). When other groups heard the music, they guessed a variety of answers. Maria interrupted their guesses and demonstrated the emotion. She stood with her head down, a frown on her face, and her elbows out. Then she walked quickly with large stomping steps, swinging her arms and making space with her elbows (see Figure 4.05b).

Her classmates immediately guessed the emotion anger after her demonstration of the abstract concept. Miles then copied her action while yelling, “I’m angry!” after the discussion (see Figure 4.05c).
Figure 4.04. *GarageBand Anger*

Figure 4.05. *Gesture Anger*
Instead of describing how the music sounded low with strong accents, Maria showed the accents with her stomping and sharp body angles. The strong accents were already apparent to Domingo as demonstrated by his arm movements, but the sharp body angles and lowered head marked the sounds as angry instead of merely accented. Maria’s physical embodiment of the music transmitted her intentions to the class, despite a lack of musical knowledge or AL.

In addition to gestures, students also moved physically to music by dancing. Each class students danced as they listened to loops, created drumbeats, and reviewed compositions. Their dancing ranged from tapping their fingers to full body dance moves, both alone and with their classmates (see Figure 4.06). In this figure, Lita and Katelynn are dancing to music that Domingo has chosen. Note how they are reflecting each other’s actions as they dance, with their arms up and fingers splayed while they sway their hips back and forth.

Although the dancing was usually not part of the discussion, it did serve to show music preferences to group and peer members. Occasionally dancing was used as a reference in the composition process, particularly if a student was struggling to describe how to edit a group’s work.

For example, in this selection, Maria tried to tell a group that their music sounded like a certain style. She stood and put her hand straight out, jutted out her hip, and swayed her head back and forth (see Figure 4.07).
She repeated this action four times while saying that their music sounded like “this”, a reference to her dancing. Several students mimicked her actions and danced with her on the third and fourth demonstration. However, in this case the group Maria was trying to help seemed confused about her suggestion and she ended up dropping her suggestion by the end of the movements. Dancing, in this example, was not an effective communication tool for Maria’s suggestions, but it was an effective tool for sharing her movements.

**Students use shared popular culture to describe music.** In addition to gestures, students used their knowledge of popular culture as a reference when describing music. The popular culture examples served as mediating tools to transmit ideas between students. It also served to strengthen the community within the classroom by making connections of similar experiences and interests between students.
One of many examples, Katelynn offers an editing suggestion that she describes using a movie reference. Miles and Domingo were assigned with creating music to accompany part of the class movie. Their assignment was the scene in which Pedro the puppy was frightened by a fire truck (see Appendix E). The music included a cacophonous multi-track section, which reduced to a single tambourine. The multi-track section consists of Cinematic String Orchestra, Hip Hop Drum Machine, Roots Rock Guitar, and Choir. The tambourine is the second blue track on the bottom, labeled Audio Recorder (see Figure 4.08)(see Appendix I).

Katelynn then stood and shared a suggestion for a change to one of the tracks. She suggested the minor 2nd theme from Jaws as music to scare the dog in the siren instead of the choir loop. However, Katelynn did not have the name for the Jaws motif and used gestures and singing to communicate her idea (see Table 4.05).
**Table 4.05**

<table>
<thead>
<tr>
<th>Name</th>
<th>Transcription</th>
<th>Discourse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katelynn</td>
<td>But I also have an idea what they could change the bottom to</td>
<td>P</td>
</tr>
<tr>
<td>TR</td>
<td>OK (walkie talkie)</td>
<td></td>
</tr>
<tr>
<td>Katelynn</td>
<td>Like, like, don’t laugh at me. Duh nuh, like, like something like that</td>
<td>P</td>
</tr>
<tr>
<td>TR</td>
<td>Like, like the shark Jaws sound?</td>
<td></td>
</tr>
<tr>
<td>Katelynn</td>
<td>Yeah</td>
<td>A</td>
</tr>
</tbody>
</table>

In this transcription, Katelynn offers a proposed idea. She first shares that she has an idea and then asks the class not to laugh at her. She finishes by using gestures and singing to state the idea.
Figure 4.09. Gesture Fire Truck

Her gestures connected to specific comments. “But I also have an idea” She first jumped up into a standing position with her right arm raised and finger pointing straight up to the ceiling (see Figure 4.09a). The position is an emphasized version of raising hands in a class setting. The less structured setting allowed her to jump with excitement and talk without repercussions. This is an example of a nonrepresentational gesture.

“...what they could change the bottom to” Next she swept her pointed finger back and forth while speaking about changing the bottom track (see Figure 4.09b). Her finger moved along the horizontal track on the screen, clarifying the section of the music and using the technology as a reference tool.

“Like, like” Katelynn turned her right hand over completely and turned the left hand slightly (it was still holding snacks). She bounced her hand and created an ictus in an almost even spacing between her two spoken words at about 84 bpm. Her hand was curled and the position and movement were reminiscent of playing a piano (see Figure 4.09c). Katelynn was one of the only students in the class who had taken piano lessons.
“...don’t laugh at me” Katelynn then swept her right hand across her body from left to right with palm out and fingers pointing up in a stop motion. The sweep ended in a small clockwise circle at her right side with another ictus for emphasis (see Figure 4.09d). This represents the abstract concept of distancing her from the potential ridicule of her classmates.

“Duh nuh, like, like something like that” Katelynn moved her right hand in an undulating pattern, representing waves while she sang the minor 2nd Jaws theme (see Figure 4.09e).

Katelynn’s gestures showed a mixture of emotions (excitement, apprehension, embarrassment) and musical accompaniment (piano, jaws motif). The emotions were used as part of the shifting of roles from group member to leader. The musical gestures helped Katelynn share her composition idea when she lacked the vocabulary to properly communicate with the group. However, the gestures would not have been an effective communication tool if the class had not shared her cultural knowledge of the connection between a minor second interval and waves in the water.

In the next example, the group FIFA Heroes shared the music for their five emotions. The music for the emotion excited included four different Apple loops played simultaneously, labeled in Figure 4.10 as Strings, Synths, Strings, and Synth Bass. Two groups referenced different shared cultural experiences in their descriptions of the music (see Appendix I).

Lita began and referenced the Frankenstein dance (see Table 4.06). Miles and Domingo agreed with the Frankenstein dance reference, indicating that it was a shared cultural experience.
Galenia added her own interpretation of the sound by describing the music first as loud and then spooky, demonstrating language hybridity by using her vernacular language and applying it to music concepts.

Inspired by the music and the arms straight out Frankenstein dance, Katelynn then referenced a scene from the movie Billy Madison in which Adam Sandler is stumbling around with his arms straight out, similar to Frankenstein. The movie was not as well known to the rest of the class as the dance, perhaps because the movie was over twenty years old. However, the other students recognized the actor Adam Sandler, and the crazy acting style was connected to the musical sound. Movies were frequently used as shared cultural references, particularly when the music expressed a particular emotion. Many of the references were more generic, such as walking “like a cool guy in a movie.” The tool of shared knowledge enabled students to quickly transmit an idea and translate it into music.

**Figure 4.10. GarageBand Billy Madison**

Galenia added her own interpretation of the sound by describing the music first as loud and then spooky, demonstrating language hybridity by using her vernacular language and applying it to music concepts.

Inspired by the music and the arms straight out Frankenstein dance, Katelynn then referenced a scene from the movie Billy Madison in which Adam Sandler is stumbling around with his arms straight out, similar to Frankenstein. The movie was not as well known to the rest of the class as the dance, perhaps because the movie was over twenty years old. However, the other students recognized the actor Adam Sandler, and the crazy acting style was connected to the musical sound. Movies were frequently used as shared cultural references, particularly when the music expressed a particular emotion. Many of the references were more generic, such as walking “like a cool guy in a movie.” The tool of shared knowledge enabled students to quickly transmit an idea and translate it into music.
### Table 4.06

