LOOK AT WHAT I HEARD!
MUSIC LISTENING AND STUDENT-CREATED MUSICAL MAPS

DOCTOR OF PHILOSOPHY IN MUSIC EDUCATION

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OAKLAND UNIVERSITY

2006

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by

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A dissertation submitted in partial fulfillment of the
requirements for the degree of

DOCTOR OF PHILOSOPHY IN MUSIC EDUCATION

2006

Oakland University
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To my students,
who have allowed me to enter into their musical experiences,
enabling me to understand and to be understood.

Praise God from whom all blessings flow.

ACKNOWLEDGMENTS

Sincere and unending thanks to Jackie Wiggins, my mentor and friend, for her generous spirit, amazing wisdom, patient guidance, and complete support.

Joyous thanks to the members of my learning community at Oakland University—to my committee members, Joe Shively, Bob Wiggins, and Greg Cunningham for their support and encouragement; and to the members of my doctoral cohort who, through their intelligence, imagination, and love have made this a most fascinating and rewarding learning experience: Alex Ruthmann, Sharon Davis, Shinko Kondo, Diane Raymond, Jon Busch, and Phyllis White.

Loving thanks to my parents, Adrian and Eleanor VanderLinde—to my mother for being my first musical inspiration and for nurturing me as a young musician; and to the memory of my father, whose unfailing belief and pride in me enabled me to take risks.

Heartfelt gratitude to my husband, Mickey Blair, my partner in life, whose constant faith and abiding love has supported me through this journey. Thank you to our daughters and their families, all of whom are a constant source of joy for us.

Deborah V. Blair

ABSTRACT

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Enactive and iconic (graphic) representations of music are two of many ways musicians represent musical ideas. Student musicians also use enactive and iconic strategies to form musical ideas, represent musical ideas, and to express musical ideas. Through a qualitative study in which I, as teacher-researcher, observed my own fifth-grade music students, I came to value the ways they naturally used these strategies. Their musical expressions supported the notion of embodied cognition and the importance of reflection-in-action and reflection-on-action as part of musical process while listening to music, thus enabling musical growth. Understanding the significance of these ideas led to the design of the final listening project in which students collaboratively created their own musical maps to represent a piece of music.

Essential meanings drawn from this project include the ways students came to understand, through experience, that there are common and unique ways of knowing and representing musical ideas, and that all these ways are valid and valuable. The mapping experience was valued for the creative way students could express musical ideas, but also for the way the map became a frame for the music, allowing students to

have a conversation with the materials of sound and map, to use the map as a frame while responding to the music and creating the representation (reflection-in-action), but also as a frame for reliving the experience while sharing the map with others (reflection-on-action). The map became a metaphor for the musical experience, a graphic and enactive narrative of the process of forming musical ideas and of the salient musical ideas that students chose to represent.

An underlying emergent theme in this study was the evidence of student agency expressed by these students in their desire to grow musically and to be valued for what they know and who they are as musicians. This is connected to the *zone of proximal development* (Vygotsky, 1978) as educators seek to enable students to grow in conceptual understanding (competence) and self-efficacy (confidence)—a reflexive relationship as students, too, seek to grow in musicianship (competence) and to be valued for who they are (confidence).

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PROLOGUE: DO YOU HEAR WHAT I HEAR?

On the board is a simple, colorful, yet highly descriptive musical map. Squares and rectangles are strategically placed in relationship to each other—some higher, some lower, some shorter, some longer, some closer, some farther apart. Occasional stars are located adjacent to the squares and rectangles, indicating that something extra is happening in that particular spot. Wavy lines indicate a section with a different articulation; zigzag lines show a connection between pitches in a moving line; arrows show where two sections sound simultaneously. Very small ascending squares, carefully counted out to match the number of sounds, are placed closely together, indicating a rapidly ascending melodic line (Figure 1).

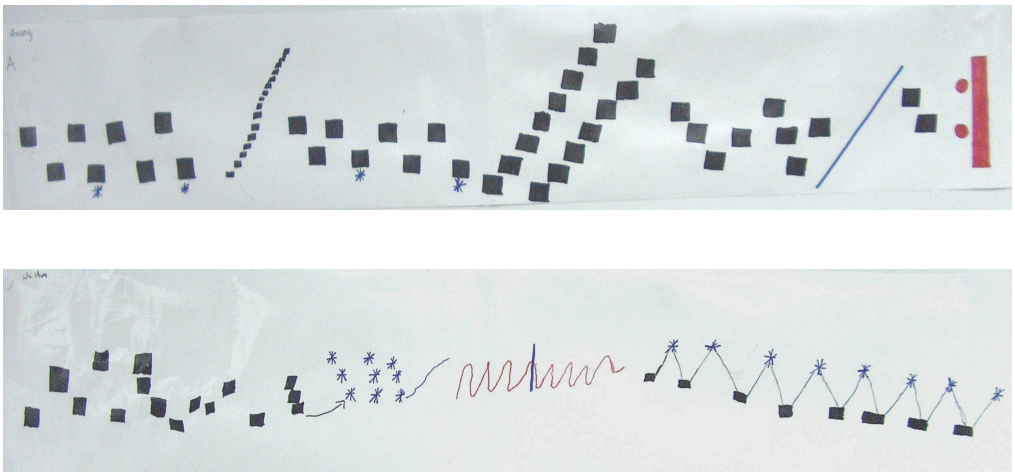

Figure 1. A Student-Created Musical Map

Danny, Abby, Nathan, and Roger worked together to make this graphic representation and are about to share their map with the class. Danny and Abby have been elected by their group members to be the "pointers," meaning they will trace the map while the music (Mussourgsky's "Ballet of the Unhatched Chicks") plays. Nathan and Roger, seated on the floor, are so excited to have everyone "hear their map" that, even though they are not the designated "pointers," they are seated as close to the map as possible without getting stepped on by Danny and Abby. As the music plays, Roger and Nathan trace the map in the air from their positions on the floor. Danny and Abby trace the map for their classmates with impeccable accuracy. They were part of the process of creating the map, of feeling its contour, of designing its representation. They know the music and the map inside and out, literally from within, so that when they hear it, they can follow the map—this object they have created that expresses what they have come to know about the music. When the music is finished, all four students look expectantly at me, their teacher. The class bursts into applause and immediately students raise their hands to begin their discussion of the music and the student-created map—a visible, stationary frame for discussing the music, an art form that refuses to stand still.

*

This scenario occurred in my own music classroom toward the end of a particular school year as part of a culminating listening project for these fifth grade students. The project came about as a result of my initial efforts to engage in a research study of my students' and my lived experience in our music classroom. In the early

stages of this study, I had been particularly drawn to the ways students were able to solve musical problems[1] while listening. Through the lessons we experienced together throughout this school year, I was able to observe my students, and through careful reflection during and after classes (aided by audiotapes and videotapes of the students during class), to design both this culminating mapping lesson as well as the lessons that provided the groundwork[2] (Wiggins, 2001) necessary for the students' successful completion of this mapping project.

This study was conducted in three parts over a three-year period. The pilot study took place in the first year, beginning as a six-week project that grew to a six-month study as I continued to explore the data and develop lessons in response to what I was learning. During the second year, I did not collect data formally during the students' process of mapmaking, but did continue to observe my six fifth-grade classes informally and reflect upon their experiences as they engaged in this process. During this school year, when the students completed their musical maps, the sharing of the maps and group discussions of the maps were formally documented via videotape (with permission).

It was during the fall of this second year that, as a requirement for one of my university courses, I was required to conduct an interview. I invited two students from

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[1] Musical problems while listening to music might include determining the form of a piece of music, determining and charting the textural layers within a piece of music, or completing a melodic contour puzzle card problem.

[2] Groundwork is the part of the curriculum—specific activities or broader experiences—that provides the necessary support for students to be successful when working alone or with peers to solve musical problems.

my previous year's class, who had collaborated on a map and with whom I still had contact, to participate in an interview about their map. In spite of the time that had passed since the making of their map, these students could still talk about their map, reflect upon the making of the map, and most interestingly, trace the map accurately. The meaningful nature of ideas shared in this post-event discussion prompted me to adjust the culminating portion of the study to include interviews as part of the design of the study.

During the third year of the study, I again selected a fifth-grade class and two members of that class to serve as key informants, and collected data (in the same manner described above). While the design of the study was now more intentional than emergent, the nature of the findings continued to be explored emergently. However, that year I began a new job as the full-time choral teacher in a high school in the same school district. My administrators, understanding the importance of completing the final phase of the study, allowed me release time to return to my former elementary school to teach one class of my former students, providing continuity for the study and for these students with me as their music teacher. Due to these circumstances, the final phase of the study lasted four months (September through December) with interviews completed before the winter break.

During this third year, I was also teaching a high school general music class in which I incorporated the creating of musical maps into the curriculum. In the two subsequent years that I have been teaching music methods at the university level, my students (music majors) have also been asked to create musical maps. These opportunities to informally observe students creating and sharing maps at various levels

of musical understanding, while continuing to study the literature and interpret data, has also informed me as a teacher and scholar.

Thus, the study described in this document reflects a five-year journey which I undertook while working as a public school elementary music teacher, a high school music teacher, a university music education instructor, and as a doctoral candidate engaged in both coursework and research. The scenarios described in this document are drawn from the data formally collected in the fifth grade classrooms throughout the first and third years and from the recordings of the sharing and discussion of maps during the second year. Vignettes and maps from all three years are interspersed as appropriate.

The emergent nature of the study was closely connected to the emergent nature of the curriculum experienced by my elementary students. Through sensitivity to student strategies, their prior experiences, and interests, I was able to construct a series of listening lessons that valued the nature of their strategies, their need and ability to share what they know or come to know within the experience, and to find ways that would stretch their understanding of a musical work.

As an elementary music teacher (and later as a high school music teacher and university instructor), I undertook a reflective process of curriculum design, including musical mapping, which was a result of my experiences with my students, reflection upon those experiences, and an ongoing study of literature that further informed my understanding of music learning and teaching processes. In addition, my understanding of the importance of being reflexive with students each year informed my ways of supporting them as they learned, especially through this creative listening process.

Doctoral coursework informed my understanding of research and I came to value the ways that qualitative and ethnographic studies were able to inform me as a teacher and as a person. Narrative and other representations of lived experiences seemed to reach deep within, enabling me to make connections with other human beings as they shared their lives through story, song, or art, and facilitating within me this transformative experience—an experience which brought to focus that which was obscure, that which was known but not easily expressed.

This integration of teaching, study, reflection, and research with its analysis and interpretation, is a continuously reflexive process which is as complex contextually as any lived experience might be—for it is my lived experience and it has become my way of being as a teacher and scholar to allow these diverse aspects of my life and learning to inform one another. While I have attempted here to share my students' stories, it is essentially my story, too, (Bateson, 1990, 1994; Bruner, 1990; Ellis & Bochner, 2000) as I uncovered the meaning that the work of these students had for my own understanding of the ways learners interact with music while listening.

This document is an exploration of and reflection upon the journey that led to this culminating "musical mapping" lesson and the meaning it held both for my students and for me. It includes a) a survey of literature that informed the study and the design of the lessons used in this classroom, b) a discussion of emergent themes and the data that support them, and c) the meaning that these themes came to represent for my students, for me as their teacher, and, perhaps, what they may mean for others in music education.

CHAPTER ONE

EXPLORING MEANING-MAKING WHILE LISTENING

On a typical day in my general music class, twenty-five fifth graders are working in pairs while listening to a piece of music. The problem they are working to solve is to determine the music's form: Is this section the "introduction" or is it "A"? Is the next section "B" or a "bridge?" Is the ending a new section or would it be considered the "coda?" As the students interact with each other and the teacher, they sort out the sections of the music and apply appropriate labels. After several listenings, most of the groups have correctly solved the listening problem and are eager to share their musical ideas.

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How do students do this? What thinking processes do students use to make meaning in musical sound while listening? As an elementary school student, I certainly had never been asked to listen to music and determine its form. Some of us were never asked to do this until we were in college music classes. Yet, with a wealth of prior musical experiences, the support of groundwork (previous experiences which enable success in new situations and contexts) provided in the classroom, and opportunities for support by both teacher and peers, these students were extremely successful in solving listening problems. As their teacher, I saw it happening every day and each time I saw it, it amazed me. How did they do this? What support structures from the teacher and

other students enabled this to happen? What natural strategies were children using that enabled their success in this kind of work in a school setting? Was this type of activity meaningful to students? Did it provide opportunities for musical growth and understanding that could be applied to new musical situations?

These were the initial questions that caused me to pursue this study. Observing events such as this and other intriguing musical experiences in my own classroom motivated me to study the nature of students' musical understanding when engaged in shared listening experiences. In order to more fully understand this phenomenon and with the desire to inform my own teaching and possibly the teaching of others, I decided to enter my classroom as a teacher-researcher to find out more about the process of making meaning while listening to music.

As a teacher, I actually did not know how my students were able to figure out musical problems when listening to music. Because listening is an internal process, I did not know if it would be possible to design a study that would enable me to uncover and understand the processes through which my students were solving listening problems. Therefore, I decided to engage in a pilot study of my students' experiences in my classroom to see what emerged as important in an attempt to determine whether such a study would be plausible. Data collection included the keeping of field notes which documented factual information such as lesson plans, dates, music used, etc., and a field journal that included my personal perceptions of what was occurring in the classroom. In addition, two video cameras were set up in the classroom to record visual and audio data and were positioned to include as many students as possible. Two students were selected to act as key informants, wearing miniature tape recorders, so

that their conversations and musical interactions could be reviewed, as it was often difficult to hear individual students on the videotapes. Artifacts, such as worksheets, the rough drafts of the maps, and final copies of musical maps, were also collected. The initial findings in the pilot study, which was intended to last only six weeks, proved to be so interesting and informative that I decided to continue to collect data for six months.

Findings of this pilot study did indeed provide some insight into the ways my students were formulating and representing their understanding of the music they were experiencing through listening, including strategies such as moving, creating gestures to represent the music, singing and other vocalizations, and utilizing strong connections to visual, graphic representations of music. As these student strategies were uncovered, I continued to search the current literature on listening experiences and found studies by two researchers (Cohen, 1997, 2001; Dunn, 1997) that seemed particularly relevant to what I saw happening in my classroom. Cohen asked students to create musical mirrors or "kinesthetic analogues" in which students show what they know and feel about the music through carefully designed kinesthetic representations. Similarly, Dunn asked his students to show what they came to know and feel about the music by creating graphic representations.

Knowing the ways my students were processing musical sounds through enactive means (vocalizations, singing, and movement) and graphic representations, I chose to draw upon these two studies in designing a project for my students. In this culminating listening project, my students were to create a "musical map"—a graphic representation of a piece of music. The groundwork for this activity (the series of

experiences leading up to the culminating project) would incorporate movement, musical gestures, vocalizations and singing, and the use of graphic representations to describe music. From my own experiences creating maps for class use, I knew that creating their own maps would both enable and require students to use these natural strategies for musical process while listening and that this process might support and enable their successful completion of the project. In addition, the culture of the classroom environment facilitated a free exchange of ideas among students and teacher and established a level of comfort for moving and singing while listening without feeling awkward doing so. The students seemed to consider moving, singing, and using graphic representation to be natural and effective ways of communicating musical ideas.

Need for the Study

Listening, performing, and creating are considered the fundamental means through which people engage in musical experience (Sloboda, 1988/2000). The stated purpose of such engagement in school settings is varied both in theory and practice. Leaders in the education community suggest multiple visions of the role of music education.

Woodford (2005) suggests that the core of music education is a "search for personal integrity and identity"(p.86), with music education becoming a forum for exploring and defending values. Music classroom experiences, including performing, are to include opportunities for mutual feedback and criticism, classroom discussion, personal reflection and critical thinking/writing, all intended to "stimulate the growth of

self-confidence and intellectual and emotional maturity in students…and to help students reclaim authorship of the world so that they can eventually contribute to a democratic society" (p. 87).

Woodford (2005) promotes the notion of democracy in music education and identifies the political ramifications of any education. His

> argument has been that teachers and children need to intellectually engage with the world as moral agents of change, which means going beyond criticism of everyday values to include the moral and political implications and ramifications of musical and educational thought and action….They literally are in the world and exercising their own moral authority as future citizens (p. 98).

This viewpoint implies that students know themselves and their world in ways that enable understanding of moral and political issues and that students have enough personal awareness to know themselves as moral agents and feel empowered to act accordingly.

Elliott (1995, 2005) emphasizes the role of praxis, or practice, in music education, suggesting that the most meaningful way to experience music is as a maker of music (particularly performing and composing) and thus defends those contexts within music education that support the making of music—or "musicing" (p. 40).

Based on the work of Freire (1970), Abrahams (2005a, 2005b) and Schmidt (2002a, 2002b, 2005) have developed the notion of critical pedagogy in music education. They suggest that the role of music education is student self-empowerment accomplished through conscientization, or the "connections presented in the relationship between 'word to world'….In other words, the process of becoming conscious of one's knowledge, by engaging in learning that connects concepts to the learners' own realities, leads students to the point where they 'know that they know'"

(Schmidt, 2005, ¶14). Regelski (2005) refers to critical theory in music education as an alternative to "traditional theories of all kinds—if only because of its focus on empowering teachers and students to be effective agents of their own histories and satisfactions….[to develop] in students and teachers the habit of critical consciousness, to problematize what others take for granted….[to engage in music] as reflective practitioners" (¶ 45-6).

Boardman (1988a) proposes that "the role of the school is to transmit those aspects of the culture which the society has deemed essential and for which no other institutions provide. Translated to music education this means that our responsibility is to help youth extend their ability to function as musical persons, as performers, listeners…and creators" (p. 28). In other words, as educators, we seek to enable our students to grow as musicians, in musical ways that are valued by both the students and the culture in which they live, and to do so in ways that they cannot accomplish outside of the school setting, thus the unique role of education and the way it might serve our youth.

Education writers such as Greene (1995, 2001), Barone (2001), and Ladson-Billings (1994) resonate with the notion of self-knowledge as emancipation—learning as transformation of self. Within such transformation, the arts play a significant role. Greene (1995) is adamant that "we must make the arts central in school curricula because encounters with the arts have the unique power to release imagination" (p. 27). It is not simply about the pleasure derived from the arts, as participation in the arts "may demand as much cognitive rigor and analysis as they do affective response…. Awakening imagination, they have brought our bodies into play, excited our feelings,

opened what have been called the doors of perception….Imagination allows us to particularize, to see and hear things in their concreteness" (pp. 27-9). The arts transform learners in ways that are both special and unique, integrating cognition and affective response in a distinctively holistic learning environment (Bresler, 2005).

Swanwick (1999) describes music as a "way of thinking, a way of knowing. As a symbolic form it creates a space where new insights become possible….This is ultimately why music is significant and valuable" (p. 23). Swanwick's ideas reflect the human desire to know music and to find personal expression through music whether listening, performing, or creating. Swanwick addresses the socio-cultural aspects of any education and that all "experiences are mediated by interpreting minds….But all music has a *musical* context….although there may be relevant and important ideas in sociological, ethno-musicological and other literatures, the interface between minds and music is the central focus of musical engagement and therefore music education" (p. 30, emphasis in original). Learners and their engagement with music is ultimately what will enable the "transformation of self" as those "selves" have transformative musical experiences. Transforming learners as *musicians* becomes the goal of music education.

For Reimer (1989, 2003), a leading philosopher in music education, the role of music education in schools is to provide experiences that will enable students to understand music in ways that increase their capacity for aesthetic experience with music both in formal and informal situations. This notion, in concert with Swanwick's ideas about transforming learners as musicians and Boardman's notions about the role of music in the schools, is what I consider to be the purpose of music education.