**Transcription Billy Madison**

<table>
<thead>
<tr>
<th>Character</th>
<th>Dialogue</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lita</td>
<td>It reminds me of the Frankenstein dance.</td>
<td>F</td>
</tr>
<tr>
<td>Miles</td>
<td>Thank you! Frankenstein.</td>
<td>A</td>
</tr>
<tr>
<td>TR</td>
<td>What about it reminds you of Frankenstein?</td>
<td></td>
</tr>
<tr>
<td>Domingo</td>
<td>Oh, Frankenstein!</td>
<td>A</td>
</tr>
<tr>
<td>TR</td>
<td>So what about it reminds you of Frankenstein?</td>
<td></td>
</tr>
<tr>
<td>Katelynn</td>
<td>Oh, I do.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(assorted talking while music plays again)</td>
<td></td>
</tr>
<tr>
<td>TR</td>
<td>I’ll hear what you have to say but I want to hear what Lita has to say</td>
<td></td>
</tr>
<tr>
<td>Lita</td>
<td>The beginning of the dance move.</td>
<td>GDR</td>
</tr>
<tr>
<td>TR</td>
<td>Mm hmm. So like, the sound of it? The beats?</td>
<td>AS</td>
</tr>
<tr>
<td>Miles</td>
<td>Wiki wiki wiki</td>
<td></td>
</tr>
<tr>
<td>Lita</td>
<td>Yeah. Galenia go.</td>
<td></td>
</tr>
<tr>
<td>Galenia</td>
<td>It’s loud and it sounds spooky.</td>
<td>F</td>
</tr>
<tr>
<td>TR</td>
<td>It sounds spooky?</td>
<td></td>
</tr>
<tr>
<td>Lita</td>
<td>Yeah</td>
<td>A</td>
</tr>
<tr>
<td>Galenia</td>
<td>It sounds like exactly like a crazy movie</td>
<td>F</td>
</tr>
<tr>
<td>Lita</td>
<td>Yes, spooky.</td>
<td>A</td>
</tr>
<tr>
<td>Katelynn</td>
<td>It kind of sounds like Adam Sandler, like in the Billy Madison movie,</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>where he’s all like walking down like that.</td>
<td></td>
</tr>
<tr>
<td>Miles</td>
<td>You know, you know who Adam Sandler is?</td>
<td>CO</td>
</tr>
<tr>
<td>Maria</td>
<td>I know Adam Sandler</td>
<td>CO</td>
</tr>
<tr>
<td>Katelynn</td>
<td>Yes, he’s my favorite movie star, and he’s like, (moves arms), on the</td>
<td>GDR</td>
</tr>
<tr>
<td></td>
<td>cart thing.</td>
<td>I</td>
</tr>
<tr>
<td>Miles</td>
<td>Wait, on which movie?</td>
<td>GDQ</td>
</tr>
<tr>
<td>Katelynn</td>
<td>On Billy Madison, where he’s like chasing the penguin. Come here</td>
<td>GDR</td>
</tr>
<tr>
<td></td>
<td>penguin!</td>
<td></td>
</tr>
<tr>
<td>Miles</td>
<td>I’ve never seen that movie.</td>
<td>CO</td>
</tr>
<tr>
<td>TR</td>
<td>So it sounds like...</td>
<td></td>
</tr>
<tr>
<td>Katelynn</td>
<td>Because there’s music. Daaaaaaaaahhhhh.</td>
<td>GDS</td>
</tr>
<tr>
<td>TR</td>
<td>So it sounds like he’s going back and forth? Is that what you’re saying?</td>
<td></td>
</tr>
<tr>
<td>Katelynn</td>
<td>No like, it sounds like, like the movie where he’s going. He’s like, he’s</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>like crazy, saying come here penguin! (moving arms)</td>
<td></td>
</tr>
<tr>
<td>TR</td>
<td>So it sounds kind of crazy, kind of different?</td>
<td></td>
</tr>
<tr>
<td>Katelynn</td>
<td>Yeah</td>
<td>A</td>
</tr>
<tr>
<td>TR</td>
<td>OK, Alright.</td>
<td></td>
</tr>
<tr>
<td>Maria</td>
<td>Your face is so red.</td>
<td></td>
</tr>
</tbody>
</table>
Work attribution of musical products changes with time. The students were mostly new to thinking about music and how it might be manipulated. The act of sharing compositions for critique by the class was difficult for many of the students each time they shared. For example, Miles shared his group's book project sound for class sharing and editing. However, there was a technical difficulty in that sounds were recorded at the beginning of different tracks, and they overlapped (see Figure 4.11). He had been muting one track at a time, and had not heard all the tracks unmuted. Thus, when the music was shared unmuted, it sounded cacophonous. Miles reacted to the sound by falling on the floor in embarrassment and laughing (see Appendix I).

First, Miles stood at the front of the class, waiting for his music (see Figure 4.12a). When the music started playing he laughed and stepped backwards, literally distancing himself from the music (see Figure 4.12b).
He then twirled a candy cane for a few seconds while he stared at the screen playing the piano scroll (see Figure 4.12c). Finally, he laughed and fell to the ground (see Figure 4.12d). He stayed on the ground behind a table as the music finished playing (see Figure 4.12e).

Throughout this sequence, Miles kept repeating, “It’s terrible.” The surprise of the music led him to distance himself physically and mentally in order to preserve his perceived status in the community.

There were multiple instances of changes in work attribution of musical products during group editing. For example, Jorge frequently said the composition was created by his partner. He also called his partner Chico by the name Chica, feminizing his partner’s name and establishing dominance. If someone complimented part of their composition, Jorge would claim responsibility for that section. The pattern was repeated by each group. One member would present their work and blame others until it was praised.
Students cyclically assume and release control of the locus of attention during composition experiences. Perhaps related to the insecurity of the group and the general growth and insecurity inherent in being a fourth grader, students would alternate between actively seeking class attention and retreating back into the crowd. The exchange of roles from group member to leader and back again happened quite frequently and thus I will label it as a cultural norm. For example, Jorge played music loudly and danced to it, then returned to his work.

The TR was outside of the room talking to students and another teacher was at the desk in the corner. Jorge looked at the teacher in the corner for a moment (see Figure 4.13a). He then turned the volume up on his iPad and one student looked at him (see Figure 4.13b). He started swaying his head back and forth as if he was really engaged in the music, which was a comedic twangy guitar sound (see Figure 4.13c). Once everyone was laughing, he laughed and pulled physically back (see Figure 4.13d). Jorge then immediately lowered the volume and returned to his work (see Figure 4.13e).

Students struggle with accepting musical interpretations of others that differ from their own. Another finding is how students found it difficult to merge musical ideas from different people into one composition. Due to the frequent absences, students often began working on a piece that had already been started by another student. It was very common for the student to erase all previous work and start fresh. A common though disrespectful example, Lita sat down to revise a composition her group members had begun while she was absent. She said, “Hey, what did they do? I don’t agree.” (Lita 2-10) before she had heard it. In another class, Chico and Domingo are talking together and
laughing about how Miles and Jorge prefer a type of drum that they do not. They change it to their drum beat, then Miles and Jorge change it back next class.

Figure 4.13. Gesture Funny Sound
At times it was also difficult for students to accept the creative vision from another group. This was more common at the beginning of the study, when students were still adapting to giving and receiving feedback in a constructive manner. For example, These Moms were asked to give feedback to a jungle soundscape from Sassy Girls. Sassy Girls had accidentally recorded the metronome sound into their composition. Chico was very focused on the loud clicking sound and kept making the sound. Both Jorge and Chico gave negative comments until I tried to redirect them to sharing suggestions (see Table 4.07).

Table 4.07

<table>
<thead>
<tr>
<th>Transcription Negative Criticism</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TR</strong></td>
</tr>
<tr>
<td>Jorge</td>
</tr>
<tr>
<td><strong>TR</strong></td>
</tr>
<tr>
<td>Chico</td>
</tr>
<tr>
<td><strong>TR</strong></td>
</tr>
<tr>
<td>Chico</td>
</tr>
<tr>
<td><strong>TR</strong></td>
</tr>
<tr>
<td>Chico</td>
</tr>
<tr>
<td>Jorge</td>
</tr>
<tr>
<td><strong>TR</strong></td>
</tr>
<tr>
<td>Chico</td>
</tr>
<tr>
<td><strong>TR</strong></td>
</tr>
<tr>
<td>Maria</td>
</tr>
<tr>
<td>Lita</td>
</tr>
<tr>
<td>Maria</td>
</tr>
<tr>
<td>Galenia</td>
</tr>
<tr>
<td>Chico</td>
</tr>
<tr>
<td><strong>TR</strong></td>
</tr>
<tr>
<td>Jorge</td>
</tr>
<tr>
<td><strong>TR</strong></td>
</tr>
</tbody>
</table>
There are several comments here that are very critical. First, Jorge says he was still thinking, delivered in a manner with tone and body language that implied that he was unable to name one aspect of the composition that he liked. Then Chico replies that he would change everything about the composition. Chico then describes one of the sounds as weird and Jorge describes it as something dying. At this point Sassy Girls break in and start distancing themselves from the work, understandable after the feedback. The work attribution of musical products finding is clearly evident as well. Chico and Jorge both followed with reasonable suggestions, but it was clear that they did not appreciate the music.

Contrastingly, Redwood Rockstars ICK responded to the same jungle soundscape from Sassy Girls (see Table 4.08).

**Table 4.08**

<table>
<thead>
<tr>
<th>Transcription Constructive Criticism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ivy</td>
</tr>
<tr>
<td>Maria</td>
</tr>
<tr>
<td>Ivy</td>
</tr>
<tr>
<td>TR</td>
</tr>
<tr>
<td>Ivy</td>
</tr>
<tr>
<td>Maria</td>
</tr>
<tr>
<td>TR</td>
</tr>
<tr>
<td>Maria</td>
</tr>
<tr>
<td>Lita</td>
</tr>
<tr>
<td>Jorge</td>
</tr>
<tr>
<td>Lita</td>
</tr>
<tr>
<td>TR</td>
</tr>
<tr>
<td>Ivy</td>
</tr>
</tbody>
</table>

In this situation, Ivy opens with a positive comment without prompting. She follows with constructive comments where she mimics the sound to change instead of describing
The Sassy Girls state that the sound “wasn’t meant to be”, shifting blame away from the group instead of the previous example where they were shifting blame to each other. The group editing guideline of stating one positive comment followed by one thing to change became a rule in the activity system. This rule facilitated editing discussions by establishing a format for feedback that allowed for different musical interpretations but framed negative comments in a constructive manner.

**Students use technological tools to mediate peer assistance when composing.**

While group members did not tend to agree on compositions, class members were very helpful with iPad issues. Students frequently had questions about the GarageBand application, and their group members and other groups would offer help, even if it was for a sound they did not agree with.

The selection occurred when the group Sassy Girls had a question about recording a sound multiple times. At the beginning of class, the TR had demonstrated how to copy a sound and paste it on the same track. Lita and Galenia tried to create a snoring sound to accompany their book project (see Figure 4.14). The snoring sound returned throughout the book, and they wanted to use their recorded sound more than once. However, they were struggling with the task and asked for help from the TR. Jorge came over and gestured how the tracks would overlap and the sound would return.

First, Jorge told them they did not need to record a new snoring sound on a new track each time. He gestured with his hands facing palms out, fingers straight up in a stop shape, and motioned them side to side, representing the tracks within the application (see Figure 4.15a). Next, Jorge stretched his left arm up high and lowered his right down by his hip, palms facing in, to show a large vertical space (see Figure 4.15b). Jorge then held his
left hand, palm out, and swept his right in an arc over his left, to show how the snoring track would continue and the other sounds could pass over it. Finally, Jorge held both forearms together, palms in, and moved his arms horizontally (see Figure 4.15c). The horizontal movement demonstrated the snoring track and how it could extend through the music.