The Importance of Listening in Music Education

Listening, creating, and performing are understood in the field of music and music education to be the three ways that people engage with music. Because of the importance of listening in the overall experience of music, the nature of children's musical understanding while engaged in shared listening experiences is an important issue for music educators and researchers.

Listening is an integral part of performing and creating (Sloboda, 1988/2000; Elliott, 1995; Reimer, 2003), but it is also an activity in and of itself. As students grow into adulthood, some may continue performing and composing. However, all students will continue listening to music, whether casually or in purposeful study (Reimer, 1989). The music education community appropriately acknowledges listening as a vital and important part of musical experience. The National Standards (1994) as set forth by MENC: The National Association for Music Education lists "listening to, analyzing, and describing music" as one of the eight standards. Textbook series such as Scott Foresman's Silver Burdett *Making Music* (2005) and Macmillan McGraw-Hill's *Spotlight on Music* (1998) fully integrate listening into their curricula. For example, the Grade Six book of *Making Music* includes over 300 listening examples and provides a range of activities for teachers to use when designing listening experiences for their students.

Despite the importance of music listening for music teaching and learning, the research literature on authentic listening experiences in classroom settings is limited. Some studies have endeavored to gain insight into the listening experience by comparing the results of musical aptitude tests to other listening tests that used

atomistic rather than holistic musical examples (e.g., DeNardo & Kantorski, 1998; Gromko, 1993; Hair, 1981; Smith, 1973). In other studies, including those that employ verbal protocol analysis (e.g., Bundra, 1993, 1996; Richardson & Whitaker, 1996), researchers worked with students individually outside of their classrooms to test or interview them privately. Barrett (1997, 2001) and Kerchner (1996, 2000) explored invented graphic representation, but not as collaborative projects preceded by lessons designed to support student work. In other studies, Cohen (1997, 2001), Dunn (1997), Espeland (1987), and Pogonowski (1989a) looked at student work within the setting of music classrooms, including the students' perceptions of the experience, focusing primarily on the resulting product that experience. (These studies are further discussed in Chapter Two.)

The New Handbook of Research on Music Teaching and Learning (Colwell & Richardson, 2002) summarizes the work of music education researchers since 1992, when the first edition of the handbook was published. In the 2002 handbook (a large volume of over 1200 pages), "Cognitive Constraints on Music Listening" (Thompson & Schellenberg, 2002) is the only chapter devoted to listening and the index includes only six listings under the heading "listening." Interestingly, the most salient reference to listening is in Chapter 17, "Learning Theories as Roots of Current Musical Practice" (Taetle & Cutietta, 2002, p. 279-98), with a discussion of Bamberger's (1991) work, yet this material has no index reference under "listening."

Methodologically and in intent, studies of creative process by Allsup (2002), Espeland (2003), Faulkner (2003), Kondo (2004), Savage (2004), Wiggins (1992, 1994, 1995, 2000), and Young (1995, 2002, 2003) seem to provide a better model as I

prepared to approach this study. Although these researchers did not investigate the nature of listening specifically, their focus on collaborative, creative work, supported by teacher and peers, in naturalistic classroom environments intrigued me. These studies provided a model for an emergent study that used a qualitative approach and ethnographic tools to understand meaning in both process and product in social learning situations. It is the intent of these studies—the desire to explore meaning making while engaged with music—that is the strongest connection to the present study.

Having begun the pilot study, I began to review videotapes and audiotapes of my students at work in music class. The videotapes and audiotapes enabled me to have the time to thoroughly observe and reflect upon what I was seeing, in contrast to the kinds of informal observation that teachers do in the classroom while moving forward with the lesson, assisting students when needed, and maintaining some sense of order. The recorded data enabled me to view the scenarios such as the one described at the beginning of this chapter through a different, more reflective lens.

A preliminary review of the literature had enabled me to think intentionally about the nature of researching lived experience (Lincoln & Guba, 1985; van Manen, 1990). Other researchers (Moorehead & Pond, 1941; Barrett, 1997; Cohen, 1997, 2001; Dunn, 1997; Espeland, 1987; Kerchner, 2000) had noted the value of kinesthetic movement and other means of representing musical ideas. Analysis of tapes from previous lessons had shown me how much students depended on singing, humming, moving, using visual aids, and conversing with peers to make sense of musical sound. With new eyes and ears, I began to look past the obvious to see the unique, and in seeing the unique to understand its place in the holistic context of life in a music

classroom (van Manen, 1990; Janesick, 2000). Reconsider the vignette reported simply at the beginning of this chapter, but now revealing much more as my lens was refined and the richness of the experience explored.

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Lauren and Jessica, two fifth grade students, are seated on the floor of the music room, surrounded by groups of other fifth graders. In front of each group are green cards, each marked with either "A," "B," "C," "Intro," "Bridge," or "Coda." I have asked the students to listen to a piece of music, "Trepak" from Tchaichovsky's Nutcracker Suite*, and as they listen, to figure out the sections of the music and put the cards in the order of the form of the piece. These fifth graders have been studying form and are familiar with this process and the terminology; however, it is the first time they have engaged in this process working as partners with less opportunity for support from teacher and classmates.*

As the music begins, Lauren and Jessica immediately put down an "A" card. It is clear that the music is familiar to them as their faces light up when they hear it, although they had not listened to it previously during music class. Lauren immediately begins tapping her leg to the beat, her hand swinging a bit with each pat. Jessica keeps one hand glued to the cards as she keeps track of what section they are hearing. I call out to the class every time a new section begins to help support students who are less familiar with the music. As soon as the bridge section of the music begins, Lauren's hand stops moving and the girls look straight at each other with puzzled looks, listening intently through the bridge and the subsequent "B" sections. When the "A" section returns, they promptly put down two "A"

cards and a "C" card for the coda. The piece ends and Lauren deliberately switches the "C" card with a card that says "Coda."

Realizing that the students need more time to determine the sections, I play the piece again. Lauren resumes her swinging pat during the "A" sections and Jessica is pointing to the cards, moving her hand exactly when the sections change, consistently anticipating when I will identify the new section. When the "B" section is heard, the girls once again stop and look at each other, listening and talking about what they hear. As they place two "B" cards into their sequence, the "A" part returns and Lauren begins her swinging pat. As the music ends, Lauren again switches the "Coda" card with a "C" card, but never sets the "Coda" card down. With heads together and with the buzz of conversations all around the room, Lauren and Jessica confer with each other, still uncertain about what to call the end of the piece. Pointing to the center of the sequence of cards, Jessica looks at Lauren and after some discussion, the "Bridge" card is replaced by a "C" card.

Between listenings, I suggest to the class that singing along with the themes might help them recognize them when they return. The music starts again and now both girls are singing and patting their legs in synchronized motions during the "A" and "B" sections, although Jessica continues to point to the sequence of cards with her left hand, each time moving her hand to the next card in anticipation of the start of the new section of the music. Apparently, they are satisfied with the "A" and "B" labels, as they continue moving to the music during these sections and do not stop moving and listening to talk about them. However, at the bridge section, they stop and simultaneously look at each other. Lauren reaches for the "Bridge" card and

replaces the "C" card. "It must be a bridge," she says to Jessica, "it's not "A" or "B." Jessica affirms her answer with a nod. They are now familiar enough with both themes to recognize them and to know that the bridge is neither "A" nor "B." The "B" section plays and both girls are once again patting their legs and following the sequence of cards. At the end of the music, Lauren—who is seated near the end of the sequence and is still holding the "Coda" card as a testament to her uncertainty—firmly replaces the "C" card with the "Coda" card. With an exchange of satisfaction between them, the girls look up at me as I explain that we will now, as a class, discuss everyone's answers. The girls simultaneously shoot their arms up into the air, eager to tell me and their peers what they have come to know about the music.

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As I studied the videotapes of subsequent class sessions during the pilot study, themes began to emerge which were further explored in the culminating phase of the study. Initially, I noted the use of what appeared to be natural student strategies. As students listened to music, they would move enactively (Bruner, 1966) in ways that supported and expressed their musical understanding. These movements included things as small as tapping a foot or knee to students representing music with physical gestures (a hand drawing the contour or shape of a phrase in the air). Singing and other vocalizations such as humming, whistling, or singing an instrumental melody on a single syllable were other enactive strategies that students used to enable musical understanding. Shared understanding (Rogoff, 1990) of several aspects of the learning environment were apparent, such as shared understanding of the culture, curriculum,

and musical problem (also noted by Wiggins, 2003). Especially interesting in these data was students' shared understanding of others' expression of musical understanding. Students intuitively knew what the gestures and vocalizations made by others meant. Verbalizing "things" was not always necessary. Student and teacher modes of expression were varied, accepted, and mutually understood.

As I continued to teach and study the students' learning, I realized that this experience of Jessica and Lauren was just the "tip of the iceberg" in understanding the nature of students' experience while listening to music. Reflecting on what had occurred, I realized that solving this musical form problem provided an opportunity for the students to think in sound. Further, in the social setting of this music classroom, these students were given opportunities to interact with one another and the teacher, receiving support when encountering new ideas. The nature of the classroom environment encouraged enacting the music—the swinging pat of the knee, the singing of themes. Valuing what my students brought to the classroom—their prior musical experience, the ways in which they naturally responded to music, and their desire to "figure things out for themselves"—I set out to design a listening project that would meet their needs in ways that would provide many opportunities for creative musical thinking through listening. From this form puzzle through to the creation of original musical maps, my students and I embarked on a musically rewarding journey while listening to music within the shared setting of the music classroom. It is my hope that music educators will benefit from my experience and be encouraged to explore the many ways in which they can respond to students in their classrooms with experiences that are both musically creative and personally meaningful.

Format of this Report of the Study

The emergent nature of this study will be reflected in the format of this dissertation. The emerging themes motivated continual forays into literature that I could not have anticipated needing before analyzing the data. These explorations into literature, conversations with peers and mentors, and the living of the experience as a teacher-researcher among my own students propelled me into an unpredicted intensity of thinking and reflection concerning music learning and teaching. The primary emphasis of this dissertation will be the exploration of themes with interpretation supported by data analysis. The sharing of these data will be narrative in nature. Literature, methodology, and context of the study will be discussed in Chapters Two, Three, and Four respectively, but not exclusively, as additional data will be woven into other chapters as necessary to illuminate the analysis and inform the reader. Other studies that have been reported in similar non-traditional formats are those that sought, as I do, to look past the "what" and focus on the "why" and "how." These studies (Barone, 2001; Bresler, 2004b; Davis, 2004; Meyerhoff, 1980; Peshkin, 1986; Powell, 2004; Stickford, 2003; Walsh, 2004), while informing the educational community, search for depth of meaning and meaning making while above all else, valuing people and their involvement with others in a certain place, at a certain time. It is the shared lived experience (Rogoff, 1990; van Manen, 1990) that informs us as teachers, as researchers, and musicians—as people.

CHAPTER TWO

LITERATURE REVIEW

The purpose of this study was to observe student actions particularly when engaged in guided listening experiences in a music classroom in order to gain insight into the strategies they use to think in sound and to construct understandings about music while listening, and the nature of the meaning of these experiences to the students. These actions may be conscious and unconscious responses or strategies that students use in their process of meaning making while listening to music, and may also include intentional reflection about that process. If researchers can observe and identify strategies used naturally by students who are successful in solving musical listening problems, teachers can begin to incorporate these strategies into their teaching and enable more of their students to achieve a higher level of success. Wiggins (2002) explains this in relation to her work with students' compositional processes.

> Understanding how music students perceive and operate in learning situations that involve composing experiences will help teachers better understand how to use composing as an effective teaching tool. Understanding the work processes of successful student composers can help teachers determine how to lend support to students who are struggling. The more we can understand about the processes through which children compose in classrooms, the more effectively we can use composition as an integral part of instruction (p. 2).

The same can be suggested about the analysis of children's listening experiences; the more we can understand about how music students perceive and operate in learning situations that involve listening experiences, the more effectively teachers can use listening as an integral part of music instruction. Experiences that

emphasize listening with understanding are of value in and of themselves; in addition, the musical understanding generated from these experiences becomes the foundation for performing and creating with understanding. To enable musical understanding through listening enables the whole musician. Reimer (Reimer & Gordon, 1994, audio recording) notes that "the capacity to apprehend musical sounds as being meaningful and to creatively construct the meaning one gets from those sounds; that is, to listen intelligently, is one of the foundational dimensions of the musical intelligences." With this in mind, I continue by exploring existing research on the topic.

Listening Studies Utilizing Quantitative Techniques

This study is situated in a vision of reality as constructed and multiple (Denzin & Lincoln, 2000), valuing the individual and creative aspects (Sloboda, 1988/2000) of listening. Therefore, some of the ways that researchers have investigated musical listening historically, through quantitative studies that seek to generalize to large populations and which do not attempt to inform the reader about understandings of musical process, were less informative for this study. They are, however, included in this discussion as representative examples of this type of research and for the perspective they do provide.

Smith (1973) and Hair (1981) conducted listening studies in which statistical results were generalized to larger populations. Smith (1973) investigated whether or not students could be "trained" to keep track of the form of a piece of music and found that they could learn to "track" the form of a piece of music and that tracking is "teachable" in classroom settings. Hair (1981) compared the vocabulary of younger elementary

children and college students when labeling musical concepts. The subjects were given a test in which they heard the same song ("Twinkle, Twinkle, Little Star" or "Happy Birthday") played differently ten times; each time something about the music changed (dynamics, tempo, timbre, etc). Subjects were asked to "write a word…that tells how the music sounds" (p. 13). Hair found consistent vocabulary among correct answers across age groups and widely inconsistent vocabulary among wrong answers across age groups. The author concludes with a call for further investigation to explore "how much and when associative training is needed before conceptual labels for aural stimuli become meaningful" (p. 20). In a later publication, Hair (2000/2001) summarizes literature on the topic of children's ability to label musical concepts. As a result of this overview, Hair concludes that children have difficulty describing music verbally, and therefore advises readers to use caution in interpreting children's musical vocabulary and its correlation to traditional terminology.

Finney (2003) concurs with this assessment. As part of the findings from his ethnographic study of 13-year-old music students participating in a variety of musical experiences, Finney shares that

> Words are not easy for the class. Moving from the music to language of description is a mystery and there are spontaneous musical responses that enable the class to cope—the vocal imitation of the instruments heard and the bodily gesture that attempts to encapsulate the experience. The teacher acknowledges these nonverbal responses although they are not always easy to manage or lead to generalizations that are words (p. 10).

DeNardo and Kantorski (1998) used a Continuous Response Digital Interface[3] when investigating the listeners' responses to music. DeNardo and Kantorski designed this study to assess the answers students gave when listening to musical phrases to determine if they were the same, similar, or different. DeNardo and Kantorski found many developmental differences among the various age groups studied (students from grades 3 through 12), that students may have based their discriminations of phrases as same, similar, and different on pairings of elemental changes, and that repetition enhanced understanding for older students but that the opposite was true for elementary-age students. DeNardo and Kantorski suggest that educators consider these results as they structure listening lessons for various age groups.

Gromko (1993) investigated "novice similarity judgments for musical excerpts drawn from European art music composed between 1762 and 1896 using multidimensional scaling techniques" (p. 37). Two groups—novice and expert—were tested. There were 15 musical excerpts, each 15 seconds long, and these excerpts were put into pairings, resulting in 105 pairs. Subjects listened to the pairings and rated their similarity on a 7-point scale. A second scaling was conducted to measure parameters related to musical activity, character, and pleasingness. Gromko separates the results into expert and novice by what she perceives to be primary and secondary parameters of music. In her results, Gromko states that the "expert" subjects focused on the primary

[3] The Continuous Response Digital Interface (CRDI) software makes it possible for data about subject responses to be stored while subjects are engaging in the listening. This particular CRDI apparatus had a dial separated into three sections: "same," "similar," and "different." The CRDI apparatus recorded two times per second, noting when students made or changed decisions about the music.

parameters of music such as melody and harmony whereas the "novice" subjects focused on secondary parameters such as dynamics, tempo, and pitch registers. Gromko states that an implication for music educators is that "music listeners, if they are to be able to discern style and structure, must be helped to encode musical material….With training, listeners can evaluate the music's artistic shape based on the structure of its musical sound" (pp. 45-6).

McClean (1999) studied the effects of a singing approach versus a non-singing approach to the area of directed listening and found that a singing approach was beneficial for the study of thematic material impacting students' aural recognition as well as enhancing attending behavior. McClean also found it expedient for teachers to sing themes as a way to facilitate explanations while instructing. As in Kerchner's (2000) findings (described later) and Finney's (2003) (described earlier), singing or vocalizing were found to be a natural and effective way of describing musical ideas.

Quantitative studies that investigate product do not inform the researcher or the reader about the nature of the learner, the learning process, or the meaningful nature of the experience. Instead, these studies impose on the student the ways in which they must respond to the music to make sense of it, if indeed students come away from the experience with enhanced musical understanding. Boardman (1988a) describes studies of these kinds as "reductionist attempts to measure musical perception by testing responses to the "musical atom"…[they do] not provide information about musicality, about how people actually interact with music….Insight into musicality will not be gained through behavioristically based research" (p. 26).

Sloboda (1985) also argues against this type of research, concerned that the degree of familiarity is not authentic. "Real-life listening often involves the repeated hearings of the same material so that its internal structure becomes better and better known" (p. 153). In addition, Sloboda questions the ways such research examines responses to short segments of musical sound. "Most research evades this crucial issue by examining responses to very brief segments of music, made up of between two and twenty notes. Such segments hardly present listeners with the range of patterns and relationships which they must deal with in even the simplest short song" (p. 152). Finally, in an argument that I find most compelling, Sloboda questions whether or not what researchers are asking participants to listen for is relevant for the participants. He gives this example.

> Many studies require a listener to hear two short extracts of music and then to judge whether they are the same or different in some respect. The normal inference drawn from such studies is that if a listener can reliably tell when a particular type of difference is present, then he extracts this information in normal listening, and conversely, if he cannot reliably detect a difference, then he does not extract such information in normal listening. In fact, neither inference is necessarily valid. *Success* at discrimination in the experimental task may be a result of the subject's being able to focus on the dimension concerned for a brief period. This does not imply that he would choose to, or be able to, focus on this dimension in continuous listening where other dimensions of sound also demand his attention (p. 152, emphasis in original).

In other words, what the researcher is asking the student to listen for may not be a salient aspect of the music for the student. Or, as Sloboda later suggests (p. 153), these aspects of the music may be more readily apparent when heard in the context of the entire piece.

With this in mind, I turn to studies that approach the study of listening more qualitatively and offer findings that shed light on the nature of musical listening and the strategies of teachers and learners when listening.

Holistic, Process-Oriented Analyses of Listening

Researchers have also studied students and their responses while listening in more holistic, process-oriented ways. This is evidenced in the following representative studies, some of which place an emphasis on determining whether or not verbal responses are useful in studying the nature of music listening, and what these verbal responses indicate about students' musical response while listening. Other studies have focused on patterns of attention while listening or the students' use of invented notation to represent ideas.

In the studies included in this section, researchers have used methods such as verbal protocol analysis, interviews, the analyses of graphic representation, and the analyses of data collected while students were engaged in collaborative and socially supported learning environments such as their own music classrooms.

Analyses of Verbal and Written Responses

Verbal protocol analysis is a more recent research technique in studying student response to musical listening. Verbal protocol analysis, also referred to as a "think aloud," can be used to "identify psychological processes through analysis of a verbal record or protocol" (Richardson & Whitaker, 1996, p. 1). In verbal protocol analysis, participants are asked to say out loud what they are thinking about during a musical

listening experience. The participants' responses are recorded, transcribed, and analyzed. Richardson and Whitaker report that verbal protocol analysis is useful because it provides "clues about the musician's thinking process that are consistent with those in other fields" (p. 7). Richardson and Whitaker admit they, at this time, had not completely resolved the issue of how best to use the verbally-based research methodology of verbal protocol in the uniquely nonverbal art of music. Their research has helped define more clearly the issues that arise when using this methodology for research in the field of musical understanding.