Jorge was demonstrating the tool physically, showing how the tracks moved in an effort to assist the next group. The iPad tool bonded the class closer together by blurring the lines between groups with shared technological issues.

The iPads also helped students focus their editing suggestions. The display enabled students to share specific comments and helpful tips, even when they might not have the AL normally required for editing a composition.

For example, Katelynn shared what she liked about the music and what she wanted to change. She was interested in changing a section that went up in pitch and sounded happy, because she felt that interfered with the sad emotion. The music represented a dog fighting another dog over a bone, then ultimately losing the bone (see Figure 4.16)(see Appendix I).

Katelynn offers a clear suggestion that she would change a small part in the piano to “something more sad” (see Table 4.09). She uses the GarageBand piano scroll format displayed on the white board as a mediating tool to communicate her intended meaning, by sharing her proposal and reiterating it several times (see Figure 4.17).
Figure 4.14. *GarageBand Snoring*

Figure 4.15. *Gesture Snoring*
Figure 4.16. Garage Band Edits

Table 4.09

Transcript Edits

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Line of Conversation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katelynn</td>
<td>Um, I like hearing the grand piano. I would take out the live guitar and add, like drums or something. And I would change the classic piano to something more sad. That side kind of sounds like happy danananana.</td>
</tr>
<tr>
<td>TR</td>
<td>(walkie-talkie)</td>
</tr>
<tr>
<td>Katelynn</td>
<td>Hang on, I’m sorry. It sounds like what?</td>
</tr>
<tr>
<td>Katelynn</td>
<td>That sounds like happy and sad at the same time</td>
</tr>
<tr>
<td>TR</td>
<td>So the piano at the end?</td>
</tr>
<tr>
<td>Katelynn</td>
<td>No, like,</td>
</tr>
<tr>
<td>TR</td>
<td>Oh, in the beginning? Like when they're fighting? The grand piano on the top?</td>
</tr>
<tr>
<td>Katelynn</td>
<td>No, uh, I like this one, I would change, I would take out this part, I would change this one to, like, can you play, um, just this part right here?</td>
</tr>
<tr>
<td>TR</td>
<td>TR: Absolutely</td>
</tr>
<tr>
<td>Katelynn</td>
<td>So right there, I thought it was like, it was kind of happy right there</td>
</tr>
<tr>
<td>TR</td>
<td>Ok</td>
</tr>
<tr>
<td>Miles</td>
<td>Happy?</td>
</tr>
<tr>
<td>Katelynn</td>
<td>I would maybe like split that to maybe</td>
</tr>
<tr>
<td>TR</td>
<td>So just the part that sounded a little sad, because it goes up in pitch dah, dah, dah, ok great</td>
</tr>
<tr>
<td>Katelynn</td>
<td>It goes from sad to happy.</td>
</tr>
</tbody>
</table>
Katelynn pinpointed the editing suggestions by pointing at the tracks displayed on the board. The iPad as a tool mediated the assistance she was giving her peers.

Composition is a complicated endeavor, particularly with students who are musically inexperienced and unfamiliar with the AL and rules of notation. However, using an iPad as a mediating artifact helped bridge the formal learning divide and provide an avenue for communication between students. Shared cultural experiences and physical gestures were also tools used between the students. The tools were used within this classroom community, in which students struggled to incorporate disparate musical ideas, fought to retain their class roles while being openly criticized, and flowed in and out of seeking attention from their peers.

**Summary**

Students shared their thoughts by gesturing, dancing, and singing their ideas when they were unable to describe it with musical terms. They referenced pop culture to communicate their ideas and strengthen their group connection. They were sensitive to criticism and hesitant to own their work, dramatically falling in embarrassment if they did
not like it. At times, students shifted into seeking attention and then retreating back to the group, both within and separate from their projects. They became experts at using the iPads and helping each other with the technology. Based on the data analysis and examples described, the findings include six major themes: 1) Students communicate physically when they lack the corresponding verbal lexicon, 2) Students use shared popular culture to describe music, 3) Work attribution of musical products changes with time, 4) Students cyclically assume and release control of the locus of attention during composition experiences, 5) Students struggle with accepting musical interpretations of others that differ from their own, and 6) Students use technical tools to mediate peer assistance when composing.
Chapter V

Summary and Conclusions

Introduction

“We now know how to, like, I don’t know how to explain it, we make our own music.”

(Domingo, 3-9)

The purpose of this research was to examine how fourth grade students negotiated musical meaning in a mixed language learning environment. Children selected were fourth grade students who were observed as they negotiated musical meaning in a mixed language learning environment. Specifically, I wanted to understand how students from diverse backgrounds, especially ELLs, communicated their musical ideas to group members and the entire class during composing and editing tasks. Additionally, I was interested in the role of the iPad and GarageBand composition application as mediating artifacts. The study was interpreted through the Cultural Historical Activity Theory (CHAT). Research into ELLs in the music education classroom is scarce, and there appeared to be a gap for examining how language was used while working on group composition projects across students. By implementing an instrumental case study (Stake, 1995), I attempted to determine how this group of fourth graders with limited knowledge of music Academic Language shared their musical ideas without AL across the composition class activity system.

During the 2015-2016 school year, students participated in a music composition class as part of their after school program. Ten students, six of whom were ELLs, composed in small groups with the GarageBand application on the iPad. Compositions were based on a series of small projects, including creating a short soundtrack for a movie and composing
a soundscape for a book. Students periodically shared their projects and shared recommendations for edits. Data collected included videos of classes, TR analytic memos, artifacts, and recordings.

This chapter will include a short summary of the findings. I will determine what roles Home and AL played in communication musical ideas (Research Question 1). Next, I investigate which cultural practices emerged around the sharing of their musical ideas (Research Question 2). Third, I explore what roles mediating artifacts played in facilitating student communication (Research Question 3), and how each discovery connects to the associated research. After the discussion of the findings, I will explore challenges to the study and possible implications for music educators.

Summary of Findings

1) What roles do home and Academic Language play in communicating musical ideas?

• There were instances of language switching and language support from other students, but classification of ELL or NES was not influential in this study.

• Academic Language was rare due to the lack of formal music education for the class. Students found other ways to communicate their musical ideas.

• Students mainly shared their ideas for music by composing music and then sharing it with the group, instead of sharing ideas verbally before composing.

• Students frequently referenced their historical and cultural experiences including pop culture to describe their ideas.

• Students used gestures as a communication tool. The embodied action was a tool within the activity system that demonstrated language hybridity between their home language and the Academic Language goal.
2) What cultural practices emerge around the sharing of musical ideas?

- Students were hesitant to claim responsibility for a composition until they knew how favorably it was received. They claimed it was their partner’s work or that it was a mistake until it was complemented, then they claimed ownership.

- Once students claimed ownership of their work, they found it difficult to accept other interpretations and criticisms of it. Suggested modifications were often rebuffed and students defended their compositional choices.

- Students enjoyed exploring musical sounds and often danced to something they liked. Several students would often dance at a time in their seats or stand and dance for a few seconds to a recorded sound. Dancing was an accepted practice across groups, genders, and language backgrounds.

- Students assumed the locus of attention during composition experiences by commanding the group to listen to their idea, making funny comments, or playing their music too loud. Once they had the attention of the class, they quickly released the attention and returned to a group role by ignoring the class and returning quietly to their own work.

- Much of the composed music was similar and reflected a Western European classical programmatic style of music, common in movie soundtracks.

- Students with musical training wanted equal representation in their compositions and struggled to blend and complete their projects.
3) What roles do mediating artifacts play in facilitating student communication?

- Language and gesture were the main mediating artifacts used in the activity system for communication.

- The GarageBand application enabled students to create sophisticated sounds and manipulate them without a working knowledge of musical theory and notation, and without needing expensive instruments.

- The technological tools kept the interest of the students. The iPad is popular and valued within the community. Additionally, use of GarageBand facilitated a quick transmission time between idea conception, hearing the music, and discussing it within groups.

- The iPads shifted roles within the system. Students driving the iPads became leaders. Students also helped each other with technical difficulties and recordings, across groups, genders, and cultural differences. Students also reported helping teachers with their iPads during the school day.

- The iPads helped facilitate the development of musical understanding.

Overall, findings indicated that students enthusiastically created music for projects that included a variety of instruments, styles, and intentions. They enjoyed creating and moving to music, but found editing and receiving criticism to be more challenging. Composing in small groups facilitated musical collaboration and struggles over communication and dominant group roles. Students used other methods to communicate their musical ideas when they were unable to apply the appropriate musical AL. Gestures, pop culture references, and music composed with the iPad were all mediating artifacts assisting communication in the community of the activity system. Additionally, students
were unsure of their compositions in that they were hesitant to claim ownership, and then
were disgruntled with criticism. Students engaged in class by shifting between roles as a
community member and roles as a leader assuming class attention. These findings were
specific to this activity system, and thus they were limited in scope and application.

Discussion

The students in this study worked within the classroom activity system to create
group compositions. CHAT was chosen as the lens for interpreting data because the study
examined the nature of communication between diverse students. The cultural and lingual
backgrounds of students shaped how they learned academic subjects (Vygotsky, 1978;
Moje, et al., 2004). Findings needed to account for the cultural influences on learning, the
social nature of group work, the influence of tools on the class, and the tensions that arose
as different elements of the system shifted to prominence. Communication between
students demonstrated a hybridity between home language and AL. In an extension from
the standard literature, I posit that gestures were included within the hybridity (Gutiérrez,
Baquedano-López, & Tejeda, 1999). Gestures have the potential to bridge home language
and AL by physically describing a word or concept. Gestures can also be representative of
the inherent rhythms and movement found in music (Hodges & Sebald, 2011). Students
frequently danced to short musical motives as they were listening to their work and editing
it. Gestures and language are tools used by the community within an activity system. CHAT
afforded a focus for the data that accounted for cultural backgrounds, communication
hybridity, and mediating artifacts transforming a dynamic system (Engeström, 1991).