An extensive study using verbal protocol analysis was conducted by Judy Bundra (1993, 1996), who cites the ability of the researcher to gather data while students are in engaged in the task of listening as a distinct advantage of this methodology. Verbal reports were taken both concurrently (during listening) and retrospectively (after listening) as a part of this study. In an attempt to use a more holistic approach, students listened to extended examples of "real" music. Bundra (1996) concludes that "words are one way to access, understand, and, ultimately, refine the musical experience of listening" (p. 29), and that "children were fully capable of describing their thoughts while listening to music, and after listening, they were able to articulate interesting ideas about their listening experience" (p. 27). In the Bundra study, QUALPRO (a computer program) was used to sort comments into categories. From a qualitative perspective, the use of computer-generated analysis negates the humanity of the data and removes contextual implications from findings (Janesick, 2000).

Bundra (1996) concludes that "the children in the present study did not have any difficulty with the task, and it appears that verbal protocol analysis is a valid and valuable means of obtaining data" (p. 28). Based on the research studies described above, and in my experience as a teacher across many grade levels and as a teacher-researcher, I have found the opposite to be true—that verbal communication seems to be the most difficult means for students to use to effectively describe music. Hair (2000/2001) also supports this stating, "children (and many adults) have difficulty describing music. They can perceive and give nonverbal responses to changes in the moods and musical elements…before they can describe what they hear" (p. 69).

Stubley (1989) analyzed students' written responses followed by interviews in a study in which students of varied musical backgrounds listened to repeated music selections of contrasting styles. The use of repeated listenings and thoughtfully prepared questions produced insightful responses from the listeners. The questions presented to listeners encouraged both descriptive and reflective answers, with the word "meaning" appearing frequently. For example, "How does the music's form contribute to its meaning?" "What effect does the music's style have on the meaning of the music? On you?" [and] "What, if anything, happened in the music which surprised you?" (p. 14). In analyzing the students' responses, Stubley suggests that the responses "need to be interpreted along two continua, one detailing differences in the musical meanings shaped in experience and the other detailing general developmental factors which affect how the meanings are shaped through reflection" (pp. 244-5).

In an interview process, Rodriguez and Webster (1997) studied "children's verbal responses to repeated hearings of a brief music excerpt when asked

systematically-designed questions that encouraged interpretive responses" (p. 9). They propose that the best way to determine what children find most rewarding about musical involvement is by analyzing their affective verbal responses to music listening, beginning their study with the hypothesis that there is a "relationship between sensitivity to expressive elements and capacity for aesthetic experience" (p. 10).

The results of the study (Rodriguez and Webster, 1997) provided a developmental view of emerging cognitive skills, with the stated assumption that "simply asking children what and how they think about music reveals strategies for musical understanding and valuing" (p. 9). Specifically, this study reported "a gradual trend for responses to become increasingly global and reflective of emotional sensitivity with age" (p. 24), and "an increasing awareness of generative musical processes with age" (p. 25). They continue, "clearly, it is not simply a matter of identifying what children find important in the music: rather, it is identifying patterns in the way they draw relationships between perceived elements, find order amidst contrasting forces, and derive bases for making musical judgments" (p. 28). Rodriguez and Webster (1997) acknowledge the importance of listening to the child's voice as researchers seek ways to improve music education, choosing music and designing pedagogies that will present music in a way that is meaningful to children.

Bickel (1994) also used verbal response in her study, although it was in the form of interviews that followed the listening experience, in contrast to verbal protocol analysis which occurs during the listening experience. Bickel argues that the results of her study substantiates the complexity of young adolescents' music listening response

with representative response categories that range from the labeling of technical elements to expressive responses presented in metaphor.

Shrofel and Browne (1997) found that "children could, indeed, talk about music; thus verbal protocols provide a set of indicators of music learning" (p. 15). Shrofel and Browne used small group discussions for adolescents and verbal monologues with professional musicians, both of which they found to be valuable sources of data. In their study, Shrofel and Browne learned that listeners use a "process [they] call 'matching,' the process of comparing the piece being listened to with music already experienced" (p. 14) and identified three types of familiarity—genre, structure, and piece.

Flowers (1990, 2001, 2003) has contributed to the study of verbal description when listening, including patterns of attention while listening to music and the use of written responses as a means to focus attention while listening. While not using ongoing verbal protocol analysis, Flowers (2003) studied the written responses students provided after listening to music, with the challenge of later writing about the music as a means to focus their attention while listening. Younger students focused on timbre, particularly naming the instruments heard, even though it was apparent that they heard much more than that. Older students were able to add more categories and multiple aspects of the music as well as emotional associations. Flowers suggests that "through the interaction of music and words …we can communicate what we hear analytically, metaphorically, and emotionally" (p. 23).

Johnson (2003) studied the responses of children through both verbal and written responses. Johnson acknowledged the limitations of verbal reports to describe music, and thus added the nonverbal activity of sorting the musical examples into

groups, a "task that actively involved the participants" (p. 83). Johnson worked with each of eight participants individually, observing them while the students listened to fifteen musical examples and wrote descriptors of them, sorted the descriptor cards in a way that organized the musical selections, and interviewed the students after they had listened to the music and completed the sorting task. Johnson found that "four categories of descriptors emerged from the participants responses: musical terms, affective terms, associative terms [largely connected to personal experiences], and other descriptors [such as 'same' and 'different']" (p. 91).

In a subsequent study, Johnson (2004a) chose a quantitative approach, coding written responses to a measure that included both multiple choice and more open-ended narrative response questions. Students listened to two musical examples, answering six questions about each, including questions comparing the two pieces. The responses were coded by external judges, who used a three-point scale to find the number of musical terms, affective terms, and associative terms. The purpose was to " 'measure subjects' reflection on the musical examples instead of their success in finding 'correct' responses and to maximize consistency with an earlier study (Johnson, 2003)" (p. 8). Using one- and two-way analyses of variance (ANOVA), Johnson concludes that the connection between this and the previous (2003) qualitative study seem "to have been successfully made" (p. 12). He considers the quantitative study to have "resulted in a practical and productive measure of listeners' thinking skills" (p. 12).

Johnson, (2004b) studied the verbal responses of fifth grade students when listening to music. In this study, two groups of students participated, in which both groups experienced music lessons including musical terms and concepts, music

listening examples and responding activities. One of the groups also received Critical Thinking Instruction, that is, added instruction in the form of questions intended to enable students to explore and reinforce the musical terms and concepts. Both groups were given pre- and post-tests to determine the effect of the Critical Thinking component, as well as the Musical Aptitude Profile (Gordon, 1967/1995) to "account for possible effects of musical aptitude on subjects' written response cards" (p. 9). These pre- and post-tests were analyzed quantitatively, using MANCOVA and ANCOVA analysis. In short, the Critical Thinking Instruction treatment group, as compared to the group that did not receive Critical Thinking Instruction, "was shown to be significantly more effective in terms of students' musical term, associative, and total written responses to music listening examples" (p. 14). Johnson notes that the addition of questioning and other opportunities for critical thinking resulted in significantly higher scores for students in that group, and recommends that teachers value the importance of questioning and its place in the classroom as "questions are therefore teachers' most effective way of stimulating learning and thinking in the classroom" (p. 14).

Analyses of Invented Notation

Graphic representation—any visual or iconic representation of music—is a valued pedagogical tool in music classrooms, with numerous suggestions for its use in curriculums such as Silver Burdett's *Making Music* (2005), McGraw Hill's *Spotlight on Music* (1998), and the *Holt Music* series (1966, 1981, 1988). Other books designed to support teachers in the classroom also offer numerous and varied suggestions for the

use of iconic representation. These include resources such as *The Experience of Teaching General Music* by Atterbury and Richardson (1995); *Musical Growth in the Elementary School* by Bergethon, Boardman, and Montgomery (1997); *Music in Use* by Espeland (1987); and *Teaching for Musical Understanding* by Wiggins (2001).

The use of teacher/curriculum prepared iconic representation is a recognized practice in the field of music education. However, student-invented iconic representation is a growing area of research, as it offers a glimpse into the student's perception of music and its value to the child through the decisions made about the images created to represent music. Thus, the study of children's invented notations has been a focus of research as a measure of musical understanding and is particularly pertinent to my study.

Gromko (1995) studied invented notation and its usefulness in retrieval tasks. During the first listening of fifteen 15-second excerpts of European art music, students were instructed to create an iconic representation of the music, followed by being asked to describe it verbally on a second hearing. Later, in a procedure designed to assess recall, students were asked to identify their own iconic representations for each piece, which were presented with other iconic representations.

Gromko (1995) reports that "the usefulness of icons and descriptors as aids to immediate retrieval of musical information differed….[Some students] found iconic representations to be more useful than verbal descriptions in a task that required immediate recall of musical information" (p. 40). Other students were less successful. "Immediate recall of musical sound was difficult for the novices, and that few of the selected representations were sufficiently potent to be useful" (p. 40). I would attribute

this to these factors—the use of excerpts rather than entire pieces, the large quantity of excerpts used, and the lack of time and repetitions for students to meaningfully engage with the music and reflectively create a graphic representation.

Gromko (1994) and Gromko and Poorman (1998) studied children's invented notations as an assessment of their musical understanding, resulting in similar findings. In using graphic representation, Gromko acknowledges the perspective of the child and the appropriateness of providing alternative means for expressing musical ideas. Gromko's (1994) findings

> support the validity of a child's notation as a musical assessment measure given its relationship to aural perception and musical production….Creating a notation for an intelligent musical experience may prompt the classification, organization, and connections that enable the child to transform the concrete experience into one that can be represented in icons or symbols (pp. 145-6).

Gromko and Poorman (1998) report that their results support Gromko's (1994) previous findings, suggesting that as children grow in musical understanding, their invented notations grow in sophistication. In the discussion of their results, Gromko and Poorman report that their study did show a clear developmental trend of "children's ability to use musical symbols in reading and writing tasks…related to their aural perception of musical sound (p. 20). As a correlation to their study Gromko and Poorman state, "previous research has revealed that invented notations reflect children's musical understandings and, as children's perceptions grow in musical detail, their notations grow in sophistication" (p. 20).

Piejak (2002, pp. 78-80) studied the use of iconic representation in her own music classroom. Prior to the study, she had used graphic representations as well as gesture (Piejak includes gesture as a visual representation) as an integral part of her

lesson plans. In her findings, Piejak notes that visual representations play a vital role in her students' ability to communicate about music to her and to their peers. She suggests that visual representations provided a way for students to think cognitively about the music without only relying on memory and that they provided a valuable reference tool for students, enabling the successful transfer of melodic patterns to instruments.

Barrett's (1997) data analysis in her study of children's invented notation also suggests that as children become more experienced, their invented notations show evidence of growth in musical understanding. However, this study clearly allows student freedom in inventing their own notation and includes researcher-participant conversation about the graphic and musical ideas expressed. In this study, Barrett was a regular guest in a kindergarten classroom, in which children could voluntarily choose to engage in musical activities with her. Students were invited to explore a collection of musical instruments (experimenting with the researcher to create patterns of question and answer), compose a pattern of sounds, and to "find a way to write down the pattern so that they could remember it (the intended reader was the child)" (p. 4). Then the student was asked to perform the composed pattern again. Rather than comparing compositions and notations to aural perception as in the previous studies, Barrett explored the ways children notate musical ideas, with the discovery of these emergent themes: representation of instruments, representation of a musical element, and representation of the physical act of producing sound.

Barrett (1997) reports that as individual children repeated the activity and as they became more experienced, their "recordings became less context bound and more concerned with musical ideas and concepts. This is evident in those notations in which

children move beyond the simple representation of the instrument and choose non-pictorial symbols to represent their musical ideas" (p. 8).

In a later study examining invented notations, Barrett (2001, pp. 36-7) acknowledges the students' natural process of combining ways of responding while listening to music. While engaged in various music-making and notating processes, the students would talk to themselves and/or to the researcher, sing and play, often preferring playing or singing over talking when explaining their notations. Barrett also noted that students combined a broad range of notational strategies to communicate musical meaning, resulting in individual expressions of musical understanding.

> This suggests a different conception of sophistication, one that embraces the notion of diversity and accommodation to specific contexts and tasks, rather than one in which children move steadily in hierarchical progression towards a single efficient means of recording, abandoning previous strategies and acquiring new strategies (pp. 42-3).

Because of this, Barrett asserts the importance of the child's voice in musical experience and the need to provide a "social and functional niche for children's multiple ways of constructing and communicating musical meaning" (p. 43). Barrett (2002) explores the ways two students used "abstract symbolic notation…to focus on particular expressive qualities of their music-making" (p. 60). Barrett reports that the experience of these students reveals much about their musical thinking. "Their capacity to retrieve musical meaning from their abstract symbolic notations reveals an understanding of the musical elements with which they are dealing, of the notational process itself, and a capacity to reflect on their musical experience" (p. 60).

Barrett (2004) notes that in the process of creating notation, the activity itself appears to be a "formal problem-solving space in which she [the student] explores her

musical and notational intentions… [suggesting that] inventive notations do not function solely as a denotive system that refers to and communicates information about music" (p. 8). This notion of invented notation representing musical ideas as a creative process in itself will be considered in Chapter Seven as part of a discussion of the creative nature of listening and the value of musical mapping.

Upitis (1987, 1990a, 1990b, 1992) also explored children's iconic representations. She contends that in order for

> children to become deeply engaged with music, they must become composers and performers. To do both, it is necessary for children to learn to read and write music so that they can record, manipulate, and share their musical ideas, and express the music composed by themselves and others (1987, p. 102).

Upitis notes that when children learn to read and write in their own language, they go through a process of early scribbles, invented grammar and speech, and on to more sophisticated speaking and writing. She considers it important that children are given this same opportunity to compose their own music and invented notations.

In a 1987 case study, Upitis focused on the analysis of the notations created by a student, reporting that he "used a variety of standard and invented devices to indicate the number of events, pitch, duration, mood, register, and tempo" (p. 115).

In a later study exploring the use of children's invented notation when representing familiar and unfamiliar melodies, Upitis (1990a) describes the types of symbols used by the children to represent the music, "icons, words, discrete marks for pitches and/or durations, and continuous lines for pitch and/or mood" (p. 94), with "discrete marks to indicate pitch and number of events… the most popular method used" (p. 97). Upitis also notes that graphic representations were commonly used for

the unfamiliar song, while words or topical pictures were used more regularly with the familiar song. Upitis surmised that because the song (Twinkle, Twinkle Little Star or Baa, Baa, Black Sheep) was so familiar to students that a picture (stars or sheep) was all that was needed to represent the already internalized tune to self or others. The unfamiliar music required more precise representation to assist in students recognizing the tune, resulting in a greater use of discrete marks for pitch and duration.

Davidson and Scripp (1988, 1989) and Bamberger (1991) note that when listening to music and attempting to create a graphic representation, students often begin enactively, feeling the rhythm of the music by moving their hand or pencil, later creating more particular images with time and familiarity. These strategies are not limited exclusively to listening experiences. Davidson, (1990) reports a similar process when studying students' compositional efforts, noting that "doodles, sketches and drafts provide clues about the cognitive processes that underlie the effort of shaping ideas." (p. 49).

Davidson and Scripp (1988) offer an apt metaphor for this use of iconic representations and its ability to allow teachers and researchers a glimpse of children's musical understanding. Because of the nonverbal nature for the expression of music and musical ideas, their notion that graphic representations lend outsiders a 'window' to children's musical understandings and values is especially pertinent to this study. Davidson and Scripp state that "it is our contention that for a more complete knowledge of children's understanding of music, their representations of music are critical 'windows' for viewing their musical cognitive development" (p. 196). By studying children's representations, it is possible to determine which elements are important,

their relationships, the ways that students perceive them, and how they choose to symbolize them. Davidson and Scripp followed 39 students for three years, asking them to represent songs through invented notation. Three premises resulted:

> First, young children, untrained in music notation, can invent rich and articulate representations of songs they know….Second, children's music notations reveal crucial insight into their understanding of music at various stages of musical cognitive development….Third, taking both representational and performance development into account, musical pitch emerges as the primary component (pp. 196-7).

Goodnow's (1997) work studying children's drawings parallels the notion that graphic representations provide a window into musical thinking.

> Graphic work is truly 'visible thinking.' The features it displays—thrift, conservatism, principles of organization and sequence—are features of all problem-solving….[It is her hope that] you may begin to see children's graphic work not only as visible thinking but even as a 'slice of life' (p. 145).

The research of Davidson and Scripp (1988, 1989) revealed the remarkable ability of children to devise symbol systems for what they knew about the music; the research also showed development of these systems reflecting the musical growth of the students. A significant outcome of the process was the way it allowed them as researchers to "view the uniquely human inception of musical cognitive development" (1988, p. 227).

As I close this section of literature on iconic representation, I would share this summative statement by Davidson and Scripp (1988): "As we better understand children's extraordinary invented symbol systems for music, we discover how they mindfully abstract and reconstruct an increasingly rich and integrated world of musical understanding" (p. 228).

Analyses of Data from Teacher-Guided Classroom Activities

As qualitative research in the naturalistic setting of music classrooms has progressed, researchers have begun to study musical processes and responses within social settings. Rather than extracting students from a group or working with them individually, or testing students in non-musical ways, researchers have begun to examine the ways students think musically in genuine social settings while engaged in authentic musical activities, which often include the support students would naturally receive in a school setting.

As research in music and music listening recognizes the difficulty in verbally expressing what we know about music, teachers and researchers have searched for alternative ways to allow students to outwardly express what they inwardly know about music and meaning-making within musical contexts. Tacit knowing, or knowing more than we realize or can put into words (Polanyi, 1966), underlies much of the creative process that occurs in listening experiences. Invented notations and other strategies, like those described in the following studies, are examples of the ways teachers and researchers seek to make known the musical understandings of students.

Current research in the field of listening as a creative process indicates that listening to music is not passive and should not be used in the classroom as a passive activity, as has been the tradition. Wiggins and McTighe (1998) reject the notion of such passivity—an activity for activity's sake—with its assumption that experience alone will lead to understanding. They define this type of work as "hands-on without being 'minds-on', because [students] don't have to work at understanding; they need only to experience" (p. 21). In order to enable "minds-on" creative listening, lessons

should be problem solving in nature with open-ended questions and results and with an awareness of the multiple ways students may respond to music.

> While certain objective elements of the music are immutable, it is uncertain that these should be the only elements we address if we wish to engage students in creative thinking. Some aspects of what musicians/teachers may think of as immutable in their minds may not be so in the reality of the listening experience, that is, there may be more than one correct way to hear a piece of music, despite what analysis of the printed page may indicate (Dunn, 1997, p. 1).

Music educators have utilized enactive, graphic, and reflective activities as a means of enabling their students to express their musical understanding during listening experiences. Since a teacher cannot see what students are hearing, it becomes equally important to find ways to make students' musical thinking visible to the teacher. In his study, Dunn (1997) asked students to make figural maps of music. To prepare for this experience, students watched the instructor trace an existing map as they listened to the music. The students also traced existing maps and engaged in discussion about the effectiveness of each map as a representation of the music, making changes where appropriate. Students were then asked to make a map for a piece of music, an assignment that would require several listenings for students to be able to produce a complete map. An important aspect of this individualized project was that it gave "all an opportunity to see that there were as many ways to approach this mapping task as there were persons; there was not one right way to map a melodic figure" (Dunn, 1997, p. 4).