As previously described, the CHAT activity system includes the subjects, mediating
artifacts, rules, object, community, division of labor, and outcome (see Figure 5.01).
Applying the CHAT elements to this study, the subjects were the 4th grade participating students. Rules included the class rules about constructive criticism during editing and equitable time “driving” the iPad (holding the iPad and navigating the screen). These rules were embedded within the rules of the after school program and the school itself. The division of labor applied to the social roles in the group. For example, a student may have danced in an exaggerated manner to draw attention and become the center of attention. The iPad driver was also a leadership role in the system. The community included the after school program as well as the individual cultural communities and backgrounds of the students. The mediating artifacts included the iPads and GarageBand application, but also the language, references, and gestures used by the students as a communication tool. The object was the shared composition assignments, and the outcome was group cohesion with inclusion of member differences.
Roles of home and Academic Language in communicating musical ideas.

Limited home and Academic Language. The ELL students did not use their home language in the classroom as much as I expected. There were instances of language switching and some group conversations in Spanish, but most of the dialogue was in English. The English was generally vernacular and casual, which is representative of the home language of the NESs, and a shared language in the school. The lack of spoken Spanish could be because, despite my attempts to create a safe space for using home languages, I still prioritized English and AL through my spoken dialogue. This aligns with previous literature on the difficulties in creating a system that supports language hybridity and cultural inclusion despite teacher efforts (Fitts, 2009; Flessner, 2009).

Academic Language use was also rare, particularly since the students had very little music experience. Most discussions about music included a hybrid blending of everyday language and language linked to the iPads and GarageBand. In previous studies, mediating artifacts had the potential to form and change the language of the activity system (Engeström, 1991). Students talked about music within the framing of the application, particularly during group editing. Their discussions included words used to describe the visual nature of the application as well as descriptions of sounds from cultural references, such as brick wall for piano scroll and wedding music. The group needed the hybrid language for the social interactions necessary in shared work, and the language influenced their work as well (Moje, et al., 2004; Gutiérrez, et al., 2007). Although students did sing some sounds, they relied more on verbal descriptions through shared references when evaluating music than I had expected. This contrasted with previous research in which singing music was used more often than descriptions (Wiggins, 1999/2000). However, in
Wiggins’ study, the students had experienced several years of formal music education. Perhaps the inexperience with singing in front of their peers led to the use of other formats of communication instead.

**Historical and cultural experiences.** Music has the tradition of top-down, teacher centered instruction in music education (Borgo, 2007; Elpus & Abril, 2011). I attempted to create an inclusive setting whereby student experiences and contributions were valued. Thus, I chose composition projects as the system object to offer opportunities for individual contributions and create relatable goals (Kaschub & Smith, 2009; Burnard, 2000). I assigned group composition projects instead of individual projects for two reasons: the opportunity to record audible discourse on the compositional process, and because revising is a social process for children (Marsh, 1995; Hamilton, 1998; Burnard, 1999). The results aligned with previous research that there are socio-cultural influences in compositions, particularly including musical styles heard at home and in the popular media (Stauffer, 2002).

Students discovered shared references through their work composing, such as when Miles discovered that Katelynn knew Adam Sandler movies. In another example, Lita worked with her group Sassy Girls to compose a song that reminded them of home. They discovered that they each heard birds singing in the morning and the television playing at night and added those sounds to their compositions.

Students also used their shared popular culture as a tool to communicate their thoughts. Movies and popular music were frequently referenced, particularly during editing classes. For example, Lita and Galenia referenced Frankenstein. The popular culture references were often accompanied by representative physical gestures, such as Katelynn's
wave motion to accompany the Jaws theme. There were also similarities within their compositions. Music that was composed to sound like a particular emotion shared similar elements across groups, such as loud for happy music (see Table 4.03). This similarity may be explained by the shared human emotional experience, which can cross personality traits and musical experience (Mohn, Arstatter, & Wilker, 2010; & Sebald, 2011). Humans share commonalities, such as emotional responses to baby cries and Further research needs to be completed to determine the depth and breadth of the shared human emotional experience, especially across wildly disparate cultures.

However, another explanation for the similarities in their compositions may be the shared experiences of movies that rely on Western European classical art music style soundtracks. Engeström wrote that students are, “exposed to a constant bombardment of information from multiple sources, particularly from mass mediated popular culture” (Engeström, 1991, p. 254). Indeed, the Disney movie Inside Out had been released only five months prior to the start of the study, and it prominently featured music paired with the emotions Joy, Sadness, Fear, Disgust, and Anger (Inside Out (2015 film), n.d.). I had taught variations of classes in which upper elementary students composed music to match emotions for over six years. The introductory conversation to the music and emotion project for this study was the quickest and most productive introductory conversation I had experienced. As soon as I approached the idea of composing music to match emotions, the students were rapidly contributing different emotions to add to a master list. This was also the first time I had students suggest disgust as an emotion, and use the term joy instead of happiness. My experiences align with Campbell’s writings that children are
musically enculturated by sounds from different spheres in their lives, including parents, peers, and increasingly, technology and the media (Shehan-Campbell, 2011).

The striking alignment of students with disparate cultural backgrounds also speaks to a possible massification effect, with the global influence of Disney dominating and unifying the material available to children (North & Hargreaves, 2008). Popular culture can be an especially strong influence on students, and thus a powerful tool for class communication. Cultural influences, particularly musical, are embedded within the function of society as unifying units (Hodges & Sebald, 2011). Between popular culture references and gestures, students managed to effectively transmit their ideas while working in a group setting. The access of movies and corresponding soundtracks and their availability in society had influenced the students’ understanding of the role of music and had provided an unexpected shared cultural experience. Students were able to draw upon this shared cultural experience throughout the study.

**Gestures.** As the students worked in class, they dynamically inhabited the activity system. When they struggled to communicate their musical ideas with other students, they engaged mediating tools such as gestures and vernacular language within language hybridity in order to negotiate musical meaning. For example, Jorge embodied the piano scroll layout in GarageBand and waved his arms to demonstrate how to interweave tracks and motifs. He was using a representative gesture to depict an aspect of the mediating tool with his body. Caroline sang ascending lines and moved her arms to show a sunrise. She incorporated a representative gesture of the sunrise with the rhythm of the music as idea formation and communication. Maria and Miles stomped through accented beats with an angry scowl. They were using the music as inspiration for a physical gesture based on the
accented meter. In each example, students were physically experiencing musical elements and sharing them with their peers. The shared gestures showed an understanding of the music that was more advanced than their music vocabulary, as previously reported (Hair, 2000).

The gestures were also representative of the overall perception of the music selection. In the sunrise example, the music included ascending pitches, widening intervals, and a fast tempo, but Caroline’s arms demonstrated a general energy and direction as she expanded up and out. This aligns with the idea that music is perceived more holistically than the individual elements, in larger categories including motion and color (Cutietta, 1993). Categorical music perception is another possible explanation for why students used pop culture references as communication tools about music. The gestures served as a tool to bridge personal experiences, shared understandings, and academic learning within the activity system.

Students created their own gestures as part of the communication. They were spontaneous and specific to their communication needs. The student created movements that connect to Kerchner’s discussion of student generated movements that reflect a student’s listening experience (Kerchner, 2013). Interestingly, Kerchner also included four phases for incorporating movement (exploration, creation/editing, implementation, reflection) closely resemble music composition strategies of exploration, elaboration, transformation, revisiting (Nelson, 2007). The common elements of exploration and editing were apparent in the nonverbal creative activities.

Due to this study and related literature, I disagree with recommendations for a system of teacher created gestures as the tool for ELLs in the music education classroom.
Research supports teacher led gestures as a tool for vocabulary recognition (Schunk, 1999), but I argue that gestures should be student created as adults label musical ideas differently from children (Hair, 1981; Bamberger, 1982). Spontaneous gestures per individual student are especially useful since they may demonstrate pre-verbal ideas and gesturing may help form and activate conceptual understanding (Abrahamson, 2004; Scherr, 2008, Allen, 1999), so scripted gestures might limit the active learning process. My personal experience included watching students struggle to verbalize an idea and resort to gestures. The struggle and subsequent gestures from my students support previous research that states that music vocabulary lags behind the ability to recognize musical elements (Hair, 1987; Flowers & Costa-Giomi, 1991).

**Emergent cultural practices**

*Work attribution of musical products changes with time.* The challenge of an open format in which groups share and edit their compositions can be especially difficult in a classroom setting. Discomfort with criticism played a significant role in the composition process, particularly in owning and disowning musical contributions. Students found it difficult to accept other musical interpretations and incorporate them in their compositions. This finding contradicts previous research that students naturally compose collaboratively and socially, especially through revisions (Burnard, 1999; Hamilton, 1998; Marsh, 1995). However, the newness of the compositional activity and the short meeting times might have contributed to the feeling of insecurity, which aligns with previous research in which students who were intimidated were less successful at composing (Kaschub, 1997).
In this study, students disagreed with group members over the composition. Intragroup conflict can be beneficial as students work through their options, particularly when minority opinions may influence the majority and cause the majority group to rethink their judgments of the music (North & Hargreaves, 2008). Due to the nature of this study and the novelty of the activity for the students, there were rarely any passionate arguments contradicting strong opinions about music.