The results of this project were that each map produced was a unique visual representation of the same piece of music. However, while each map was different, there were also similarities. This suggests that there may be both common and unique

responses that occur during shared listening experiences. Dunn reports that in a follow up discussion, one student commented, "It's amazing how many different things different people can hear in the same song…They were not any better or worse than mine, they just heard things different [sic]" (Dunn, 1997, p. 13).

Espeland (1987, pp. 283-97) field-tested a number of activities in which students would engage when solving musical listening problems. Espeland's guided listening activities turned passive listening into active listening, including the creation of responses to demonstrate musical understanding. For example, students were given mixed-up puzzle cards depicting graphic representations of the music. Students were requested to put them in an order that made sense to them, allowing repeated listenings to complete the puzzle. Variations of the solution and discussion of those variations were part of the process. Espeland also used an activity in which students created dialogue that reflected the music to which they were listening. The teacher would choose music that resembled a musical conversation. Again, repeated listenings were required to complete the dialogue. The students discussed their dialogues and perhaps acted them out with other students. A third activity was for students to create a cartoon while listening to music, using as many squares as needed to represent the different parts of the music. Repeated listenings allowed the students to develop their cartoons. Class discussion and sharing of the students' cartoons while listening to the music followed this activity. Dancing was also used as a guided listening activity, with students creating movements that reflected the music. Repeated listenings allowed the children to carefully choreograph their music according to larger sections adding nuances when appropriate. Class discussion allowed for critical thinking and evaluation.

Espeland (1987) notes that students often requested the repeated listenings in their desire to solve the problem and for enjoyment as their appreciation for the music grew (p. 290). In the class discussions that accompanied all of these activities, Espeland recommends continually going back to the music, asking students what they heard in the music that helped them make their musical decisions within the activity (p. 295) as this line of questioning keeps the focus on the music.

Pogonowski (1989a) uses classroom dialogue in an activity she calls "structural dictation—having students listen to an unfamiliar work and generate musical data about it. Intense listening is required to determine how the particular structural elements of the music are behaving individually as well as interactively" (p. 36). Rather than telling her students about the music, Pogonowski engages them in large group or small group discussions that encourage them to think critically and creatively about the music at hand. "The instructor's role is to present music and invite students to share their aural perceptions until they arrive at a consensus about the style of the music" (p. 36). Repeated listenings, an atmosphere of inquiry, and thought-provoking questions provide opportunities for divergence and flexibility. Pogonowski acknowledges the need for nurturing approval and mutual respect. She adds, "For both learner and instructor, the music becomes the medium that evokes critical reflection. By sharing the analytical process this way, we communicate our commitment to critical thinking about music. We also provide students with our own musically mature models for thinking" (p. 37).

Cohen (1997) designed "musical mirrors" as a pedagogical tool for her students. Cohen describes these mirrors "as a kinaesthetic [*sic*] analogue for musical schemas"

(p. 1). Cohen created a mirror of the music, movements that were "not merely pretty or expressive, but 'right' in terms of visually, kinaesthetically [*sic*] representing how I heard the music—the movement-gesture mirrored the cognitive schemes with which my mind was perceiving the music" (p. 2). To introduce her students to this strategy, the children mirrored her created movements, which invited them to experience her musical thought processes. Repeated listenings, often at the students' request, allowed them to get to know the music well and, by connecting the music to the movements, remember it more effectively. As students progressed from this experience of learning a created mirror, they were directed to create their own mirrors. The physical activity of movement tied to music led to a more insightful discussion of the music. "One of the interesting phenomena that I noticed over the years is that *children's ability to verbally analyze pieces is on a much higher level when responding to or criticizing a movement analogue than when directly describing the music*" (Cohen, 1997, p. 3, emphasis in original).

In a later study, Cohen (2001) further defends her use of kinesthetic activities as an "intuitive way of making musical cognition visible" (p. 1). Cohen's observations have led her to conclude that

> sensory-motor, or kinaesthetic [*sic*] gestures are gradually transformed into musical gestures as a function of musical maturation. In other words, musical development entails a process whereby overt, kinaesthetic [*sic*] behaviors are internalized and converted into acoustic analogues, i.e. they are expressed through the manipulation of acoustic relationships (pp. 5-6).

Cohen summarizes by stating that "movement gestures are the source of musical cognition" (p. 7). Believing in the importance of movement in musical cognition leads Cohen to using physical gesture, specifically musical mirrors, as her teaching tool of

choice in listening experiences for her students. Like Moorhead and Pond (1941, see below), Cohen argues that "musical schemas have their roots in kinaesthetic [*sic*] experiences and, therefore, musical learning can best be facilitated by coupling the abstract experience of musical cognition with the more concrete experience of kinaesthetic [*sic*] gestures" (p. 1).

While not in a structured school music classroom setting, Moorhead & Pond (1941) analyzed the musical experiences of young (preschool) children observed in a free and natural environment, and found children to be intrinsically musical. Everything about the young child's world—the immediate environment, his social interactions, his own voice and movements, heartbeat, and breathing patterns became part of the child's musical expression. Aside from social interaction, Moorhead and Pond determined physical activity to be the next greatest factor in the young child's musical understanding. Chant and spontaneous songs were often accompanied by or initiated from large motor movements such as walking, running, marching, climbing, dancing, building with large blocks, patting clay, or using tools (pp. 12, 35). Like Cohen (2001), Moorhead and Pond emphasize the important relationship between movement and musical cognition. They contend that "the beginnings of musical techniques are in the large muscles of the body and in the larynx" (p. 39). The rhythmic relationships of breathing, kicking, crying, squealing, clapping and striking of objects are the baby's first experiments in sound. While the origins of these sounds are experimental, the young child soon begins repeating selected sounds for her own pleasure (p. 39).

Kerchner (1996, 2000) designed a research project combining many of the elements of the studies outlined above. This study was not conducted in the naturalistic

social setting of a music classroom (students worked with the researcher individually) and students were not offered the pedagogical support that might be offered in a classroom. However, the activities of this study—requiring students to express musical ideas in multiple ways—are similar to those studies mentioned above. Kerchner (2000) reports the purpose of this project was "to examine cognitive processes made manifest during the repeated listening to a musical example…during which she explored patterns that emerged from the content of the verbal, visual, and kinesthetic responses during music listening" (p. 34). Quoting Zimmerman and Sechrest (1968), Kerchner (2000) concurs that

> children typically do not have access to adequate terms for describing musical sound. Therein was the importance of providing the participants with the opportunity to describe their music listening experience with visual and kinesthetic means in addition to verbal descriptions (p. 35).

Kerchner (2000, 2004) used a series of listening activities (pp. 35–6) that allowed students to express their musical understanding. First, students listened to the musical selection with no response. During the second listening, the students provided concurrent verbal protocol of the listening experience. During the third listening, students were asked to make a visual representation, or a musical "map" of their listening experiences. After the map was completed, students were asked to verbally describe the map and then to guide Kerchner through their map by pointing to the map while listening to the musical selection again. A final activity was for students to create a kinesthetic description of the music, followed by a verbal description of their videotaped movements. A similar session with the student followed the first session, with added interview questions, structured to prompt students to clarify or expand their

verbal, drawn or movement descriptions. Repeated listenings were a key element to Kerchner's study, with each student listening to the selection multiple times as they completed the various activities. Some students reported needing more time during the verbal and mapping activities, as they were not able to complete the activity to their satisfaction.

Kerchner (2000) found that students were best able to exhibit their evaluative and comparative skills through their verbal responses. However, students were vague or made up terms to express meaning and Kerchner admits "many of these terms or phrases remained mysterious, until I observed the children's visual and kinesthetic responses" (p. 38). The visual representations students constructed in Kerchner's study tended toward referential pictures, drawings of musical instruments or words describing affective responses. Kerchner notes "because of the lack of differentiation that appeared within the maps, the children had difficulty following their maps during the pointing and listening task" (p. 41). Kerchner (like Cohen, 1997) found that the creation of movements and gestures "elicited detailed music information" (p. 42). "The visual and kinesthetic modes of response enable students to depict musical nuance and subtlety that they could not or decided not to depict in the verbal mode" (pp. 44-5). She also reports an alternate mode of explanation used by many students, that is, singing or the use of other vocal sounds (not speech) for musical description. "Instead of translating musical sound into non-musical symbol systems, these children explained musical sound with musical means" (p. 43).

Finally, like Barrett (2001), Kerchner (2000) observes "children sought multiple modes of representation to describe that which was nonverbal—music. Even when they

were asked to provide responses using only one response mode, they mixed the modes of response" (p. 44). In her concluding statement, Kerchner states that

> children should have the opportunity to express their musical perceptions and responses through multiple modes of response and representations in the music classroom and ensemble setting….Children should also have the opportunity to reflect on their own thinking during and after musical experience….Children have the capacity to be active participants during the music listening experience and are assisted in developing that capacity when provided with tangible means of expressing their perceptions and responses (p. 48).

Six important threads emerge from the activities used by these researchers when providing meaningful listening experiences for their students:

1. The projects/problems were open ended in nature.
2. The teacher used modeling to provide groundwork and scaffolding.
3. Each activity involved solving a problem while listening—requiring the listener to "do something" that reflected their thoughts about the music. These activities included movement, writing, drawing, manipulating or creating visual graphics, and discussions.
4. Repeated listenings were an important aspect of the activities. While required or requested in order to finish the project, repeated listenings also enhanced enjoyment by generating familiarity.
5. The activities included discussions that valued multiple perspectives.
6. The results of each activity were varied and reflected both similarities and differences in the students' interpretations of the music.

In addition to these conditions, it has been suggested that "shared understanding is the primary basis for musical problem solving and for the development of musical understanding" (Wiggins, 1999/2000, p. 21). In music making, an important secondary

value manifests itself in situations where shared understanding occurs. Maxine Greene (1995, p. 35) explains, "Like freedom… community has to be achieved by persons offered the space in which to discover what they recognize together and appreciate in common; they have to find ways to make intersubjective sense." Children develop musical ideas through the music they experience in their own lives, and in the music classroom with teachers and peers. Collaboration in problem-solving and problem-creating expands the individual's knowledge base of possibilities. In planning instruction, teachers need to create opportunities for students to share musical ideas. The more difficult element for the teacher is to step back and allow the students space to find shared understanding for themselves, and to encourage the verbal and musical conversations that occur. "We have to learn to get in touch with children's different understandings and motivating forces if we are to allow all the richness and diversity of children's musical thinking to be sustained and encouraged. It's the 'allowing for' that is the challenge" (Glover, 1990, p. 262).

Multiple Modes of Representation

What is evidenced in these studies are the multiple ways that learners represent their understanding, particularly when verbal discourse seems insufficient or problematic. In 1966, Bruner suggested three ways through which human beings "translate experience into a model of the world" (p. 10). The first form of representation is enactive, or action. It is a means of representation, through movement, for the many things we know for which we have no visual imagery or are difficult to teach or learn through pictures or words. The second form of representation, iconic, depends on

"visual or other sensory organization and upon the use of summarizing things" (pp. 10-11). An example of iconic representation in the above vignettes would be the melodic contour puzzle cards. The third mode of representation, symbolic, are systems created to represent ideas, such as numbers, letters and words, or musical notation. Bruner suggested that as students make images for themselves through the use of these modes, that they are constructing their understanding of the world. "It is in these realms that powerful representations of the world of possible experience are constructed and used as search models in problem solving" (p. 14). He also proposed that it is only through the sensory, experiential nature of the enactive and iconic modes that language develops, that meanings are made and eventually words (as a symbol system) are attached to them "based upon the translation of experience into language (p. 14). The enactive, iconic, and symbolic modes are then, tools for understanding, not the end of understanding. They are the expression of understanding—both in process and in outcome. "It is obviously not language per se that makes the difference; rather is seems to be the use of language as an instrument of thinking that matters, its internalization" (p. 14).

Bruner (1996) revisited these ideas in *The Culture of Education*, in a chapter aptly titled "Knowing as Doing." Bruner writes that originally he considered these modes to be developmental, a course of progression, "that the more mature you became, the more likely you were to favor the after end of the progression than the starting end.…[adding] I no longer think so" (p. 155). In redefining the enactive mode, Bruner ponders renaming it the *procedural* mode, crucial to guiding human activity, including skilled activity. There are ways of knowing the world physically which inform our

knowing and our doing, our thinking and our working. As for iconic representation, Bruner (1996) now adds that

> Images not only capture the particularity of events and objects, they give birth to and serve as prototypes for *classes* of events, and then provide benchmarks against what to compare candidate instances for membership in those classes….Our power to render the world in terms of typical images and similarities provides us a kind of preconceptual structure by which we can operate in the world (p. 156, emphasis in original).

Boardman (1988b, 2001) and Bergethon, Boardman, and Montgomery (1997) advocate the validity of Bruner's modes of representation and value their place in music education. Most helpful to our field is the recognition that there are nonverbal means of expressing ideas. In an educational system monitored by paper and pencil tests, verbal communication (spoken and written) is the current standard of assessment. Bruner's modes of representation provide alternatives, with the enactive, iconic, and symbolic modes as valid and valuable means of representation. Boardman (1988, p. 30) supports Bruner's (1966) view that the three modes are in constant use. "The enactive-iconic-symbolic sequence is cyclical as well as sequential; for every concept the learner must be taken through all three stages, regardless of age!" While this statement may cause readers to think that they, as adult musicians, do not need to enact music, then visualize it, then approach the notation, this is not the intention. Rather, musicians use these modes in constant interplay as they sing or play the phrase the way they feel it, as they gesture an articulation or melodic line, or as they create sound (a symbol) to represent an idea or feeling. It is a musician's "way of being" to use many ways to communicate the nonverbal meanings within musical sound.

Gardner (1999) further supports these assertions suggested above by Bruner and Boardman and evidenced in these studies—the valued and essential use of multiple modes of representation and the synthesis of various representations into a comprehensive whole.

> The key step is recognizing that a concept can be well understood—and can give rise to convincing performances of understanding—only if a person represents the core features of that concept in several ways. Moreover, it is desirable if the multiple modes of representing draw upon a number of symbol systems, schemas, frames, and intelligences.…Inasmuch as each representation necessarily highlights certain features of the topic while minimizing others, the ultimate goal is to synthesize the various representations as comprehensively as possible (Gardner, 1999, p. 175).

Noticing What Students Value

As researchers in music education move away from counting occurrences to understanding the meaning of a single occurrence or significance of the interdependence among occurrences, we begin to notice the ways that students make meaning and to notice what students value as they create meaning. It is in this frame that I place myself as I continue to explore the ways students make meaning while listening to music.

CHAPTER THREE

METHODOLOGY

Because of my interest in learning about what is of value to my students while listening—what they attend to, how they create meaning, what things are important to them to share with others, including whether or not they care to share their musical ideas formed while listening—I began to realize that a qualitative approach would be both necessary and meaningful. It became clear that I was searching for the meaning of my students' lived musical experience—*our* lived experience—while exploring music within the context of our fifth grade music classroom.

While quantitative researchers are often more interested in "what" occurs in research settings, qualitative researchers tend to be more interested in "how" and "why"—how something is accomplished and why it is meaningful. In qualitative work, process is often valued over product, although products must be considered as well. Denzin and Lincoln (2000) explain,

> The word *qualitative* implies an emphasis on the qualities of entities and on processes and meanings….Qualitative researchers stress the socially constructed nature of reality, the intimate relationship between the researcher and what is studied, and the situational constraints that shape inquiry,…emphasizing the value-laden nature of inquiry. They stress *how* social experience is created and given meaning (p. 8, emphasis in original).

In this study, I investigated the processes in which my students engaged when listening to music, specifically their actions and strategies while solving musical listening problems: how did these students make meaning while listening? More

importantly, was their process meaningful to them? While certain products that resulted from these students' musical problem solving process will be considered, it was the process and its resultant meaning that was of the greatest interest to me. As in ethnography, the situated context of this study is not problematic but, rather, embraced and fully considered—for it is the interdependence and influence of all the aspects of the context that contribute to the situation (Bateson, 1990, 1994; Denzin & Lincoln, 2000; Janesick, 2000; Myerhoff, 1980; Peshkin, 1986, 1988; van Manen, 1990).

Admittedly, it is impossible to peer into another person's mind to determine how a student figures something out or why it has meaning. Teachers and researchers continually search for windows into students' thought processes, to find ways to make visible that which is invisible, in order to discover the "how" and "why." While data were collected during all of the music lessons in which these students participated over several months within a school year—while they engaged in performing, listening, and creating—the study focuses on the listening lessons that were embedded in this curriculum, with the culminating activity, the creation of musical maps, being of particular interest.

The Nature of Qualitative Research and its Relation to the Present Study

The qualitative studies of Dunn (1997), Cohen (1997, 2001), and Espeland (1987), reflect the type of study in which I engaged. These studies took place in naturalistic settings of the students' own music classrooms while they were engaged in typical music classroom experiences, experiences that encouraged students to represent their musical understanding in multiple ways while listening to music. These

researchers sought emergent findings rather than seeking to prove preconceived hypotheses, with an emphasis placed on understanding students as individuals, valuing multiple perspective as well as the social nature of learning and the contextual aspects of situated learning.

In this study, I investigated the nature of children's understanding when engaged in shared listening experiences, specifically in the setting of an elementary general music classroom. To understand that the listener's response to music is personal and unique, and to accept that each person's response is valid, is to agree to the assumption of multiple perspective. It is in making this assumption that multiple perspectives are not only valid but valuable that I have chosen the paradigm of naturalistic inquiry to study the nature of children's understanding during shared listening experiences. Acting as a teacher-researcher, I conducted the study in my own music classroom, collecting data through observation and participation, and generating findings through reflective analysis.

Learning in social settings requires a research method that embraces the social context. The many social and environmental dynamics that may impact the learner in the music classroom cannot be ignored; rather, if the research is to inform teaching and learning, these dynamics—whatever they may be—and their relationship to the learner must be fully considered (Lave & Wenger, 1991; Rogoff, 1990). Conducting quantitative research would require generalizing to a population that cannot be generalized, due to the individuality of its members and the diversity of their responses.

Reimer (1992, p. 22) explains that "music education research is an enterprise employing disciplined inquiries in an attempt to understand and improve the teaching

and learning of music." Reimer argues against a positivist approach to music education research, and instead recommends a more qualitative approach,

> Because music education deals with music and people in particular settings, the dimension of education also must be accounted for in the mix of factors with which research must deal….Every act of learning is incomparable, requiring an engagement by a unique person at a particular moment in that person's life with sets of conditions experienced only as that person can experience them. Education, after all, occurs in a single person's inner being.
>
> Given these realities, research modes should be seen as mechanisms to throw light on one or several dimensions of music, people, and education as these dimensions interact with one another (p. 24).

Reimer (1992) continues, "The conception of science as a search for objective truth can be reconceived as a search for more useful, more satisfying human meanings" (p. 34). He proposes that research should be "at least largely carried on by teachers trained also to be active researchers in the location such research is intended to influence—schools" (p. 34). This qualitative paradigm "deals with studies of 'classroom ecology,' providing detailed, descriptive accounts of classrooms and other school settings that shed light on their meanings" (p. 33).

Davidson & Scripp (1992) refer to the interconnectedness of music, psychology, and education while pursuing the study of music cognition and its implications for music education. An integrated perspective is needed if research is to advance beyond local knowledge in each domain.

> Cognition, intelligence, and mind are not matters of the head alone, nor is music a matter of kinesthetic performance untouched by discrimination and reflection….Consequently, cognitive skills must be defined by considering the points of view of the psychologist, the musician, and the educator—one providing a systematic interpretation of individual observations, another providing the tacit knowledge that comes from practice and informal observations, while the third helps establish the setting that links the first two (p. 411).

Thus framed, this study was "carried out in a 'natural' setting because the phenomena of study, whatever they may be—physical, chemical, biological, social, psychological—*take their meaning as much from their contexts as they do from themselves*" (Lincoln & Guba, 1985, p. 189, emphasis in original). Geertz (1983) concurs stating that the aim of fieldwork "is to render obscure matters intelligible by providing them with an informing context" (p. 152). The position of constructed realities specifies that

> reality constructions cannot be separated from the world in which they are experienced and that any observations that might be made are inevitably time– and context–dependent. No phenomenon can be understood out of relationship to the time and context that spawned, harbored, and supported it (Lincoln & Guba, 1985, p. 189).

Fosnot (2005) describes the nature of constructed realities and the ways they are shaped by our prior experiences.

> From a constructivist perspective, meaning is understood to be the result of humans setting up relationships, reflecting on their actions, and modeling and constructing explanations. Even among two adults, realities are different because they are based on interpretations that are the result of past individual experiences and beliefs….We negotiate meaning until we come to believe that we all mean the same thing (p. 280).

The connection between the holistic nature of learning and the holistic nature of qualitative research is not to be overlooked, particularly in a qualitative study of teaching and learning that embraces constructivism, shared understanding, and learning in social settings. An attempt to isolate variables without taking into consideration how parts relate to the whole would be to deny the social aspects of learning, the interactions of teachers and peers, and the impact of the environment. Bresler and Stake (1992, p. 78) list "holistic" as a basic characteristic of qualitative research with contexts fully

considered. The search for meaning in the particular requires finding meaning within the whole, and vice versa.

> Achieving a meaningful interpretation requires back and forth movement between parts and whole. Understanding cannot be pursued in the absence of context and interpretive framework. The hermeneutic perspective means that human experience is context-bound, and there can be no context-free or neutral scientific language with which to express what happens in the social world" (Bresler, 1992, p. 66).

Noting the holistic nature of phenomenological research and its relationship to education, van Manen (1990) states that

> hermeneutic phenomenology is a philosophy of the personal, the individual, which we pursue against the background of an understanding of the evasive character of the *logos* of *other*, the *whole*, the *communal*, or the *social,...* maintaining a view of pedagogy as an expression of the whole (p. 7, emphasis in original).

Van Manen (1990) emphasizes that phenomenological research begins in the lifeworld. "The human scientist does not go anywhere. He or she stays right there in the world we share with our fellow human beings" (p. 19). Van Manen also stresses the importance of reflecting on essential themes. While the researcher is immersed in a lived experience, reflective thought is required to discover elements of special significance.

> In other words, phenomenological research consists of reflectively bringing into nearness that which tends to be obscure, that which tends to evade the intelligibility of our natural attitude of everyday life. About any experience or activity….we can reflectively ask what is it that constitutes the nature of this lived experience (p. 32).

Careful observation and reflection on the actions and utterances of music students enabled me to bring to focus that which I had once considered obscure or taken for granted. It is both peering past the obvious and scrutinizing what was once

considered unimportant that may provide a window into children's musical understanding or unravel the details of this particular lived experience. Other researchers describe the same phenomenon. Janesick (2000) refers to this as understanding the familiar, "the qualitative researcher…[seeks] to describe, explain, and make understandable the familiar in a contextual, personal, and passionate way" (p. 394). Bamberger (1991) uses the metaphor of a windshield for the ways we look at the happenings around us—we can look at it, through it, or the glass may reflect images back at us (pp. 270-1). In observation of situations, we may look right at the obvious, look past the obvious to what lies beyond it, or in reflection see others and ourselves in new ways. Through observation, moments of special significance illuminating the nature of children's musical understanding may be brought into focus. Such moments of the familiar and the particular, observed in the social context of the music classroom, may provide educators with a window to the processes and paths of learning and knowing musically.

There are several aspects of quantitative research that are problematic for the qualitative researcher: the breaking down of contextual elements in order to isolate variables; regarding people as "subjects" rather than "participants," thus reducing the humanity of the people involved; specifying behavioristic responses and assuming that this response procedure is of value to the "subjects;" non-recognition of the subjective aspects of the study, and generalizing results to larger populations, which devalues the individuality of the participants. However, because of the nature of the question that the quantitative researcher poses—comparisons and counting of product responses—these types of measures do accomplish that end and are considered valid to those who pursue

such questions. Because qualitative researchers search for meaning in an occurrence, rather than the counting of occurrences, quantitative measures are inappropriate for qualitative studies. Qualitative studies value meaning within contexts; there is a search for looking intently at the obvious for overlooked meaning and in looking past the obvious for the peculiar and finding meaning there as well. It is in beginning with the whole setting, then scrutinizing its parts—the obvious and the obscure, both for reasons of confusion or intrigue—and subsequently reinserting these new understandings back into the contextual whole that the whole becomes richer for the study of it. These individual meanings are not "skewing" the results—they are the very meanings we are seeking and which illuminate our understanding of people. Janesick (2000) states that a

> passion for people, passion for communication, and passion for understanding people…is the contribution of qualitative research….In the other paradigm, people are taken out of the formula and, worse, are often lumped together in some undefinable aggregate as if they were not individual persons. In the qualitative arena the individual is the not only inserted into the study, *the individual is the backbone of the study* (p. 394, emphasis added).

Qualitative Methods Used in this Study of Music Learning in Social Contexts

Music education enables children's musical understanding by providing activities that focus on the ways musical elements interact to express musical ideas. Musical elements are the qualities and organizational elements of music (pitch, rhythm, meter, tempo, timbre, form, texture, style, etc.). In addition, musical knowledge involves affective response to music—the subjective response that is a result of experiencing the endless combinations of these elements. This is what music teachers teach—these dimensions of music with their infinite variety which combine to generate

a human response that is simultaneously physical, emotional, and intellectual (Boardman, 2002). As students broaden their understanding of the ways the musical elements interact to express musical ideas, their capacity for aesthetic response also increases. “That interaction, mindful and feelingful, is what musical experience is all about” (Reimer, 1989, p. 72). As teachers engage students in activities involving the elements of music and their endless combinations, students’ capacity for musical understanding is deepened. As students’ musical understanding grows, their capacity for aesthetic response—that interconnected response of mind, body, and feeling—is enhanced as well.

“It is not possible to describe or explain everything that one ‘knows’ in language form; some things must be experienced to be understood” (Lincoln & Guba, 1985, p. 195). This refers to Polanyi’s (1966) notion of tacit knowledge and aptly describes what happens in a music classroom, where children often know more than they are able to express verbally. As a practitioner, I have learned that activities that incorporate physical activity and iconic representations, encourage gesture, and provide opportunities to sing or hum are particularly helpful in enabling students to express themselves during listening experiences. This study looks at the nature of children’s understanding made evident through their actions and other outward manifestations of their thinking processes. Data collected reflects students’ learning processes and includes verbal and written responses, iconic drawings, vocalizations, and gestures.

In the classroom, students learn within the social fabric of their daily lives, with a teacher and peers working together in a place that is familiar. Problems are solved using the tools at hand, building on the ideas and skills of others. These shared musical

experiences provide the opportunity for student interaction before, during, and after the experiences. Rogoff (1990) explains that "children's cognitive development is inseparable from their social milieu in that what children learn is a cultural curriculum: from their earliest days they build on the skills and perspectives of their society with the aid of other people" (p. 190). Rogoff goes on to say that "the mutual engagement of children and their companions provides support for development. Neither the individual nor the social environment can be analyzed without regard to the other, as the actions of one have meaning only with respect to those of the other" (p. 190). In this social context, classroom learning results in shared musical experiences. Rather than investigating individual experiences or isolating students for observation, I conducted this study in a way that values the social context in which students learn and utilizes the music classroom as the naturalistic setting in which this aspect of children's musical experience takes place. The nature of social interaction in a classroom will be further described in Chapter Four.

Context of the Study

This study took place within a public elementary school in a small mid-western town (population approximately 30,000). The school has approximately 450 students who come from middle- to low-income families. The school is officially considered "at-risk," with 60% of the students receiving free or reduced lunch. The student population is primarily Caucasian, with approximately ten percent of the students representing various minority groups.

The naturalistic setting for this study was my music classroom where students come regularly for music class. No alterations were made to the selected students' schedule, routine, or class location. For both the pilot study and the final study, I selected a particular fifth grade class, including two target students, within the first few weeks of the school year. Considerations for class selection and target students included cooperative student behavior, a genuine interest in music, and the capacity of students to express musical ideas. Each target student assumed the role of a "key informant.…an individual with whom one spends a disproportionate amount of research time because that individual appears to be particularly well-informed, articulate, approachable, or available" (Wolcott, 1998, p. 338). Choosing students who appeared to be thriving in a musical setting was appropriate since one of the goals of this study was to observe and identify strategies used naturally by successful students. My intention was to provide teachers with an understanding of strategies that they could incorporate into their teaching to enable more of their students to achieve higher levels of success.

As a researcher working in my own classroom, I am able to provide an emic (insider's) view of the setting (Lincoln & Guba, 1985). As the school's music teacher, I had been working with these students for several years. In addition, the target students and I had participated in extra-curricular music activities together, further nurturing our relationship. My research sought to present an empathetic understanding of the human phenomena occurring in the music classroom.

Before the study began, I obtained approval from the Internal Review Board (Appendix A) of the sponsoring university and also obtained permission to conduct the study from the appropriate school district personnel. All students in the classroom

(including the target students) and their parents were informed as to the nature of the study, including possible risks. Parents signed consent forms (Appendix B) for their children allowing for videotaping and audio recording as needed.

Data Collection

Specifically, this was a three-part study conducted over a three-year period. During the first year, a pilot study was conducted from September through March, with data collected during each class meeting of this particular music class (45-minute classes, once a week) through video- and audio-taping, field notes and field journals, and artifact collection.

During the second year, data were not formally collected in an ongoing basis, however I continued to informally observe the students in my six fifth-grade classes and to reflect upon their musical interactions while listening, particularly during the creation and sharing of their musical maps. Only the final sharing of musical maps and the ensuing class discussions were videotaped (with permission) and reviewed during this second year. It was in this second year, that through my doctoral coursework, I was introduced to interviewing and interviewed (and videotaped, with permission) two students (key informants) from the previous year. My initial analysis of the interview generated support for the importance of providing various means for students to express their musical understanding (verbal, vocal, physical, visual). During the interview, these students used all these methods to again express their ideas about the music and their map—the same strategies used to initially create the map.

Further analysis of and reflection upon the interview allowed me to expand upon my observations of the students' iconic representations of their musical experience and to observe the strength of their "felt paths"—cognitive, emotional, and physical ways of knowing—that were relived several months later as a result of the interview process that followed the pilot study (Bamberger, 1991). The interview, which began as an exercise for a graduate research class, became an invaluable source of information for me as the teacher-researcher.

During the third year, the study was continued formally, with data again collected over several months through video- and audio-taping, field notes and field journals, and artifact collection. Because of what I had learned about students' musical processes and the ways students seemed to represent and share their musical ideas, I chose to now incorporate small group interviews into the design of the study. Thus, following the sharing of maps with the class, I conducted interviews (which were also videotaped for transcription and analysis) with the students in order to continue the dialogue about their maps. The time constraints of the class setting did not allow students to share everything they could about their map, nor did it allow me to pursue questions that intrigued me about their listening and mapping process. This was the only part of the study that did not occur during music class, although it did occur during the school day when students were available and students were interviewed in the small groups with whom they had created their map. The purpose of the interview was two-fold: first, to allow students the time to share the meanings that their map represented and, second, to serve as a member check against my observations as teacher-researcher. The interviews began with students once again listening to the music and tracing their

maps. Questions were open-ended; for example, "show/tell me what this means," "what was hard/easy to describe (graphically)? Why?" etc. Students were given opportunities to expand on their ideas about the music and the map that represented them.

As teacher-researcher, I acted as the human instrument in this study. Lincoln and Guba (1985) state, "our interest in the human-as-instrument stems primarily from the fact that in naturalistically based studies everything is *indeterminate*…the naturalist has no choice *because only the human instrument has the characteristics necessary to cope with an indeterminate situation"* (p. 193, emphasis in original). The characteristics that uniquely qualify the human as the instrument of choice for a naturalistic study are responsiveness, adaptability, holistic emphasis, knowledge base expansion, processual immediacy, opportunities for clarification and summarization, and the opportunity to explore atypical or idiosyncratic response (Lincoln & Guba, pp. 193-4). Acting as the instrument, I was able to immediately respond to and adapt the process as needed (i.e., the addition of the interview, relocating video cameras for optimum recording, adjusting lesson plans to better respond to the students' needs), clarify and summarize situations with first hand observations, have the opportunity to both identify and explore unique responses, and have a more complete contextual understanding of the entire naturalistic setting.

Janesick (2000) explores the metaphor of qualitative researcher (designer and implementer of a study) as choreographer (designer and implementer of a dance). Like a choreographer, the researcher must have a firm understanding of method and principles, but it is in the "expanding" and "embroidering" of principles that researchers become imaginatively creative. While researchers, as instruments, cannot act without

method, they also cannot act without creativity. Janesick quotes Lu Ch'ai, "you must first learn to observe the rules faithfully; afterwards, modify them according to your intelligence and capacity" (p. 380). Later Janesick, in her discussion of the reflexive nature of a qualitative study, reminds the reader that "qualitative researchers have open minds, not empty minds" (p. 384). Qualitative researchers formulate questions, albeit different sorts of questions, that undergo constant reflection and revision. The role of researcher as instrument is not to administer tests, but to challenge one's own perceptions and understandings as we rethink and reconsider the phenomenon that surrounds us.

In order to build trustworthiness and establish reliability, this study utilized the following processes suggested by Lincoln and Guba (1985, pp. 301-10). Data were collected every time the selected class met for music, regardless of the musical activity in which they were engaged—listening, performing, or creating (persistent observation, p. 304). Observing the students over a period of several months established prolonged engagement (p. 301). Data were collected, in as unobtrusive a manner as possible, through several sources providing multiple perspectives which served to triangulate the study (p. 305). These data sources were: my viewpoint as teacher-researcher, gained through a personal presence in the classroom and through my field log and field journal (providing both objective and subjective entries); the outsiders' viewpoints provided by two video cameras (videotapes included the target students in the range of field); the insiders' viewpoints provided by the two key informants who wore audio recorders with personal microphones to record their verbal and musical interactions; and physical

artifacts, such as worksheets or maps, which were collected when such items were used in the classroom.

Shortly after each music class took place (within 36 hours when possible), I watched and transcribed the videotapes of classroom interactions. I also listened to and transcribed the audiotapes, which supported the observations with additional sounds and conversations not audible on the videotapes, as well as provided the students' viewpoints in greater detail. I completed the field log and journal entries immediately after each class. I also collected and reviewed artifacts, such as worksheets or projects, as well.

Richardson (2000) and Janesick (2000) prefer the postmodern concept of crystallization when describing qualitative research design. As opposed to triangulation, which conjures up the image of a static two-dimensional triangle, the image of crystallization "recognizes the many facets of any given approach to the social world as a fact of life….What we see when we view a crystal, for example depends on how we view it, how we hold it up to the light or not" (Janesick, p. 392). This metaphor aptly describes the many ways we may view the research situation—through the lens of many subjective and personal viewpoints, for we are studying people, which themselves vary and change through the very course of lived experience. While triangulation was met, the crystallization metaphor was valued as the research developed.

Peer debriefing further established credibility. Peer debriefing is "a process of exposing oneself to a disinterested peer in a manner paralleling an analytic session and for the purpose of exploring aspects of the inquiry that might otherwise remain only implicit within the inquirer's mind" (Lincoln & Guba, 1985, p. 308). As the data were

reviewed, the peer debriefers confirmed, questioned, or explored my findings. Fellow graduate students in the music education department of this university provided this valuable service for my study.

Negative case analysis was not considered particularly useful. In negative case analysis, one takes on the role of devil's advocate and searches the data for anything that would refute the emerging trends. "The object of the game is continuously to refine a hypothesis until it *accounts for all known cases without exception"* (Lincoln & Guba, 1985, p. 309, emphasis in original).

However, consistency in the emerging trends may not be possible. Janesick (2000) considers searching for "what does not fit" to be a fundamental role of the researcher (pp. 387-8). In conversation with Liora Bresler[4] about this study (L. Bresler, personal communication, July 2, 2003), she urged me to search for the tension. Where is the rub? Where or when do things not fall so neatly into place? This is where we find the peculiar or the obscure; we must search for the meaning that evades us. It is important not to pass these instances over in our desire for consistency.

School Music Experiences of the Study Participants

The fifth grade students participating in this study shared a wide range of musical activities. It should be noted that these activities were not the exception, but rather the usual course of study for all fifth graders in this school. These activities incorporated the three modes of interaction with music—listening, creating, and

[4] Bresler is recognized as an expert in qualitative research in arts education. See, for example, Bresler (1992), Bresler and Stake (1992).

performing—with opportunities for discovery, exploration, and problem solving. While all involve some aspect of listening, the primary mode of interaction is listed. (See Table 1.)

Discussion of the Approach

Threats to conventional studies do not pose the same danger to naturalistic studies. The naturalistic view embraces the notion of multiple perspective, acknowledges the relational nature of the study's context, expects the unexpected, and understands that construct effects may very well be particular to the studied group. "They are seen not as effects that undermine external validity but as factors that have to be accounted for in making judgments of transferability" (Lincoln & Guba, 1985, p. 298).

The inappropriateness of generalization may be seen as a weakness of this study, but generalization is not the intent. Rather, the purpose of this naturalistic project is to study learning in a unique situation where the entire context of the learning environment is taken into consideration. Specifically, two unique advantages result: the opportunity to collect data in my own classroom and the opportunity to observe both process and product. Since students were not pulled from the classroom for the study, they were able to engage in shared listening experiences and have the opportunity to interact with one another and the teacher in the naturalistic environment of their regular music classes. Other advantages infused within the constructivist environment of my classroom—things that represent the social context of learning that may not be

Table 1

Fifth Grade Music Curriculum Activities

Musical Interaction	Description of Activity	Focus
Performing and creating	African drumming ensembles	Musical elements of rhythm and texture
Listening	Classifying the musical elements in context of whole pieces	All musical elements and students' ability to identify them
Listening	Melodic contour puzzle cards	Musical elements of pitch, duration and melodic contour
Creating, listening, and performing.	Listening to, creating, and performing an arrangement	All musical elements and how they can be manipulated to create different arrangements of the same tune
Creating and performing	Song writing	All musical elements and how they can be manipulated to create new compositions with text

Table 1 (continued)

Musical Interaction	Description of Activity	Focus
Listening	Problem-solving listening lessons	Form as a musical element
Creating and performing	Composing and performing pieces based on a specific musical form.	All musical elements and how they can be manipulated to create new musical compositions with emphasis on a specific musical form (ABA)
Listening	Musical maps. Students follow a prepared map, add to a partially completed map, and create an original map to reflect a piece of music.	All musical elements, with emphasis on melodic contour.
Reflection	Students share their maps with the class.	

present in other research environments—were activities such as enabling groundwork, teacher and peer scaffolding, opportunities for shared understanding, problem-solving, reflection, and allowing students as much time as needed to solve listening problems.

The longitudinal aspect of this study is also an advantage. The pilot study began as an emergent inquiry. As themes emerged, a more focused research design and data analysis occurred when the final phase of the study took place. A period of three school years occurred between the beginning of the pilot study and the end of the final phase of the study. During this time, I was able to informally observe all of my students who engaged in these listening experiences and to formally observe the students who participated in the first and final phases of this study. The longitudinal characteristics of this study are evident in the length of time I had been the music teacher for the students in the final phase of the study (four years), the large number of students (250) whom I observed while teaching these particular listening lessons during the three year time period of this study, the amount of time spent analyzing and reflecting on my observations and findings, and a greater opportunity to read and reflect upon the work of other researchers working in this area. The longitudinal nature of this study allowed me to observe my students formally and informally, to become aware of their musical learning processes while listening and the meaning that it held for them as I reflected upon and interpreted data over a lengthy period of time, with many students in a variety of settings.