However, I considered intragroup conflict detrimental if it severely delayed their work and resulted in group members that spoke to me about feeling disenfranchised. Students often defaulted to deleting sections created by other group members and creating new section by themselves. The process was inefficient and frustrating for the returning group members when they found their work deleted. The constant shifting and rewriting of work enabled students to disown a composition by stating that another student created it when the group sharing time began. If the music received overwhelmingly favorable criticism, the students claimed ownership of their work. However, if the music received overwhelmingly negative criticism, the distancing was reinforced, often verbally, as students blamed their group members and expressed surprise at the musical content. This was in an effort to distance themselves from the negative criticism and retain their class roles within the activity system. Although I attempted to create a safe space for editing by asking for positive and constructive criticisms that were specific and aimed only at the composition, students were still uncomfortable with criticism. Their discomfort conforms with the Looking Glass Self hypothesis that a student’s self-image is influenced through interactions with others and the student’s perception of how others view them (Cooley, 1902).
Another possible interpretation of student disagreement is connected to
intersubjectivity. In a music setting, intersubjectivity is reached as different definitions and
understandings of the music are negotiated by the community members (Berg, 2000).
Student disagreements and composition deletions were part of the process of creating a
shared understanding of the musical work. In a music setting, “It seems that moments of
conflict between ensemble members could be opportune times to explore the unique
nature of musical problems, provided these conflicts were focused on musical ideas rather
than individuals’ needs to establish one’s social identity or status within the group” (Berg,
2000, p. 105). Disagreements were opportunities to share and negotiate musical meanings,
but social issues including fear of rejection made some of the disagreements unproductive.
not Deleting and recording over other compositions may have been a shared
understanding of how the projects would progress, but those actions did not facilitate
group cohesion when members felt disenfranchised.

While some groups deleted and recorded over each other’s work, the group
Redwood Rockstars ICK became myopically focused on equitable composition
opportunities. As the most experienced group musically, the Redwood Rockstars ICK held
themselves to high standards and worked to value each member while creating the best
possible composition. Their strong opinions collided and they finished few compositions.
Their experience aligned with previous research completed by Kaschub and Smith, in
which advanced students may try to work separately on their own ideas with poorly
blended results (Kaschub & Smith, 2009). However, the Redwood Rockstars ICK’s
experiences conflicted with previous research that friend pairings have more transactive
communication and are more productive on group compositions (Miell & MacDonald,
Perhaps the addition of another student to create a group of three shifts the focus from music creation to a focus on material equity.

Another possible explanation for musical product work attribution changes and student discomfort with constructive criticism may be that students have different viewpoints of the general role of music. For example, a difference in the fundamental role of music in two students’ lives became apparent during a discussion at the end of class (2-24). Katelynn explained her choice of listening to music while doing homework, and Lita described listening to music while cleaning her room. They were both trying to convince Domingo to vote for their choice, as the winning musical purpose was going to be used in the pop song project. However, when they described why they wanted their choices, a view of the role of music in their lives emerged. Katelynn stated, “I prefer doing homework because you can put on like, confused music, like, Oh struggling!, and You can do (it)!, like, kind of epic music, like duh huh.” She emphasized the emotional connection of the music (confused) and how it can act like a soundtrack for her growth (epic sound from struggling to understanding).

Lita, on the other hand, emphasized the entertainment benefit of music, “When you clean your room don’t you think it’s boring when you just clean it? And you should just listen to music, it’s not boring. And you can also dance when you clean your room, you can sing when you clean your room, and on homework, you get confused when you do your homework and you listen to music. Like for example twenty dollars in my pocket and you would do twenty (in your math).” Lita prioritized music as entertainment (singing and dancing to keep from being bored), and felt it would be too distracting for homework.
Perhaps the very basic notion of whether music is entertaining or connecting on an emotional level resulted in interpretive differences between students. Those differences might have led to discomfort and disagreements over the editing suggestions in class, particularly if students were interpreting the role of music differently. It is interesting to note that the students identified two major functions of music; entertainment and emotional expression. Merriam (1964) identified an additional eight functions of music: aesthetic enjoyment, communication, symbolic representation, physical response, enforcement of conformity to social norms, validation of social institutions and religious rituals, contribution to the continuity and stability of culture, and contribution to the integration of society. While the students only listed two functions, their conversation included facets of other functions as well, such as Lita’s discussion of dancing and Katelynn’s symbolic representation of her homework struggles. They were both experiencing music at a more nuanced and multivariate level than they were able to describe it.

**Shifting roles and the locus of attention during composition experiences.** The shift between accepting praise and hiding from criticism was evident as students cyclically assumed and released control of the locus of attention during composition experiences. Students would comment or draw attention to themselves, often through funny sounding music or popular culture based comments. After a short time they became more reserved and class attention shifted somewhere else. The pattern was especially apparent in the group leaders (Lita, Jorge, Miles, Caroline). The rest of the class followed the pattern as well, but in a more subtle manner. The pattern was a dynamic aspect of the shifting roles in the activity system of the classroom (Engeström, 1991).
There were also role and attention shifts and conflicts across language and gender identity. Tensions frequently arose between students, however they were usually mitigated by the rules within the system or through attendance as subjects entered and left the system. For example, Caroline was a very dominant force in the room and demanded attention from the other students when she was in attendance. She often pushed “affection” upon other students. She chased after Galenia one day trying to hug her as Galenia was preparing to leave. “Galenia you’re going home honey. Here, let me give you a huggie!” (1-4). Galenia said no, sidestepped the hug and moved quickly to the door. The use of the words honey and huggie were diminutive and she was trying to establish her dominance. Galenia, however, refused and left the room, releasing the tension between them. This was the only instance in which I observed Caroline talking with Galenia directly.

I also observed Caroline patting Lita on the head while walking by her seat. Lita was another leader in the class, but was frequently interrupted by Caroline. Lita announced that she would wait for silence before continuing. This tension over dominant roles was rare between them, however, because they were not usually in attendance at the same time (see Table 5.01). They both attended class at the same time only once in the months of January, February, and March. Since Galenia and Lita are both ELLs, and Caroline is a NES, these two stories imply a certain tension between students who identify as ELL versus NES.

However, I also observed Caroline push Ivy out of her seat because she wanted to sit there instead. I intervened and told Caroline to choose another seat, using class rule enforcement to undermine her dominance attempt. Another instance of dominance over another NES student occurred when Katelynn shared a composition idea with her group that Caroline did not like. She announced to the rest of the class, “Isn’t Katelynn the
weirdest person on earth? Everyone agrees” (1-11). This comment undermined Katelynn’s work by labeling her as weird, and shifted the locus of attention to Caroline and away from Katelynn and her composition. In this situation, Katelynn just accepted Caroline’s comment and acquiesced to Caroline’s musical idea. The tension was relieved within the system as Katelynn shifted to a submissive role away from composer. This mirrors the role negotiation Berg (2000) found with a student chamber group as they “focused on the “problem” of establishing one’s social identity...rather than the musical problem and its solution” (Berg, 2000, p. 107). Caroline used her language to establish dominance instead of negotiate musical meaning.

I also found Caroline’s presence to be an additional source of tension personally. When she was in attendance I struggled between my roles as teacher and researcher. While her comments and actions were interesting data, as a teacher I felt that her pushiness was unfair and I often stepped into the situation and shifted the power away from Caroline. My analytic memos were filled with angst over my allegiances to my students and the study. The presence of an extremely dominant persona in a composition setting can be intimidating to other students (Kaschub, 1997). However, a study conducted on three student chamber ensembles found that students may assume multiple roles throughout a rehearsal, often in response to the shifting moods of the other students (King, 2006). There are many different roles students may inhabit, including leader, distractor, joker, and quiet one. The author noted that a regular leader kept the ensemble more stable and productive, however that was not an option in this study due to the intermittent student attendance. Perhaps Caroline felt left out of the composition process due to her frequent absences and chose a dominant persona in her struggle to adopt a role.
Another source of tension and role shift followed gender discussions. Miles made comments about gender, but other students generally ignored him or moved on and so he did not achieve a dominant role over the girls. For example, he told Katelynn and Lita, “No more girl talk!” during class, to which Lita responded, “I’m not talking to you!” and Katelynn immediately adopted a stereotypical Valley girl accent for the next few sentences (12-14). Both girls then continued talking together about their plans, and the class roles stayed static. Adler, Kless, and Adler, (1992), reported findings that boys and girls in elementary school separate by gender and achieve social success on different scales per gender. One of the boy ratings is their success in cross-gender relationships, which aligns with the comments Miles made to interject himself into the girls’ conversation. Obviously, he did not achieve success in this example. Another status marker is the perception of masculine traits, such as toughness and coolness. To contrast, Jorge often called Chico the feminine “Chica”, especially when being critical of his musical choices. Domingo referred to his favorite drummer loop when he stated, “Kyle is a real man” (2-24), implying that the other drummer loops were less manly and thus, less valued. This critique was directed at Miles, who had chosen a different drumming style.

In the spring, conversations about dating among classmates became more frequent. Students often discussed the dating couples as they were setting up for class. The increased rate of dating couples in the spring is likely due to a maturation effect as the students aged and became tweens. When a student shared information about a couple, he or she became the locus of attention as everyone asked questions about the couple. The information became the tool that shifted class roles and elevated a student to the new temporary leader.
The role of mediating artifacts on student collaboration

**iPads were motivating and enabled sophisticated work.** This study would not have been possible without the iPad and GarageBand application acting as mediating artifacts. The students were genuinely excited and motivated to create music. However, the students had few experiences with formal music education and lacked the vocabulary, musical content knowledge, compositional skills, or instrument training necessary for the formal method of composing. The compositional tools in GarageBand assisted students in creating sophisticated compositions that reflected their ideas without being hobbled by their novice music skills or lack of available instruments. This matches previous research that showed how technology can offer authentic music making experiences and be intrinsically motivating without needing instruments or the ability to play them (Hickey, 1997; Gall & Breeze, 2006; Carlisle, 2014; Burnard, 1999).