In earlier qualitative studies, the issue of subjectivity in observations was addressed by enlisting the aid of a peer debriefer on a regular basis, to check for partiality or biased data analysis (Lincoln & Guba, 1985). More recently, researchers

have begun to embrace their own subjectivity as essential participants in the setting and now consider a description of their role as mandatory. Janesick (2000) explains,

> because qualitative work recognizes early on the perspective of the researcher as it evolves through the study, the description of the role of researcher is a critical component of the written report of the study. The researcher must describe and explain his or her social, philosophical, and physical location in the study. The qualitative researcher must honestly probe his or her own biases at the onset of the study, during the study, and at the end of the study by clearly describing and explaining the precise role of the researcher in the study (p. 389).

As early as the late 1980's, Peshkin (1988) extends the need for addressing subjectivity in qualitative research and reports, for it is not just in the reporting but in the process of researching that one must constantly consider one's own subjectivity. Peshkin suggests that in every study we, as researchers, must search for the ways that we are biased, or in the ways our own subjectivity plays out positively or negatively, for "untamed subjectivity mutes the emic voice" (p. 5). By addressing our own biases before we begin, during the process of conducting research as biases are discovered, and during the process of writing as further biases are uncovered, researchers can "more consciously attend to the orientations that what [we] see and what [we] make of what [we] see" (p. 5). As qualitative researchers, we are part of the human context and it is ultimately through our lens that the world will view (read or learn about) this phenomena.

As I address my own subjectivity, I acknowledge that I have positive, established relationships with these students. I value them as members of my music classroom and teaching experience. I must address my own subjectivity in the personal strategies of singing and moving that I use myself for understanding music, and the realization that I am a visual learner, valuing the use of graphic representation for my

students and for myself. These things are important aspects of the study and must be recognized. Although I must exercise caution, on the other hand, I must also explore these aspects as model activities that I, as an accomplished musician, commonly use and that I (and other educators) know to be valuable pedagogical tools. I have also attempted to clearly state when the meanings created are those of the students and when they are my own.

Transferability

The potential value of this study, with its interpreted data and emergent trends leading toward grounded theory, is not in finding generalizable results, but in the possibility of transferability "which refers to the extent to which the research facilitates inferences by readers regarding their own situations and responsibilities" (Bresler & Stake, 1992, p. 86). I have attempted to use thick description (Geertz, 1973) that includes the widest possible range of information to enable the reader to identify with the situation and setting. Thick description is "something we can nod to, recognizing it as an experience that we may have had or could have had" (van Manen, 1990, p. 27).

Greene (2005) connects the notion of transferability to the relationship of painter and viewer of the painter's artwork. "The painter can only construct an image; it is up to those who come to the painting to bring it to life. When that happens, the work of art will unite a number of separate lives" (p. 120). It is in the sharing of this report that I hope to connect to other music educators, that they may recognize themselves or their students in some way, and that it might enrich their understanding of music learning during listening experiences.

While I, as teacher-researcher and provider of the information, cannot guarantee transferability, it is my responsibility to "provide the *data base* that makes transferability judgments possible on the part of potential appliers" (Lincoln & Guba, 1985, p. 316, emphasis in original). "The intent of research then may become the provision of vicarious experience for report readers who will draw their own generalizations, combining previous experience with new. It often is research specifically designed to [immediately] assist practice" (Bresler, 1992, p. 67). Janesick (2000; also Geertz, 1973) suggests that it is not just the description but the balance of description, analysis, and interpretation that provides the essence of the experience. Like a dancer who interprets the dance, or a musician who expresses music, the researcher must find the meaning in the data. It is the researcher's ability to describe the experience that supports the analysis, but it is the framing of the context that puts everything into perspective and provides meaning for the reader, making transferability possible. This balance of description, analysis, and interpretation, which conveys one's own understanding of the experience, is itself creative and a means of expression.

I conclude this discussion of the methodology employed in this study with a quote from Blom and Chaplin (1988), as cited by Janesick (2000) in her chapter, "The Choreography of Qualitative Research Design." Here, Blom and Chaplin are referring to "improv" as improvisational dance; Janesick appropriately links the metaphor of "improv" to the improvisational and artistic nature of qualitative research, while I further connect the reference to the improvisational and unique nature of an individual's response to listening to music. Each with our own lens, I invite your own interpretation:

> Certainly and easily we can say that spontaneity is one of [improv's] constituent parts. At the same time it is not without direction. It is at once intentional and reactive….An organic plan emerges to take us forward in time, yet it only becomes articulated as we move. Because improv is a phenomenological process, we cannot examine any product per se. But it does exist and is perceivable. What we can do is examine the route it takes and our consciousness of it, a route which is on the way to creating itself while being itself (p. 381).

Importance of the Nature of the Lived Experience

Because of the emphasis on the nature of the lived experience of students in a music classroom and the importance of the social nature of students' musical understanding and their expression of it, a thorough description of the nature of this learning environment follows in Chapter Four.

CHAPTER FOUR

THE NATURE OF THE LEARNING ENVIRONMENT

An important and integral aspect of this classroom setting as the context for this study is the constructivist approach to teaching and learning to which I, as the teacher-researcher, am committed. Essentially, constructivism acknowledges that all people must construct their own understanding, making sense of the world and their place in it. Boardman (2002) explains that in constructivism, "humans do not find or discover knowledge, but rather construct or make it" (p. 3). People engage in experiences and from those experiences put ideas together to figure things out for themselves. Fosnot (2005) is quite explicit when she states that "constructivism is a theory about *learning,* not a description of teaching" (p. 33, emphasis added). She does, however, suggest

> some general principles of learning derived from constructivism [that] may be helpful to keep in mind…as we rethink and reform our educational practices.
>
> 1. Learning is not the result of development; learning is development. It requires invention and self-organization on the part of the learner….
> 2. Disequilibrium facilitates learning. 'Errors' need to be perceived as a result of learners' conceptions, and therefore not minimized or avoided….
> 3. Reflective abstraction is the driving force of learning…, [and]
> 4. Dialogue within a community engenders further thinking. The classroom needs to be seen as a 'community of discourse engages in activity, reflection, and conversation' (Fosnot, 1989, as cited in Fosnot, 2005, pp. 33-4).

Teachers can facilitate the process of furthering student understanding by structuring the classroom environment in particular ways and by designing lessons that foster growth, but teachers cannot make their students learn; ultimately is it the students

who must engage in and be responsible for their own learning. Thus, an underlying premise for constructivists must be the high value given to human beings as independent thinkers who are actively and curiously engaged in learning and knowing about their world. While Fosnot (1989, 1996, 2005) explains constructivism as a description of how people learn and not a particular approach to teaching, there are certain things that teachers and administrators can do to create learning environments that foster teaching and learning for understanding. Darling-Hammond (1997) describes these learning environments as those that honor and include "active in-depth learning, emphasis on authentic performance, attention to development, appreciation for diversity, opportunities for collaborative learning, collective perspective across the school, structures for caring, support for democratic learning, [and] connections to family and community" (p. 107).

A study of the history, theory, practice, and permutations of constructivism could and does fill volumes. For the purposes of this chapter, I will address the aspects of constructivism that have been particularly meaningful to me and have informed my practice as a teacher and researcher, and are thus reflected in the vignettes that represent this study. The discussion of constructivism that I present here is not meant to be a definitive discourse synthesizing the vast literature on constructivism. This discussion represents my construction of the ways learning is constructed—formed through reflection on the literature, reflection on my interactions with others, reflection on my own learning, and reflection on my observations of my students' learning.

Student Agency and Learning

While constructivism has many tenets, I consider the issue of student agency to be central in the way it supports and drives learning, particularly in a constructivist setting. Student agency drives or deters learning in any setting; the ways that educators respond to student agency is critical for the success of the learning environment.

Agency refers to the ways people act and interact within sociocultural settings. Dewey (1916) describes the attitude of an agent or participant (as opposed to spectator) as one who is "bound up with what is going on: its outcome makes a difference to him or her" (p. 124). Agency implies interest and ownership of the outcomes; people who act with personal agency act with concern, interest, aims, purpose, intent, and motivation (p. 125). In a learning or educational environment, the notion of agency (Bruner, 1996) is expanded to include "self-generated intentions," conceiving of both self and other as "agents impelled by self-generated intentions" (p. 16). These "intentional states [include] desires, beliefs, knowledge, intentions, commitments" (p. 123).

Bruner (1996) identifies four crucial areas concerning how teachers teach and learners learn: agency, reflection, collaboration, and culture, defining agency as "taking more control of your own mental activity" (p. 87). He also states that "the agentive view takes mind to be proactive, problem-oriented, attentionally focused, selective, constructional, directed to ends" (p. 93). The ability and opportunity to make decisions, to use strategies, to create frames that enable understanding are "key notions of the agentive approach to mind" (p. 93).

Beyond functioning as an agent with individual or collaborative goals is the human drive within to do so. Bruner (1996) refers to the relationship of agency, self-esteem and its connection to identity, to a sense of "self." He delineates two aspects of selfhood that he considers to be universal: agency and evaluation. "Selfhood…derives from the sense that one can initiate and carry out activities on one's own" (p. 35). But beyond the recognition of experiential activity, "what characterizes human selfhood is the construction of a conceptual system that organizes…as 'record' of agentive encounters with the world, a record that is related to the past…but that is also extrapolated into the future—self with history and with possibility" (p. 36). It is, then, evaluation that instills a sense of possibility.

> Not only do we experience self as agentive, we evaluate our efficacy in bringing off what we hoped for or were asked to do. Self increasingly takes on the flavor of these valuations. I call this mix of agentive efficacy and self-evaluations "self-esteem." It combines our sense of what we believe ourselves to be (or even hope to be) capable of and what we fear is beyond us (p. 37).

Other authors, when referring to agency, also emphasize the development of self. In their conversations with women in the process of finding their voice and thus their sense of self (each thing supporting the other), and in conversations with each other, Belenky, Clinchy, Goldberger, and Tarule (1986/1997) describe the emerging identities of women as they are transformed as learners and people. Five ways of self-knowing or self-perceiving are described, extending from descriptions of women whose voice is silent, who have no sense of self (they see themselves as "deaf and dumb") with little ability to think, to women who have a voice, *realize* they have a voice, and are connected to themselves and others, with mind described as a "full two-way dialogue with both heart and mind" (Stanton, 1996, p. 31).

Ladson-Billings (1994) notes the significance of self in learning communities and describes the sociocultural nature of identity in African-American life. Ladson-Billings stresses the importance of realizing that students' sense of self is tied to their community, therefore the importance of building learning communities within classrooms and schools. Citing Murrell (1988), she states,

> African-American connections to African cultural norms support a very different view of self: The African world view suggests that "I am because *we* are and because *we* are, I am." In so emphasizing, this view makes no real distinction between the self and others. They are in a sense one and the same….One's identity is therefore always a *people* identity, or what could be called an…*extended* self (p. 69, emphasis in original).

This notion of the developing self is nurtured by the participants' growth as they realize—through acts of ownership, discovery, and self-realization—that they do have a voice and identity. Students have many ways of expressing themselves and of knowing the world (Gardner, 1983/1993). Sports and athletics are commonly understood and valued ways that children express themselves as they learn to maneuver physically in the world. Walsh (2004) states, "children need rich opportunities to develop physically that give them many ways to excel….Not every child can be a dominate athlete, but every child can have an *athletic self.* Every child can be supported in this quest" (p. 108, emphasis added). I would suggest that the same may be true for our students' sense of a *musical self*. In the music classroom, students may discover their musical voices and that their voices can grow and be valued by others, as they are supported in their quest to function musically within a community of musicians.

The notion of agency includes, then, developing this sense of who we are, the agentive need to be valued for who are, and the desire to fulfill imagined possibilities.

To enable students to be transformed as learners, as selves, is to enable them to release their imaginations (Greene, 1995). Agency implies moving from powerlessness to a sense of control and a hope for the future, their own future. "People trying to be more fully human must not only engage in critical thinking but must be able to imagine something coming of their hopes; their silence must be overcome by their search" (p. 25). The realization of self and one's potential for growth is a transformative experience. When learners realize that they have voices, use their voices, listen to the voices of others, value the process and seek to expand it, they become people able to feel "themselves part of the dance of life" (p. 72).

Can these broader notions of agency and self inform practice in the music classroom? Is there a sense of agency among music students to develop a "musician voice," to imagine their possibilities? For my students in my classroom, I observed student agency to be that internal motivation within students to have their needs met. It is what propels students to learn, to be engaged in thoughtful problem solving and reflection, to care about the content being pursued, and to function democratically with others in a particular learning environment.

There are two fundamental areas of student agency that I have observed through my own teaching and have reflected upon throughout the course of this research. These two levels are not hierarchical; rather they are interdependent. One of these areas is the desire for students to enable and further their own understanding, or more simply, to grow as learners, and to accomplish that learning by figuring things out for themselves. This "own understanding" implies ownership or control within the learning process. In the music classroom, this is manifested in the students' desire to function as

musicians—to participate with others as composers, listeners, and performers. Students do not want to be told about these things, they want to do these things—they want to experience these roles for themselves and in experiencing them are enabled to apply conceptual understanding to new musical contexts as well as relate, in musical ways, to other people who are composers, listeners, and performers. The authentic nature of participating in such roles is critical, for it is in solving problems in real life contexts that learning has meaning (Dewey, 1938/1998). As we seek to create real musical experiences for our students as listeners, performers, and composers, we are inviting them to function in these authentic musical roles (Reimer, 2003). The other area of student agency is the students' desire to be respected and valued as members of the learning community. Students want their musicianship to be honored, to have their musical ideas known, valued, even celebrated. It is as if they are saying, "Listen to me! I have something to say! Hear me, respect me, know me." (In essence, *love me*.) Upitis (1992) shares a similar observation as described here. When students ask her,

> "Can I play you my song?" the question signifies much more than a request for a minute or two of [her] attention. It means, 'Listen to what I made up, look at how I wrote it down, see what I can do, and—most important of all—*listen to who I am"* (p. 151, emphasis added).

How we respond to our students greatly impacts their sense of worth as musicians and people. Belenky, Clinchy, Goldberger, and Tarule (1986/1997) emphasize the importance of caring and listening as central to respecting the child.

> Ultimately, it is the receiving of the child and hearing what he or she has to say that develops the child's mind and personhood….Question posing is at the heart of connected knowing. It is through attentive love, the ability to ask, "what are you going through?" [or, "what do you think?" or, "how did you figure that out?"] and the ability to hear the answer that the reality of the child is both created and respected" (p. 189).

Van Manen (1990) furthers this by describing the responsibility of researcher, (and I would add, educator) toward loving those whom we serve, and implies that knowing is "not a purely cognitive act…Love is foundational for all knowing of human existence….Especially when I meet the other person in his or her weakness, vulnerability or innocence, I experience the undeniable presence of loving responsibility" (p. 6). It is in loving the child and "remaining sensitive to the uniqueness of the person" (p. 6) that we embark on transformative relationships, pedagogically and personally.

This unique valuing of students and respecting the agency that they have about what they are learning and doing and living are hallmarks of the constructivist educator. It is allowing student responses, issues, interests, and concerns to drive the curriculum—for a moment, a day, a week, or even a semester. The classroom becomes student centered, not just in its approach to lesson design, but in its approach to curriculum design (Brooks & Brooks, 1993/1999). In *The Child and the Curriculum*, Dewey (1902) emphasizes that education must be about the child *and* the curriculum, rather than the child *versus* the curriculum. Dewey states, "The child is the starting-point, the center, and the end. His development, his growth, is the ideal….Subject matter alone never can be got into the child from without….Literally, we must take our stand with the child and our departure from him. It is he and not the subject matter which determines both quality and quantity of learning (p. 9). Darling-Hammond (1998) expands this idea.

> The critical issue in an education that seeks to make learning meaningful is the ability of the teacher to forge *interactions* among students' impulses, curiosity, prior knowledge, and the subject matter under study—to bring it into

> experience, as Dewey suggested, rather than to assume the learner's experience is irrelevant (p. 153, emphasis in original).

Vygotsky, as explained by Moll (1990), "highlighted the importance of everyday activities and content in providing meaning, the 'conceptual fabric' for the development of schooled concepts. To make schooling significant one must go beyond the classroom walls….School knowledge grows into the analysis of the everyday" (p. 10). Every day concepts must be the starting point and as they are "transformed by interacting with schooled concepts [become] part of a system of knowledge, acquiring conscious awareness and control" (p. 10). It is not that curriculum is generated solely on student interests (although it might be); it is that teachers actively and creatively develop a continuum of experience that flows through students' lives in and out of school.

*

It is a hot and sticky day in late August. Twenty-five fifth graders and I are seated in a circle, listening to a recording of a piece of music and trying to find a rhythm pattern within it. I am playing a piece in the style of African drumming music, asking them to listen to it in its' entirety to get a sense of the music. These students have had some experience with African drumming, as they have performed simpler ensembles in previous grades. I have shared with the students that the goal for today is to learn a new African drumming piece. After the first listening, we discuss together how many rhythmic layers they heard, and since the students are not in agreement, I ask them to listen again and to try to find one rhythm pattern

by working it out "on their legs" (patting the rhythm like their legs are drums).

When the music is finished, I ask for volunteers to show what they have worked out—can anyone play one of the rhythms on his legs? Once several rhythms have been performed and identified aurally, the students are directed to the icons on the board. I have prepared graphic representations (with which the students are familiar) of the various rhythm patterns used in this piece and as everyone once again plays the rhythms on their legs, students study the graphic representations to figure out which one fits each rhythm pattern. (Legs have been used for drums for now because of the noisy nature of students drumming different patterns simultaneously.) Once identified and "labeled," we listen to the music once again, this time with the listening problem of figuring out the order in which the rhythms appear, and in what order they drop out.

Through repeated listenings, the students create a texture map of the music, using the iconic representations to identify the layers. This problem solving while listening enables the students to understand the piece holistically and is accomplished by *the students, not* for *the students, in the real life musical experience of learning to perform the musical work.*

With some time left in the class period, I begin to provide scaffolding for the students as they learn the rhythm patterns more proficiently. Moving to drums and the other necessary percussion instruments (cowbell, gonkogui, and shekere), I ask for volunteers who think they could lead the group in one of the patterns. With time and repetitions, and both kinesthetic and visual support for learning the patterns, the students begin to play the various layers, something that is not fully accomplished until the end of the

next class period. While learning to put the layers together, I intentionally ask students to work in groups and allow every student the chance to learn all the layers. The students listen to the music again to determine how the layers "fit," and they work at performing them in that manner. Part of discerning how the parts fit together is asking the students to identify which rhythmic patterns represent the basic "call and response" and how the other parts tie into it, or how they fit with the bell (timekeeper). It is important to enable students to understand that the rhythms lock together in a way that makes sense musically rather than their relying on me for knowing when to start and stop playing.

During the next class period, the students each choose their favorite "layer" and the class begins to rehearse the music in a way that enables mastery of the ensemble. Functioning with the foundation of understanding all the parts and how they fit together, the students are able to work independently and I join the class as a fellow drummer. Some students are able to take over the leadership of the groups representing each layer. After some time, I mention that the ordering of the layers could vary and ask how the students would like to arrange their own setting of this music. For some time they work as a whole group, trying out various student's ideas about how to start, when instruments should play and for how long, deciding whether to stop "all at once" or to "fade out." Half way through their progress, the principal looks through the window and grins. The noise level permeates the hallway, but the students are engrossed in what they are doing and are making critical and creative musical decisions. We continue with our work and as the class ends, their classroom teacher appears, obviously impressed with the music he is hearing, the students'

engagement, and sense of ensemble that the students have achieved. Suddenly everyone is asking, "Let's play it for him! Can we play it for him?" They are anxious to show what they know and we begin. Students know what to do, begin and end their layers confidently, and play their arrangement with enthusiasm and pride. Their "need to know" in order to accomplish this level of musicianship and the desire to enable their own understanding by figuring things out for themselves has enabled their musical growth. Every student was needed and every student's ideas were valid and valuable.

But there is more to come! In the next class period, I remind them of their awesome drumming arrangement and ask a few questions to help students connect back to that experience and to support students who may have been absent. Satisfied that they have internalized concepts such as layers and call and response, I present the musical problem for today. "Your mission, should you choose to accept it…" I begin, and the students are all ears. Their job today is to work in small groups to create a drumming piece with at least three layers—a call and response, and "something else that fits." They may add more layers if they want to, but the assignment is to work together to create a three layered percussion piece that they will later share with the class (the previously learned ensemble had six layers). They will be making some important musical decisions—what sounds to use, when to start and when to finish, what should happen in between, and most importantly, how to create layers of sounds and rhythms that "make sense." Their experiences in previous class periods have enabled them to transfer their understanding to a new situation and problem—creating music of their own.

When the students have had enough time to create their pieces, each group plays its composition for the class. After moments of spontaneous applause following each performance, students who have been listening share their ideas about what they have heard—identifying who played the call, who played the response, and how the other part(s) fit with it. The composers are then given an opportunity to talk about their piece and answer their peers' questions, although for some, just playing it was enough. Before the class session ends, the students pick one of the compositions and those who composed it begin teaching it to their classmates in the same fashion that we had learned the previous ensemble.

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This vignette provides support for the notion of student agency as it is embedded in a constructivist approach to learning—students furthering their own musical understanding by figuring things out for themselves and being valued for their musical ideas, ideas heard and respected as evidenced by their affirmation and use within the curriculum.

Student Agency, Learning, and the Zone of Proximal Development

These two areas of agency, the students' desire to grow in musicianship and to be valued for their musical ideas, are intensely linked to the two areas within Vygotsky's *zone of proximal development* (ZPD). Vygotsky (1978) explains that the zone of proximal development is "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with

more capable peers" (p. 86). The notion of social interaction will be discussed later, but what is under consideration here is the idea that the place where students learn is in an area of personal incompetence, yet within the ZPD, and because of the assistance of others, students can function competently and are able to explore and master new ideas. Where they can function independently, one border of the ZPD, indicates a place where they have mastery of content and skills that enables them to be successful. In order to solve the new problem and generate understanding that will allow success in a new setting, students must function within the zone of proximal development, a place with some insecurity but a place where, with the help of a more knowledgeable other (teacher or peers), they can be successful, gradually internalizing new conceptual understanding until they can function independently in the new context, the other border of the zone. This zone is ever-moving as students become independent, with the help of others, in new situations. In a classroom, students will be functioning at various levels of independence, and students will at different times, function as the peer support for others and at other times, function as the peer in need of support.

Here is where the zone of proximal development and student agency become so inexplicably intertwined. Learning takes place within the ZPD, but without a desire to learn, students will not venture into the zone. Again, the teacher cannot do it for them; they must be willing to go. They must have internal motivation to learn, to grow, to function as musicians (competence). Deturk (1989) states that "creative thinkers often test their abilities and seek new knowledge in the process of creating. By accepting a creative task they subject themselves to an endeavor whose demands are not entirely known to them in advance. They are, therefore, risk takers in pursuit of their objective"

(p. 27). But it may be too risky; not only do they not know exactly what lies ahead, but entering the zone of proximal development leaves the student wide open to being revealed as unintelligent or unskilled. Ruddick and Leong (2005) describe various case studies where students whose negative self images concerning personal musicianship impedes their learning and musical participation, with expressed fears of being "heard and judged as unmusical or crazy" as the cause for non-participation (p. 20). Rogoff (1990) links the ZPD to a place of risk taking, as

> learning requires risk taking, since learning involves functioning at the edge of one's competence on the border of incompetence: 'If the teacher is not trustworthy, the student cannot count on effective assistance from the teacher; there is a high risk of being revealed (to self and others) as incompetent (p. 202).

Not to be overlooked in this quote is the importance of trust (Stronge, 2003), with caring as the driving force of that trust. It is only in establishing a learning environment where trust is the norm—between teacher and student and among peers—that students can set aside fears and risk stepping into the unknown. Finney (2003) concurs, sharing his study where students have a "teacher who understands things.…who [makes connections] with them. The relationship between learner, what is learnt and teacher proved critical" (p. 1).

Here in the ZPD there are two interdependent layers—competence and confidence (Bandura, 1977). This sense of self-efficacy—the balance between confidence and competence, which is similar to the qualities Csikszentmahalyi (1990) describes as promoting "flow"—enables student growth. As students are successfully moving through various Zones of Proximal Development, they grow in their conceptual understanding and grow in competence, in their ability to function as a musician. As

students are honored and celebrated for their musical ideas, they grow in confidence and their agency issues of being valued as a member of the learning community are met. Each then propels the other as students grow in both areas of the ZPD, conceptual understanding and confidence (Cameron, R. Wiggins, J. Wiggins, & Bartel, 2002; Wiggins, Blair, Ruthmann, & Shively, in press), which is reciprocal with their own sense of agency as their desire to learn and their desire to be valued for who they are and what they can contribute is met (see Figure 2).

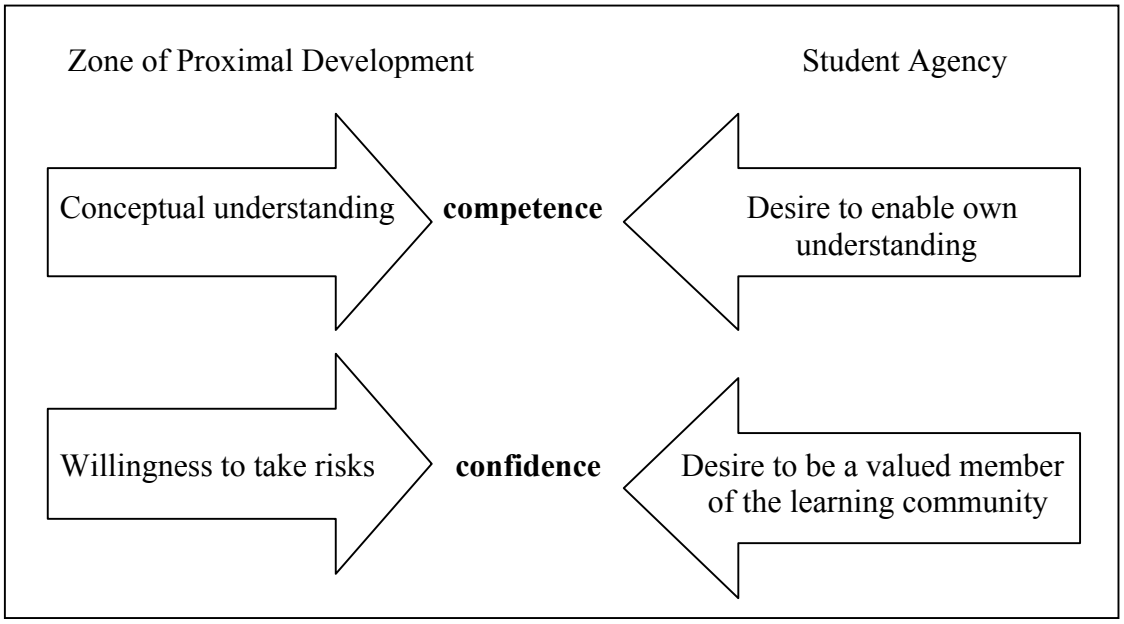

Figure 2. Interdependent Layers of Learning and Student Agency

Valuing Multiple Perspectives

Within this frame, I move now to other aspects of constructivism. Succinctly, constructivists consider that all learning is constructed by the individual. We cannot give knowledge *to* our students, they must construct it *for themselves*. As students encounter the world, they make meaning in ways that make sense to them. "In ways that make sense to them" is significant, because what makes sense to each of us is mediated by our prior experience and our socio-cultural context (Fosnot, 1996, 2005; Lakoff & Johnson, 1980/2003). This notion of multiple perspective, each person having their own unique perspective about the world, is a foundational characteristic of constructivism (Brooks & Brooks, 1993/1999; Fosnot, 1996, 2005, Swanwick, 1999). We each come to a learning situation with our own prior experiences, both in and out of the classroom. These experiences are what shapes us as people and thinkers, they become the lens through which we experience new ideas and, in our attempt to make sense of them, we connect them to prior experiences—what aspects are the same, what aspects are different, making wider connections and acute discriminations (Reimer, 2003), and interpreting what is new through what is known (Boardman, 1988a).

Darling-Hammond (1998) reports that "cognitive research …demonstrates learning as a process of making meaning out of new or unfamiliar events in light of familiar ideas or experiences. Learners construct knowledge as they build cognitive maps for organizing and interpreting new information" (pp. 161-2). She continues by emphasizing the new role of the teacher as facilitator, "effective teachers help students make these maps by drawing connections among different concepts and between new ideas and learners' prior experiences" (p. 162). This is how students make meaning—

when “they are able to connect something they have come to value with something they already value, thus constructing their own understanding in ways that are enduring” (Kondo & Blair, 2004).

Because of this, constructivist teachers value the many and varied perspectives of the students in their classrooms. With each student representing a unique set of prior experiences and even valuing music in different ways, each student is functioning at a different zone of proximal development. This requires that teachers design lessons with multiple points of entry, so that each may participate at his own level. “Students will necessarily come to any learning experience with different strengths and prior experiences—providing different starting points for the material they must learn” (Darling-Hammond, 1998, p. 155). Even as each student enters the musical experience with wide variations in conceptual understanding about music, each may also have a different degree of agency about functioning as a musician. I contend that all students have some sense of agency about being a valued member of the learning community, and if successful *musically,* the teacher can enable a student’s sense of self-efficacy as a musician to grow as well.

Seeking Relevance Through Authentic Problem-Solving

As students seek to make meaning, teachers seek ways to make learning relevant. For constructivist teachers, this means valuing the ways our students learn, both formally and informally and using these ways in the classroom. Of particular importance is acknowledging that people experience life and learn about it holistically (Dewey, 1938/1998). People learn in whole contexts, not by starting with small parts

and eventually reaching an unbeknownst whole, but by experiencing the whole and later scrutinizing parts for areas that are problematic or intriguing. In a music classroom, this would be played out by approaching the teaching of a new song by hearing it in its entirety, possibly several times, before taking it apart to learn more difficult sections. Most of our students come to school with a rich prior experience learning music aurally (informally) and with competence to sing complex melodies and rhythms. Yet we do not always value and recognize these understandings, and by designing experiences for them that oversimplify music, we risk reducing the relevance of the school music experience (Larson, 2005). As music educators, we must endeavor to enable our students to do more, be more, and hear more than they can alone or outside of school—not regress their level of music making and musical understanding while in school.

Student-centered learning environments and the role of problem solving in learning, essential components of constructivism, are proposed and defended in the writings of John Dewey (1902, 1910/1997, 1916, 1938/1998) and Jerome Bruner (1960/1977, 1966, 1996), as well as contemporary educators such as Brooks and Brooks (1993/1999), Darling-Hammond (1997, 1998), Fosnot (1996, 2005), and Zemelman, Daniels, and Hyde (2005). The work of these educators has informed and shaped the ways that I, as a constructivist teacher, think about learning and attempt to create meaningful learning situations for my students. Dewey advocates the need for experiential learning, where students learn by doing, using their bodies and minds in concert to figure out problems that are authentic and relevant. It is the thinking that informs the doing and the doing that informs thinking. Asking students to sit still in

rows of desks, mindlessly completing drills that focus on facts, is to Dewey (1938/1998) "dull drudgery" (p. 15). Dewey (1916) elaborates,

> there is no such thing as genuine knowledge and fruitful understanding except as the offspring of *doing.* The analysis and rearrangement of facts which is indispensable to the growth of knowledge and power of explanation and right classification cannot be attained purely mentally—just inside the head. Men have to *do* something to the things when they wish to find out something; they have to alter conditions (p. 275, emphasis in original).

It is in the solving of problems that students become engaged, are compelled to think about and reflect upon solutions, and are figuring things out for themselves. Dewey (1916) suggests that designing such lessons is an art, that teachers must know their students in order to know what may be new or known and how to create settings that enable students to make appropriate connections. "A large part of the art of instruction lies in making the difficulty of new problems large enough to challenge thought, and small enough so that, in addition to the confusion naturally attending the novel elements, there shall be luminous familiar spots from which helpful suggestions may spring" (p. 157). Such is the challenge we face as educators, with Dewey providing the guidance that inspires us to create problems that both challenge learners and provide them with familiar locators.

As noted earlier, the notion of "minds-on" (Wiggins & McTighe, 1998) versus merely "hands-on" experiences differentiates mere activity from meaningful engagement. The accumulation of hands-on experiences does not guarantee mindful interaction or growth in understanding. "Minds-on" implies reflection and thoughtful engagement as a requisite of worthwhile hands-on learning experiences.

Regelski (2004) describes this as "activities versus actions" (p. 24). Regelski states that

> *actions* are guided by intentions (goals, desires, values) for reaching certain musical results. *Musical* actions involve mindfully "trying-to" bring about certain desired *musical* results. When students are clear as to the nature and value of musical results, their intentions inevitably advance music learning in line with the competencies demanded by such results.
>
> "Activities" involve *mere behavior* that is somewhat mindless, or it is directed by *non*-musical or *un*musical intentions, such as pleasing the teacher or just having fun. Thus while students may appear to be enjoying or otherwise going along with the lesson, musical learning may be nonexistent, slight, or haphazard (p. 24, emphasis in original).

Bowman (2005) suggests that the nature of musical engagement must be "thoughtful action, or action-embedded thought. For short: *musical praxis in mindful doing*" (p. 69, emphasis in original). In particular, "praxially oriented music education must steer clear of ungrounded theory and blind execution" (p. 69). Such "blind execution" would be the equivalent of mere activity rather than "mindful doing" within a meaningful experience.

I would concur (Wiggins, Blair, Ruthmann & Shively, in press) that there is a difference between merely "doing" activities and engaging in meaningful experiences where students are thinking musically. Many of the practices that have found their way into music classrooms are activities where students are "doing" things, and while that "doing" may occur when music is happening, the ways in which students are engaged in these experiences allow little space for *thinking musically.*

When students are simply "doing" things—clapping or moving without a musical context, listening without a purpose, or playing/singing without knowing or realizing how their part fits within the musical whole—they are acting without

understanding and are engaged in what I call *uninformed doing.* Our students are doing something, it may be fun and sound good, but if students can participate without constructing or expanding their own musical understanding, the experience remains just something to do, without generating understanding that could be applied to new musical situations. *Informed doing,* on the other hand, results when students are personally engaged with music, solving musical problems. Rather than "following directions," students are *being musical*, growing as *musicians.* Their thinking informs their doing and their doing informs their thinking. They are not being told how to perform a piece of music, they are actively engaged with the music, making performance decisions that inform their understanding of the music; they are not being told how to listen to music, but are figuring out musical listening problems for themselves; they are not being told to create four measures of quarter notes, starting and ending on the home tone, they are enabled to improvise or compose music within authentic musical parameters. Because they own the doing and the informing, they enable their own musical understanding.

If the teacher is not directing activities, what then is the teacher's role? The teacher's role is to carefully craft lessons that *allow for,* and—in order to be successful—*necessitate* that students be creatively engaged with the music. It requires them to "be" the composer, listener, or performer. This "allowing for" is quite intentional, and requires that the teacher steps back and is no longer the center of the musical experience, responsible for the thinking and doing and musical decision-making. It also requires that the teacher design ways for students to interact with the music and with each other. Rather than the teacher being the center of the experience, the music and the students must synergistically be the center of the experience, with the

students responsible for all the thinking and doing and musical decision-making as they interact with the music and each other. This then becomes our "red flag" for guarding against a teacher-centered approach: to whom/what are the students responding? If students are primarily responding to the teacher, waiting and watching for cues in how to interact within an activity, then something is amiss. However, when students are engaged with the music, solving musical problems, and interacting with others (including the teacher as a member of the learning community), then we can trust that students are interacting with the music and by doing so, informing their own musical understanding.

The Social Nature of Learning

Not to be overlooked throughout this discussion is the importance of the social nature of learning. Vygotsky (1978) believed that learning is constructed socially—among people. Everything we learn is from other people (interpsychological) or, when functioning independently (intrapsychological) it is because we have internalized what and how we have learned through our interactions with others (Forman & Cazden, 1985). We are a product of our environment of people. This supports the important role of social interaction within the zone of proximal development, for it is in our interactions with others that we are supported when taking risks in new learning situations. According to Rogoff & Wertsch (1984), and furthering the notion that social interaction is necessary for learning, the zone of proximal development "serves a central role in Vygotsky's theory as an essential means through which the social world guides the child in development of individual functions" (p. 4). This is where learning

takes place—just beyond where a student can function independently, but is able to function successfully with assistance provided by the teacher or peers. It is the most effective place for teaching and learning, as students are enabled to stretch beyond what they can do alone, and by collaborating with others are able to work at a higher level. Yet, notice the implied importance of the social nature of learning which Vygotsky so highly values, for without others the place of learning (the ZPD) is functionless.

Scaffolding

Bruner (1966) called this support from a teacher or peer "scaffolding"—assistance that is easily provided and removed in order to help the students build their understanding. The teacher must know when to give this support and when to allow the students to stand on their own. Students can also provide this scaffolding for each other—and teachers must not only recognize this, they must provide opportunities for it to happen. For Vygotsky, (Forman & Cazden, 1985) age and status have no bearing on who is the student or teacher; instead he prefers the terms "more knowledgeable other" or "more capable peer."

Intersubjectivity

Also integral to this notion of functioning with others within the zone of proximal development is the presence of intersubjectivity or shared understanding (Rogoff, 1990). When two (or more) learners are engaged in problem solving, due to the nature of perceiving the world through one's own lens of experience, each of the participants may be defining the situation in a different way. As the participants begin

to share the same definition of the problem (the context, the content, and the way to solve the problem) and also realize that they share the same definition of the problem, then intersubjectivity exists (Wertsch, 1984). Intersubjectivity is the understood, but not always stated, knowings that learners have in common which allow them to function together smoothly and effectively. It is also becomes the new knowns, what the learners generate together that is greater than that which they could have accomplished alone. It is the role of the teacher to create opportunities for students to interact and collaborate. It is not just a time of delegated responsibilities within a structured project. True collaboration results when children are learning *"with and from* one another" (Zemelman, Daniels, & Hyde, 2005, p. 19).

Importance of Providing Groundwork

A less visible, but nonetheless important, aspect of constructivist lesson design is the importance of providing groundwork (Wiggins, 2001). Because of the wide range of our students' prior experiences both in and out of school, students must have the groundwork needed to be successful problem solvers, lessons that enable musical understandings and skills for students to be able to explore and participate fully in the current musical experience. This includes curriculum design that enables a progression of experiences, both in the musical context and in the way that problems are being solved. This implies that students will understand the problem and the means to solve the problem. Rogoff and Gardner (1999)

> suggest that generalization from one problem to another is a function of the individual searching for similarities between new problems and old ones, guided by previous experience with similar problems and by instruction in how to

> interpret and solve such problems….When faced with a new problem, individuals weave what they know about solving other problems and information about the new problem into a coherent approach which transforms the novel problem into a more familiar problem….An important function of adult-child [or teacher-learner] interaction may be to provide guidance in creating links between the context of a novel problem and more familiar problem contexts (p. 96).