Musically, students began to differentiate between instrumental timbres and styles that they preferred. They frequently asked each other about their musical selections and shared tips during the editing process. For example, Miles asked Jorge, “Is that like the shaker? What did you make the sound from?” (12-16). At the end of the study, Katelynn stated, “I learned about different instruments and I’ve learned how to use them” (3-9). Their developing musicianship fostered a confidence in their abilities and the generation of a personal style, which aligns with Stauffer’s observation of Meg and her computer compositions (2001).

**The iPads shifted roles in the community.** Similar to previous research, the computer also shaped the language of the community, and altered rules and roles associated with the iPad. Students used the recordings when they shared and edited their
work, using “music playback facility as a shared audio event to inform their decision-making” (Gall & Breeze, 2008, p. 38). The technological tools also mediated roles, empowering the iPad “drivers” until other students demanded equal time and roles were renegotiated (Gall & Breeze, 2008). The struggles that students encountered with the technology platform were also important for shifting roles. When students became frustrated or concerned because of the limitations of the technology and their ability, other students would stop their work to help assist. The tools mediated peer assistance, creating an environment in which it was acceptable to cross to other groups and offer support. Students helped each other across groups, gender, and language facility.

**The iPads facilitated the development of musical understanding.** Students were not familiar with many of the instruments and styles at the outset of the study. After working with the loops and instruments in GarageBand and editing as a group, they were able to aurally identify certain styles and instruments and their musical implications. For example, Domingo created music for a dog fight using the organ and the rhythm of the beginning of Mendelssohn’s Wedding March with different pitches. Despite the difference in pitches, the other students classified it as wedding music. They asked him to choose a different instrument so it did not sound like a wedding. The students were not perceiving the individual musical elements, but were creating a musical metaphor based on their previous experiences (Masterson, 1994). The students were creating and critiquing music on a macro level that was informed by their previous experiences with the community element of the activity system. This opportunity to have compositions that were interpreted as metaphors created by students with no formal music training was made possible by the availability of a sophisticated digital audio workstation.
The options for instrument, style, rhythm, and pitch manipulation were extraordinary. However, the sheer volume of choices reduced efficiency and led to an extended exploration phase. The exploration phase could easily distract other students when the student found something funny to share. Loops of foreign sounding loops were extremely entertaining and distracting. I found their casual ethnocentricity too cringe worthy to ignore and talked about the inherent benefits in the loop in question, another case in which my teacher self won over my researcher self.

Along with the construction of music that could be representative, students were able to use the iPad to develop musical preferences. Similar to other students, Miles expressed preferences for drum kit styles and was able to identify the style in a composition by another group. The students developed these preferences for particular loops and styles through exposure from multiple projects and the other groups, which aligns with previous research that showed students developed their concept of musical instruments over time (Hair, 2000; Stauffer, 2001)

**Section Summary**

The technological tools, cultural norms, group dynamics, and communication tools contributed to a unique learning system for the small group. Students without prior musical experience and diverse cultural backgrounds negotiated musical meaning through the use of the iPad, gestures, and shared cultural experiences. The dynamic system adapted as students entered and exited the system, shifting group roles within the community. The iPad as mediating artifact engaged the students, enabled composition, and facilitated the development of musical understanding, which contributed to the object of group compositions. The study was too brief to fully attain the outcome of group cohesion with
inclusion of member differences, but the class did begin to bond as a group and value individual contributions.

**Challenges**

“*Plans are only good intentions unless they immediately degenerate into hard work.*” – Peter Drucker

**Technology delay.** There were several challenges that arose with implementing the original research plan. The first major challenge was related to the materials for the class, specifically the GarageBand application on the iPads. Although the principal approved the request to install the application in October, it took several weeks for the installation to occur. All installations were required to be completed by the technology department for the district. During the waiting period, the permission slips and consent forms were completed and the class and data collection began. The researcher emailed and called the principal and the technology department at the school district multiple times trying to have the application installed. During that period, the class focused on team building, sharing musical preferences, and creating and performing stories with sound. After four classes without the application, the researcher brought in 4 personal iPads with the GarageBand application installed. The project calendar was shifted accordingly so that projects using GarageBand would have access to the application. The researchers’ personal iPads were used throughout data collection.

The use of the researchers’ personal iPads did afford an added benefit, however. Since the GarageBand application was only used for this project, students were able to save their work and build upon it week by week without any interference by other students. If
the school iPads had been used, there was a risk that other students might have edited their work outside of music class.

**Inexperience with technology.** Another challenge that arose was the students' lack of familiarity with the iPad and iOS. Before the project began, the principal mentioned in a meeting on July 2, 2015 that the iPads were used throughout the classroom in second grade. The researcher incorrectly assumed that all of the students had used the iPads in a classroom setting when they were in second grade. When the students began using iPads in this project, several were unfamiliar with basic iOS functions, such as unlocking the home screen and using the home button to navigate between applications. A few students were more experienced with iPads and helped the other students when questions arose. Additionally, the researcher projected an iPad screen on the wall throughout the class as a tool to demonstrate each new feature of the application. Students followed along on the provided iPads and navigated through the GarageBand and Notes applications. Despite using the social and technological tools of expert students and the projector, there were still enough novice students that technology based questions arose daily and required class time to solve. The most common issues were recording issues, particularly adding tracks, recording new sounds, and editing them. The technology issues extended the project calendar, particularly the book project. The editing process was very tedious and challenging for many of the students, resulting in incomplete projects at the end of the unit.

**Attendance.** While it was helpful to pair expert and novice students, inconsistent attendance undermined that social tool. Students were picked up by their parents throughout the after school program. The program head would frequently call the room on the walkie-talkie to request students, interrupting the lesson and reducing the class size.
Students also missed frequently for sports and family trips. The class size varied from two to ten, often losing three or four students over the forty-five minute class.

Table 5.01 shows the attendance for the data collection period, ranging from November 4, 2015 to March 9, 2016. Attendance was noted on the videos at 4:00, 4:15, 4:30, and 4:45 each class day (class was in session from 4:00-4:45). Filled in colors represent a student present in class, white boxes are absent. Each color corresponds to a different student. Boys are the first four students in cool colors, and girls are the following six in warm colors. The four native English speakers are represented by the polka dot pattern. Attendance was sporadic and students were often removed midway through a class. Attendance limited opportunities for technological assistance and group cohesion. Groups worked on projects and made joint decisions, but one member of the group was often left to make decisions on their own. Those decisions were commonly ridiculed and rejected by the returning members.

Additionally, the dynamics of the overall group transformed depending on how many students were in attendance. When the class was mostly complete, there were often gender based comments passed between groups. Some of the comments were predicated by recording difficulties. The room was very small and groups often wanted to record simultaneously. When possible, a group would record outside, but the noise from recess, passing trains, or rain would limit that opportunity. Thus, groups were forced to wait quietly while another group recorded. This elevated group friction and negative personal comments. For example, Miles declared, “No more girl talk!” while Redwood Rockstars ICK were recording (12-14-30). While the group friction crossed gender lines, it did not appear to cross between NES groups and ELL groups.
### Table 5.01

**Attendance**

| Date   | 11.4 | 11.9 | 11.16 | 11.18 | 11.30 | 12.2 | 12.7 | 12.9 | 12.16 | 12.26 | 1.4 | 1.6 | 1.11 | 1.13 | 1.25 | 1.27 | 2.1 | 2.3 | 2.8 | 2.10 | 2.17 | 2.22 | 2.24 | 2.29 | 3.2 | 3.7 | 3.9 |
|--------|------|------|-------|-------|-------|------|------|------|-------|-------|-----|-----|------|------|------|------|-----|-----|-----|------|------|------|------|-----|-----|-----|

- Jorge
- Chico
- Domingo
- Miles
- Lita
- Galenla
- Méva
- Caroline
- Katelynn
- Ivy
Implications

As previously stated, children will find methods of communicating their thoughts and ideas. However, the message may be delivered through an alternative format such as gestures or cultural references. The problem is that verbal and written communication is most likely used in classrooms, particularly during assessment. Language based communication is privileged in the school system, and teachers are trained and experienced with supporting the development of spoken and written AL (Hopewell, 2012). As a result, teachers may be missing the extent to which their students are developing their musical ideas by merely focusing on the AL that their students use. When students embody musical concepts, they are actively expressing their understanding of the topic. It is an inherent scaffolding of the concept that needs to be recognized and nurtured to become full content knowledge.

It is easy to sit and proclaim that teachers need to watch for every physical nuance that may show their learning and act accordingly, but the nature of school schedules makes this a difficult task. While music methods include strategies to help guide teachers in incorporating and evaluating musical movements, the reality is that classrooms are overflowing with large numbers of students, many from different lingual backgrounds and special needs, and they are already complicated to plan and assess (Kerchner, 2013). In addition, classes may be burdened with specific assessments required by their school/district/state. However, opportunities can still be created for embodying musical concepts, particularly when creating and evaluating music. Teachers may try to offer a choice during assessments, and ask students to tell or show how the music sounds. Showing how the music sounds is common practice in general music in the younger grades,
but it can be useful in ensembles as well. Large ensemble gestures are generally restricted to the conductor, but the students can be physical active learners as well. For example, students can move to the melody as it passes between instrument sections, physically passing the melody to the next group while learning about form and listening within the ensemble. More importantly, gesture is a powerful tool that can bridge the gap between the home language and cultural background and AL. ELLs and NESs can work in groups and share their ideas.

Working in groups has inherent challenges with the tensions and conflicts that may arise. However, teachers can build in opportunities to shift roles in the classroom and reduce tensions, such as alternating which group member holds the iPad (or whatever tool they are using). Social issues may interfere with productivity, but teachers should be aware that disagreements may be part of the learning process and the application of ZPD.

Students can be encouraged to disagree and teachers may find it helpful to share mediating techniques for solving conflicts.

Adding a mediating artifact such as the iPad will help those groups develop their musical ideas without an advanced level of musical experience. Using this sort of mediating artifact presents a powerful opportunity for teachers to enable their students to access the musical knowledge they have built from their cultural backgrounds and create sophisticated musical compositions while developing their novice musical skills. Information about the role of mediating artifacts and alternative communication styles should be added to preservice teacher education, particularly framed with tool development such as gesture rubrics and guidelines for encouraging personal contributions in a safe space. These tools would contribute to meeting the needs of today's
classrooms, and help answer the call to engage diverse students in music throughout their schooling (Spearman, 2000).

**Suggestions for Further Research**

There are many avenues for further research out of this study that focus on further explorations into the use of gestures and varied English proficiencies. Since this study and its findings are limited to this particular set of students in this specific setting, it is important to repeat the study on different students to determine if the findings can be expanded to include a larger group of students. Additionally, it would be useful to determine if certain gestures may be associated with different concepts depending on the student. They have different life experiences and cultural backgrounds, and the gestures may vary by their experiences.

Future research could also be used to develop a series of music assessment tools for mixed lingual student groups that align with current national benchmarks. There also needs to be corresponding professional development for teachers. The professional development should include materials and class discussion tools for pre-service teachers in methods courses as well. Due to the diversity of students and classrooms, it is not possible to prepare pre-service teachers for every assessment scenario. Fostering discussions about alternative forms of assessment and inclusivity of student cultural backgrounds will help them develop appropriate modes of thinking.

Another avenue for research is the exploration into group dynamics in small groups with and without mediating artifacts. How often are the ideas of the dominant group members chosen? Are musical gestures deleted because the other students are not as loud or popular? How does the influence of grade level impact group dynamics, particularly
where gender is concerned? The students in this study were on the cusp of becoming tweens. During the last few months of the study they were much more likely to joke about dating than the earlier months. The developing awareness of gender may also impact the dynamics of small groups in the music room.

Further research into musical applications like GarageBand will help refine the tools and determine methods of scaffolding content knowledge with the tools. Another exploration into the application such as world music options and their impact on compositions would be a new research direction, such as a playable sitar in addition to the electric guitar, or gamelan ensemble in addition to the string orchestra. Perhaps having the opportunity to explore world music options on the mediating artifact might bridge into more cultural openness and learning. Additionally, an investigation into loops and how they are heard and interpreted by students from different cultural backgrounds would be beneficial. In light of some of the findings, it would be interesting to note what emotions a loop represents, or what role that type of music might fill in daily life. Descriptions in children’s words of how the music sounds and what it would be used for might illuminate any similarities or differences between adult and child perceptions and cross-cultural perceptions.

Another research avenue is the nature of communication in a bilingual classroom with early elementary students. While this school was a dual immersion school, the fourth graders spent most of their school day conversing in English and were generally fluent in English. Although there were a few conversations in Spanish between students, the vast majority of class discussions were in English. I accepted and encouraged questions in either language, but I mainly spoke in English, so I implicitly showed a language preference for
English. Perhaps younger students who were still mainly conversing in Spanish during the day might demonstrate a different style of communication.

**Conclusion**

As stated by Domingo in the quote at the beginning of the chapter, the students in this study created their own music. Domingo still struggled to verbally explain his thoughts even on the last day, reflective of the communication difficulties encountered by the students in the study. Despite the struggles, Domingo felt that he had created music with the other students.

Children will find a way to share their thoughts about music. Despite speaking different languages at home, despite being born in different countries, despite having wildly different amounts of musical experience, children can create a common space where they can be understood. Music educators can use tools to help create a setting in which children want to create and share. Ultimately, teachers have an opportunity to discover the ways in which their students are negotiating musical meaning, and give voice to the rarely heard.
References


http://www.cde.ca.gov/ci/gs/hs/hsgrtable.asp


PERC, submitted 2012.


http://www2.ed.gov/about/offices/list/ocr/ell/glossary.html#ell


Appendix A
Institutional Review Board (IRB) Approval

13-Oct-2015

Dear Sarah Van Dusen,

On 13-Oct-2015 the IRB reviewed the following protocol:

<table>
<thead>
<tr>
<th>Type of Submission:</th>
<th>Initial Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review Category:</td>
<td>Expedited - Category 6,7</td>
</tr>
<tr>
<td>Title:</td>
<td>The Utilization of Music Vocabulary in Students with Varied Levels of English Language Acquisition</td>
</tr>
<tr>
<td>Investigator:</td>
<td>Van Dusen, Sarah</td>
</tr>
<tr>
<td>Protocol #:</td>
<td>15-0033</td>
</tr>
<tr>
<td>Funding:</td>
<td>None</td>
</tr>
</tbody>
</table>


Before 12-Sep-2016, you are to submit a completed FORM: Continuing Review (HRP-212) and required attachments to request continuing approval or closure. This protocol will expire if continuing review approval is not granted before 12-Oct-2016.

Click the link to find the approved documents for this protocol: Approved Documents. Use copies of these documents to conduct your research.

In conducting this protocol you must follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,
Vena Dunne, Ph.D.
Director, IRB Office
Institutional Review Board
Appendix B

Recruitment Letter

Music Composition on the iPad
Thursdays 4-5pm

- Learn how to compose music for books
- Compose using Garage Band on an iPad
- Write and play original songs

Sarah Van Dusen, a certified music teacher, will be leading a music enrichment class for fourth graders after school on Thursday afternoons. Come join the class and make some music!

This class will also be part of a research project for Sarah’s dissertation. The research will be exploring how students communicate while composing music. Sarah will be videotaping each class, and taking notes. Participation is voluntary. Both legal guardians and students will need to sign permission forms, and all information will be kept confidential.
Appendix C

Parental Consent Form

You are being asked to provide permission for your child to participate in a research project conducted by Sarah Van Dusen, a certified music teacher, as part of a dissertation project requirement for the doctoral music education degree at the University of Colorado, Boulder.

The purpose of this study is to determine how students use music vocabulary when working in a group. Information obtained through this study may be used to determine best practices in the music classroom.

As a participant, your child will participate in an after school music composition class. They will work in small groups to create music on school iPads. Their compositions will be used as data. Group conversations will also be videotaped and voice recordings analyzed for what types of musical terms the students are using.

Participation is completely voluntary, and your decision whether or not to have your student participate will in no way affect your current or future relationship with the music teacher or school. You have the right to refuse for any reason, without penalty. Your child's individual privacy will be maintained in all presentations and publications resulting from this research. Data files will be secured, password protected, and destroyed within one year of project completion.

There are no risks associated with participating in this study and participants will receive no compensation. A summary of major research findings will be made available to interested participants who are willing to provide their email address.

Your child’s individual privacy will be maintained in all presentations and publications resulting from this research, and any reports from this study will use alternate names for the children.

If you have questions regarding your rights as a guardian of a participant, any concerns regarding this project or any dissatisfaction with any aspect of this study, you may report them confidentially, if you wish, to the project supervisor, Dr. Martina Miranda (martina.miranda@colorado.edu; 303-492-5498).

By signing this form you acknowledge that (a) you read through the invitation to your student to participate in this research study, (b) you are aware of the potential risks and benefits of participation, (c) you understand that being in this study is voluntary and that your student’s responses are confidential and private, and (d) you assent to your student’s participation in the study.

Student Name__________________________

Parent Signature_____________________________ Date____________
Appendix D

Student Consent Form

**Title of research study:** The Utilization of Music Vocabulary in Elementary School Students

**Investigator:** Sarah Van Dusen *(Sarah.vandusen@Colorado.edu)*

**Investigator:**
Principal Investigator's supervisor's phone: Dr. Martina Miranda, 303-492-5498

**What is research?**

Research studies help us learn new things. We can test new ideas. First, we ask a question. Then we try to find the answer. This can help us learn how people learn new things.

This paper talks about our research study. We want you to ask us any questions that you have. You can ask questions anytime.

There are a few things you should know about the study:
- You get to decide if you want to be in the study.
- You can say ‘No’ or you can say ‘Yes’.
- Whatever you decide is OK.
- If you say ‘Yes’, you can always say ‘No’ later.
- No one will be upset if you say ‘No’.

**Why are we doing this research study?**

We want to talk to you about this study because you are joining a music composition class. In this study we want to find out more about what kids say when they are creating music together.

**What would happen if I join this study?**

If you decide to be in the study:
- During the after school music class, you will create music with other students using the iPad. Your compositions will be studied by the teacher of the class (and researcher). You will leave voice recordings about your composition, and those will be recorded too.
- This will be during the after school class, so it won't affect your regular school day or music class.

**Videotapes:**
We will videotape the conversations you have about music in your groups. This will tell us how often kids use music words and which ones are the most useful.
Could bad things happen if I join this research?

We do not think the research will hurt you. You can quit the class whenever you want to.

If I join the study would it help me?

We hope to learn something from this study. And someday we hope it will help other kids who are learning about music words and creating music.

What else should I know about this research?

Being in the study is your choice. You can say ‘Yes’ or ‘No’. Either way is OK.

It is also OK to say yes and change your mind later. You can stop being in the research at any time. If you want to stop, please tell the researchers.

Your information

We don’t plan to share your information. Or tell anyone if you join this study.

Would I be paid if I do research?

No, you will not be paid.

If I have questions who do I ask?

You can talk to Sarah Van Dusen. Ask us any questions you have. You can ask questions any time. Take the time you need to make your choice.

Child’s Statement

The researchers have told me about the research. I had a chance to ask questions. I know I can ask questions any time. I want to be in the research.

Remember - being in the research is up to you. No one will be upset if you don’t sign this paper or if you change your mind later.

Name ____________________________________________

Signature ____________________________________________

Date _______________________________________________
Appendix E
Pedro the Puppy Worksheet

This is Pedro the Puppy.

Pedro is going to go on a big adventure today. You are going to help write his adventure.

On his adventure, Pedro is going to experience 5 different emotions. What are they?
1.
2.
3.
4.
5.

Pedro is going to need music for his adventure. Create at least 4 measures of music for each emotion. You may compose the music using Garage Band instruments or Apple loops.

Describe what the music sounds like that you composed for each emotion.
1.
2.
3.
4.
5.
## Appendix F

### First Level Coding Example

<table>
<thead>
<tr>
<th>Date</th>
<th>Lesson</th>
<th>Noted details</th>
<th>Codes</th>
<th>In vivo</th>
<th>Video clip</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/2/15</td>
<td>create groups and names, description of class plan, practice writing down notes on school iPads using team names/song names/instruments, showing them GarageBand on my iPad (keyboard recording, brick view, editing, adding new instrument - drums)</td>
<td>girls dance in beginning, check for emoji in notes? 21 minutes Maria's favorite song is the one she made in GarageBand, 23 Lita asks whole class who song song nay nay, kids say they're a ladder to start playing band in 6th grade, 26 Jorge says he wants to play being a DJ and I tell him it's a real instrument because you really have to know all the songs and how they fit together, 28 Lita and Jorge mug for the camera</td>
<td>21 CD, 23 H, 26 TR</td>
<td>&quot;I turned it on.&quot; 29 min. Jorge helps me turn on the speakers</td>
<td>11</td>
</tr>
<tr>
<td>11/4/15</td>
<td>Explores iPads on own, school iPads but no GarageBand, explain sharing/editing by showing recordings from other students, practice starting group together, show video modification, ID sounds you might hear in forest/feel/see city picture, talk about constant intermittent sounds</td>
<td>First practice at constructive comments, 11 minutes first physical movement by Caroline to describe song. Maria describes scene from Pitch Perfect as connection at 13, 16 minutes groups practice movements, 26 minutes Galen and Lita really shy about sharing with several false starts and playing. Groups talk to horror movies and haunted houses at 33 min. Caroline needs to add more thing as others at 34 min. Ivy talks about violin playing style at 35 min (playing on bridge, etc). Caroline complains re someone without a shirt in a picture at 46 min, I tell her if she can't handle it we will pick a different picture</td>
<td>15 CD, 16 C, 16 R, 26 E, 33 C, 34 R, 35 CD, 46 TR</td>
<td>&quot;Dude the monster sounds awesome&quot; 32 min. Miles</td>
<td>13</td>
</tr>
<tr>
<td>11/9/15</td>
<td>School iPads but no GarageBand. Practice typing notes, discuss constant/intermittent at home/school. ID sounds from broken ankle stories, act out stories with sounds, type story descriptions/intermittent and constant sounds, record sounds from story</td>
<td>Lita shows camera to Jorge and Chico instead of listening, Lita and Jorge talk re refrigerator noises 13 min. If you don't know what a word means Lita suggest W 15 min, Jorge mugs for camera at 17 min. Lita and Galina talking in Spanish together while planning activity 23 min. Lita says kiki for bird sound 32 min, mixed language at 43 min, kiki and c'mon mi hija c'mon 49 min</td>
<td>13 CD, 15 H, 23 L, 32 C, 34 L, 49 CD</td>
<td>&quot;c'mon mi hija c'mon&quot; 49 min Lita</td>
<td>51</td>
</tr>
<tr>
<td>11/10/15</td>
<td>GarageBand Intro and hands on, created 8 measure la la songs, 1st share, drum and 16 bars, guitar and 16 bars, voice recording</td>
<td>5 Jorge helps id = sign in GarageBand. 6 Caroline says a melody is a tune of a song, 22 Caroline asks attention as she leaves by dancing. Katelynn and Lita argu in 32 to just go crazy when recording, good discussion re predictable sounds 40</td>
<td>5 H, 6 CD, 22 R, 32 CD, 40</td>
<td>&quot;a tune of a song&quot; 6 Caroline: the vintage country... Country... Country... 44 Miles but it's amazing especially when I talk</td>
<td>33</td>
</tr>
<tr>
<td>11/13/15</td>
<td>Soundscapes, smart instruments, record notes of how they plan to edit soundscapes</td>
<td>6 Miya shares that she uses GarageBand all the time, 18 OK recording wind sounds, 23 Sassy girls mug for camera, then discuss music choices for soundscapes</td>
<td>6 CD, 18 R, 23 CD</td>
<td>&quot;that is cool&quot; 4 Miles re drums, &quot;hey look how southeast asians listen to their guitar&quot; 30 Miles. 41 Miya says it's a rock song and you're adding country...</td>
<td>33</td>
</tr>
<tr>
<td>12/2/15</td>
<td>Soundscapes scenes revised, intro multiple tracks,</td>
<td>Chatting re soccer games, new cases for pants, not as clear instructions by me, Miles creates own number of measures (? ownership), chatting re homework, Miles didn't know diff bell play and record button, 33 Jorge says Chico when making fun of a composition, 33 Miles dances, 41 comments about style worth analysis, boys respectful of girl composition</td>
<td>7 R, 33 E, 33 R, 41 CD</td>
<td>&quot;that's so cool&quot; 4 Miles re drums, &quot;hey look how southeast asians listen to their guitar&quot; 30 Miles. 41 Miya says it's a rock song and you're adding country...</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Caroline fights for seat and Ivy wins (power dynamics), 10 Lita talks about les mis movie and an accidental sound effect, 15 Maria does rock paper scissors to make a decision and group discussion, 20 minutes Jorge moves his body to show how tracks interweave, 22 Jorge and Galenia dance to a shaker, 24 GML making composition decisions, 30 GML composition decisions, 35 Lita says bachata(?)? about Jorge's water sounds, also concerned</td>
<td>2 R, 10 C, 15 E, 20 H, 22 R, 24 CD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Appendix G

## Second Level Coding Example

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
<th>Codes</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.9.11</td>
<td>Caroline talks about a comp sounding like a cool guy walking in a movie</td>
<td>CD, M, G</td>
<td>- large swinging arms, elbows out&lt;br&gt;- holding hand out in stop&lt;br&gt;- making space, male</td>
</tr>
<tr>
<td>12.7.20</td>
<td>Jorge demonstrates how tracks interweave</td>
<td>H, CD, M</td>
<td>- arms moving vertically like stacking&lt;br&gt;- arms moving horizontally&lt;br&gt;- how tracks interweave and move through time&lt;br&gt;- helping another group</td>
</tr>
<tr>
<td>12.9.33</td>
<td>Jorge plays music out loud and dances for a laugh from other students</td>
<td>R, D</td>
<td>- looks at other teacher in room&lt;br&gt;- plays guitar&lt;br&gt;- sees other students looking and closes eyes while moving to music&lt;br&gt;- laughs and pulls back into self&lt;br&gt;- shy about composing, stepped into role to draw laugh and remove pressure</td>
</tr>
<tr>
<td>12.16.36</td>
<td>Miles falls down when he hears his composition played</td>
<td>E, R, CD, M</td>
<td>- standing, says it’s terrible&lt;br&gt;- laughs, covers mouth, steps back&lt;br&gt;- watches screen while twirling candy cane&lt;br&gt;- laughs and falls down&lt;br&gt;- nervous, falls down in embarrassment</td>
</tr>
</tbody>
</table>
Appendix H

Discourse and Gesture Analysis Example

<table>
<thead>
<tr>
<th>Name</th>
<th>Transcription</th>
<th>Discourse</th>
<th>Gesture Description</th>
<th>Gesture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katelynn</td>
<td>But I also have an idea</td>
<td>P</td>
<td>Arm raised up like raising hand</td>
<td>N</td>
</tr>
<tr>
<td>Katelynn</td>
<td>what they could change the bottom to</td>
<td>I</td>
<td>Sweeps arm and points at screen following track</td>
<td>O</td>
</tr>
<tr>
<td>TR</td>
<td>OK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(walkie talkie)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Katelynn</td>
<td>Like, like</td>
<td></td>
<td>Hands bounce like playing piano</td>
<td>A</td>
</tr>
<tr>
<td>Katelynn</td>
<td>don’t laugh at me.</td>
<td>DO</td>
<td>Hand sweeping in stop shape. Small circle at side.</td>
<td>N</td>
</tr>
<tr>
<td>Katelynn</td>
<td>Duh nhu, like, like something like that</td>
<td>P, R</td>
<td>Hand in undulating wave pattern</td>
<td>A</td>
</tr>
<tr>
<td>TR</td>
<td>Like, like the shark Jaws sound?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Katelynn</td>
<td>Yeah</td>
<td>A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix I

Musical Examples

Musical examples are available through the website soundcloud.

1. The Bear Snores On- snoring and pencils
   https://soundcloud.com/user-920973442/the-bear-snores-on/s-Ld2O

2. The Very Hungry Caterpillar- sunrise
   https://soundcloud.com/user-920973442/the-very-hungry-caterpillar/s-nVlye

3. Emotions Group 3–anger (starting at 23 seconds)
   https://soundcloud.com/user-920973442/emotions-group-3/s-Vwyj6

4. Puppy Scared by Fire Truck
   https://soundcloud.com/user-920973442/puppy-scared-by-fire-truck/s-JGtw6

5. Billy Madison
   https://soundcloud.com/user-920973442/emotions-group-2/s-xngXX

6. Sometimes I like to Curl Up in a Ball-Falling (sounds are now separated)
   https://soundcloud.com/user-920973442/sometimes-i-like-to-curl-up-in/s-JR1jo

7. Puppy Fights Dog for Bone and Loses It- Edits
   https://soundcloud.com/user-920973442/puppy-fights-dog-for-bone-and/s-
   Hd9eY

8. Star 1
   https://soundcloud.com/user-920973442/star-1/s-WBdL8

9. Star 2
   https://soundcloud.com/user-920973442/star-2/s-rF4v8