The teacher, while no longer the center of the classroom, plays many important roles. It is the task of the teacher to assess prior knowledge and to create contexts in which students can solve problems that begin with where they are and take them into new territory. It is the teacher's role to enable students to find ways to make these new connections, to make the unfamiliar familiar.

Learning Through Real-Life Experience

Another role of the teacher is to establish and create learning situations through real-life experiences (Dewey, 1938/1998). Since students will learn through real life experiences, it is the role of the music teacher to provide the rich musical contexts within which students encounter music. In order for students to construct their own understanding, the role of the teacher must also be to create problem-solving lessons within the holistic context of authentic musical processes of creating, listening, and performing. Because of what we know about the ways people learn and the need to connect to prior experience, teachers must assess students' prior experiences and find ways to enable students to connect to prior experiences that have occurred in and out of the classroom. In creating lessons, the teacher must insure that students will interact directly with music while listening, creating, and performing. Teachers must provide

opportunities for student interaction, enabling students to understand the problem as well as the means to solve it, and constantly assess for student understanding.

These musical learning experiences must have various points of entry based on the group's prior experiences. The teacher must work side by side with the students, knowing when to provide and when to pull away assistance, including finding ways to transfer responsibility and leadership into the hands of the students (Rogoff & Gardner, 1999). Teachers must teach within the ever-moving zone of proximal development—as teaching at too low or too high a level is unproductive and very frustrating. Students need time to engage with significant problems, to "have the opportunity to see evolution of their ideas…[as well as] opportunities for students to accomplish their best work" (Davidson, 1990, p. 49-50).

Students especially need to know the goal of the experience and the means with which to accomplish it. Wood, Bruner & Ross (1976) state that "*comprehension of the solution must precede production*…. That is to say, the learner must be able to recognize a solution to a particular…problem before he is himself able to proceed the steps leading to it without assistance….Without [comprehension of the problem] there can be no effective feedback" (p. 90, emphasis in original).

The Role of the Teacher

Some may suggest that constructivist classroom environments reduce the role of the teacher. Quite the contrary—it becomes the teacher's responsibility to create an environment where students' ideas are valued, where they receive and give support, and where lesson design enables this to occur. Active, experiential learning situations

require that teachers have a strong sense of self-efficacy as educators and in their level of expertise within content areas. "Teachers have to bring a great deal of knowledge, analytic ability, and adaptability to the task of developing understanding with their students" (Darling-Hammond, 1998, p. 155). Teachers, themselves, must consider themselves learners, members of the learning community within their classrooms—learning about subject matter with their students, but also continuing to be learners in understanding the learning process which informs their interactions with their students (Fosnot, 1989). Teachers begin to realize that it is not all about them and what they do *to* the students, it is about the students and what they can do *for themselves*, and so the power must be transferred from teacher to learner. It is a matter of centering classroom activities around the students and encouraging all to contribute to their own learning process and to those with whom they interact in that place. Such collaboration within the classroom with mutual respect for others is the basis for developing a community of learners.

> (T)his model is seen as a minisociety, a community of learners engaged in activity, discourse, and reflection. The traditional hierarchy of teacher as the autocratic knower and learner as the unknowing, controlled subject studying to learn what the teachers knows begins to dissipate as teachers assume more of a facilitators' role and learners take on more ownership of the ideas. Indeed, autonomy, mutual reciprocity of social relations, and empowerment [of the learner] become the goals (Fosnot, 1996, p. ix).

While facts are needed to accomplish goals, facts are not the end. Facts are used as a means to the end—that end being whatever problem is currently being solved. Valued more highly in collaborative classrooms is the notion that we are all thinkers, all capable problem solvers. Being wrong is just a step towards finding an answer (Brooks & Brooks, 1993/1999). Fosnot (1996) explains the value of exploring errors this way,

> Disequilibrium facilitates learning. "Errors" need to be perceived as a result of learners' conceptions and therefore not minimized or avoided. Challenging, open-ended investigations in realistic, meaningful contexts need to be offered, thus allowing learners to explore and generate many possibilities, both affirming and contradictory. Contradictions, in particular, need to be illuminated, explored, and discussed (p. 29).

It is in reflective thinking, both during and after experiences, that all members of the learning community have the opportunity to creatively enable and further their own understanding. Student agency, as described earlier, includes the student's desire to grow as a musician and to be valued with the musical learning community. Figure 3 illustrates the relationship of student agency and the aspects of constructivist learning environments, as noted above.

Finally, it is the teacher's role to provide an environment conducive to taking risks, for without risk-taking students will simply repeat what they already know. As noted earlier, "learning requires risk-taking, since learning involves functioning at the edge of one's competence on the border of incompetence" (Rogoff, 1990, p. 202). This entails providing the comfort and freedom to take risks that is begun by valuing what students bring to the classroom and what they contribute while in the classroom. By developing an environment of trust, students feel free to put themselves on the line when trying new things. Other important ways to enable student achievement is to create opportunities for students to have ownership of both process and product while working on musical problems, to transfer responsibility to students in both process and product, to connect to students through the modeling of one's thought processes, and to find ways for students to connect cognitively, emotionally, and physically to music.

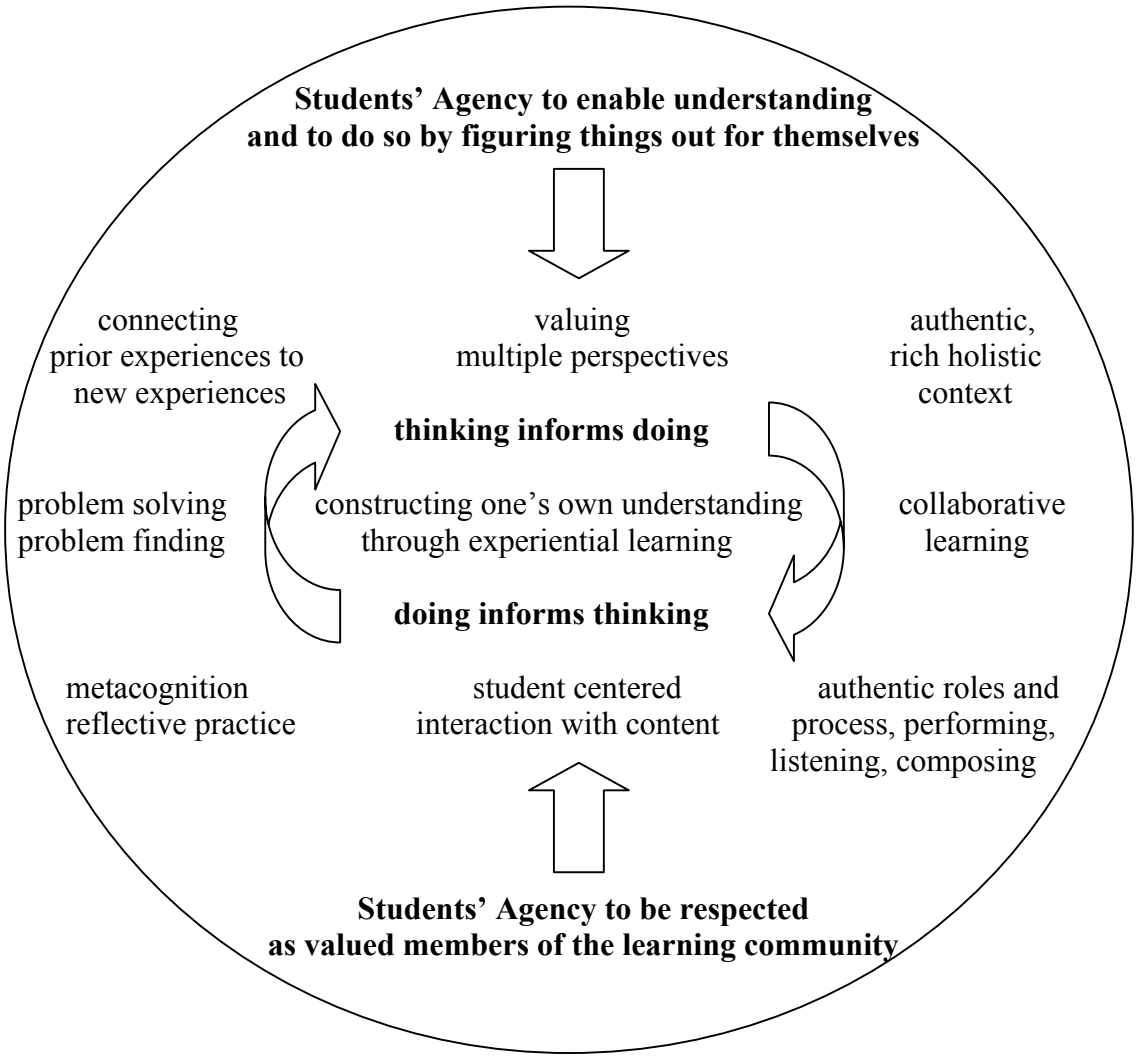

Figure 3. Student Agency and Constructivist Learning Environments

Implications for Music Learning and Teaching

The teacher's role in the classroom is critical to student success. Embracing constructivism affects the teacher's "way of being." It means trusting our students to be thinking, feeling, curious, and responsible learners who are capable of working with others to mediate their world, to take risks, and to be interpreting minds. The role of the teacher is significant, it is a role of empowerment, because it is ultimately the learner who plays the most "critical role in instruction, in that it is the learner who is in the end responsible for figuring out the material" (Rogoff & Gardner, 1999, p. 113), which is the essence of constructivism.

CHAPTER FIVE

EXPRESSIONS OF MUSICAL UNDERSTANDING

Once I had become intentional about observing my students through the means described in Chapter Three, I began to notice the natural strategies that my students used to work through musical problems. Enacting what they heard—singing, moving, using gestures—was a constant feature of their interaction with the music and with each other. Their high level of intrigue and engagement with the graphic representations of music that we used in the classroom seemed to suggest that they valued these visual representations and found them helpful in expressing their own musical ideas and for understanding the musical ideas of others. There seemed to be a sense of urgency among the students to share what they knew—what they brought to the classroom and what they came to know while engaged in these listening experiences. Seeds of what eventually became emergent themes are evident in the following vignettes. Consider this situation as students explore and classify musical elements in an introductory music lesson.

*

Students are grouped in clusters around the room, music is playing, and lively discussion animated by gestures dominates the scene. It is a music lesson in which the students are listening to music and writing down "describing words" for everything they hear, even as it changes. Later they

will organize these describing words into categories of musical elements—tempo, dynamics, articulation, mood, timbre, form, etc.

While listening to the music, students are moving, some subtly, some overtly. It is not always intentional but it is purposeful. These students are figuring out an idea, or finding a way to express that idea through movement—more specifically by enacting what they are hearing. Students pat their legs, tap a pencil, sing a phrase, gesture the shape, or shake and shimmy indicating articulation and also personal responses to the feeling of the music. Danny is moving his head in a way that uncannily fits with the rhythm of the music; Sharice and Kassie are attempting to clap out a repeating drum pattern. Caleb moves his shoulders in a way that jives with the music. Other students hear a new instrument and imitate playing it; together they search for the word that describes it and confer about its appropriate label. When the students hear a new sound or a new way of making musical sound (louder, faster, smoother, scarier), they tell their idea repeatedly to the group's scribe until it has been recorded. This first appears to me as annoying, but the students take it in stride, as though they accept their peers' insistence that their ideas be included.

Conner and Dillon mention to me that the music goes up and down, making a wave motion with their hands. "Hmmm," I ask, "do you mean up and down, like loud and soft? Or up and down like high and low pitches?" "Both!" they respond. During the next piece with a long drumming section, the pitches and dynamics remain stable and Dillon and Conner talk about this. Dillon once again makes the wave motion, and Conner discusses the movement of the music, gesturing with a flat hand to make a straight horizontal line through the air, simultaneously making a straight vocal

sound. "It goes flat. It's like the same thing. It doesn't get any newer." Dillon nods in agreement, with Conner writing down their new idea, constructed by contrasting the music to the previous piece.

Throughout the experience and throughout different pieces, Danny sings or hums with every piece of music, changing from melody to bass line, and even humming between listenings when no music is playing. This enacting of the music bears out when Danny explains what he heard by counting, tapping, and singing the musical excerpt he is trying to describe. Tapping the rhythm of the drum pattern with both hands, he sings "1 2, 1 2, 3-4-5." These numbers have nothing to do with the beat or rhythm, he has used them to group sounds. The nonverbal physicality of singing and tapping while correctly grouping the sounds enables those around him to understand the meaning he has made of this aspect of the music.

During the lesson, it was apparent that the students had heard many things, and now as a class, we begin to generate a list of musical ideas, organizing them into appropriate categories. The students can hardly wait to share their ideas, arms waving madly, as I make my way from group to group to add their ideas to our list on the board. When another group "takes their idea," students confer immediately, figuring out something else to share when it is their turn. Students call out answers, not rudely, but persistently, "I know! I know!" or "Wait! I have something else!" Students are impatient with me when I move on to another piece before they have exhausted their ideas about the current piece. The agency of the experience is almost overwhelming. The students have invested themselves in this project and they want to be heard.

*

Students were moving—patting, clapping, swaying, shimmying, heads nodding, toes tapping—in response to the music and these motions seemed to help them sort out the images of what they were hearing. Their almost constant enacting of the music through singing had many manifestations—humming, singing with text or on a single syllable, whistling, or adding numbers to group notes in a tune, as Danny did. Singing in particular did not stop when the music stopped, as students would continue singing between listenings—as a means of figuring out a problem or better matching their singing to what they had heard. Gestures in the air, while also kinesthetic responses, became temporal visual representations of musical ideas. What I, as their teacher, had first thought was "fooling around," I soon discovered had greater meaning. I began to realize that these enactments were enabling students to make sense of what they had heard. The next vignette, which describes students exploring music through melodic contour, contains further evidence of the same and expanded my own understanding of the ways my students' used these strategies.

*

Danny and Abby, along with their classmates, are dressed in Halloween costumes. Despite the distraction of parents in the room waiting to become chaperones during the day's festivities, the costumes, and the excitement of the impending Halloween parade, these students are intently focused on the musical problem at hand. On the board are eight large pieces of construction paper, each with a phrase of music from Kabalevsky's

piano piece, "A Little Song." (The first two cards are shown in Figure 4, in the correct order.)

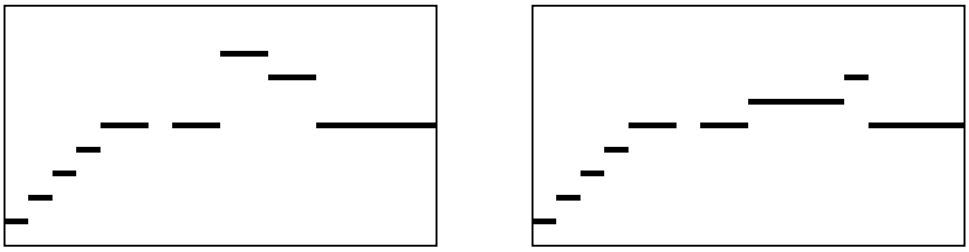

Figure 4. Puzzle Cards for Kabalevsky's "A Little Song"

I explain that the puzzle cards are mixed up; we will listen to the music and try to put them in the correct order. (This type of musical problem is not new, these students are accustomed to using iconic representation for musical ideas, for learning songs, and have worked on easier puzzles in previous lessons.) As "A Little Song" is played in its entirety the first time, Abby subtly moves her hand, with her index finger extended, following the shape of the music, looking intently at the puzzle cards. The music stops and her hand drops into her lap. I let the students know that we will now begin to work on just finding the beginning phrase. Danny says to himself, "I know what it is." He relaxes slightly, then as the music plays it is evident that he has located the card representing the first phrase, as his head jerks, his body jolts to attention, and he raises his hand decidedly into the air. While playing the first phrase, Lauren has her hand up ready to point, but with an air of uncertainty. The phrase ends and

Lauren continues to hum the phrase, points carefully at a card and with a look of "got it!" raises her hand. This continues to be Lauren' mode of operation throughout this musical problem—singing quietly to herself and pointing between listenings.

Despite Lauren's and Danny's certainty, it is evident to me that several students in the room have not yet found the first card and so I play the music again. This time, Danny, with his arm in the air in hope of being called on and sitting on the edge of his seat, traces the pattern with the extended hand. Abby has traced the contour in the air and this time also raises her hand. The gestures employed by these students, both in initial problem solving and in confirmation once a solution has been reached, seem to have enabled their understanding of the music. I invite Mark, another student who has also been intently pointing, to come up to the board to show us the answer. He traces the card with the matching contour as I sing the phrase. His classmates concur with his answer. We place the card at the beginning of the series of cards and move on to the next phrase, starting the piece at the beginning, retracing the first card, and searching for the next one. This time Anna, a shy girl who is seated next to Abby, begins to point, her hand not quite extended, but as the phrase ends, she has located the solution and tentatively raises her hand. Abby has again pointed along, but the music has ended without her finding the solution, and she sings the phrase to herself while she continues to point. Danny also had pointed along, and when called on indicates the correct card. "Why did you think that?" I ask him. Seeing that he is unable to put it into words, I sing the phrase. Danny moves both his head and foot and, while watching the card, precisely traces the melodic contour in the air, followed by a matter of

fact expression that communicates, "like that." Our shared understanding of the gesture and the musical sounds precludes the necessity of verbal description and I reply "right." Satisfied that we have understood each other, he settles back into his seat. "Oh, I get it," his neighbor adds.

We continue through the musical problem, with students listening, pointing, tracing, singing the phrase out loud to themselves and continuing to point, nodding their heads, tapping feet and/or hands, humming, whistling, singing on a neutral syllable, often confirming their answer through singing and pointing even after they have figured it out. When the song puzzle is almost complete and only two cards remain, I tell the students that we will listen to the whole piece to decide whether the last two cards are in the right order or if they need to be switched. As the piece is played from the beginning, Lauren and Mark point along in a slightly wider gesture than they did earlier. Leah, who has been struggling a bit, is seated between them. She, too, is now pointing along. When the music comes to the unknown phrase, almost simultaneously all three students' gestures become smaller, more intense, carefully following the card to figure out which one it is. Mark figures it out even before the phrase ends, and is so involved with the music and the process that he not only raises his hand, but gets out of his chair and stands up to extend his hand even higher. Abby, on the other side of the group, had also begun to point more casually, but as the music arrives at the unknown phrase, brings her hand up very close to her face, pointing very specifically and when the phrase is finished, raises her hand, as do most of her classmates, indicating that they have solved the puzzle.

*

When analyzing this and similar occurrences throughout the data, I was intrigued by the interdependence of the students' visual and enactive strategies and the ways their *combination* further supported the development of their musical understanding. The graphic representation of the music provided a visual metaphor of the music as well as a stationary frame for its exploration. Its synergistic combination with gesture—particularly the tracing of the shapes of the graphic representation—enabled the students to successfully solve the musical problems at hand and to make meaning of the music in a personal way.

Student Strategies

What was first apparent to me as I analyzed the video- and audiotapes was the physical nature of my students' musical understanding, including visual representations. It was not that they were dependent on these representations as crutches, rather that the students' interactions with the music and with each other through iconic and enactive means seemed interdependent—one process enabling the other for the development and expression of musical ideas.

Use of Iconic Representation

These students fully accepted the use of iconic representation as a means of expressing musical ideas. As students in my classroom, they had been introduced to iconic representation in previous years when learning new songs, exploring contour, describing melodies during other types of listening lessons, and in other experiences of

this nature. Now, as fifth graders, they had used standard notation for a variety of things, including playing the recorder or keyboards as part of their regular music class work. Several students—most notably Danny, Jessica, and Lauren—were accomplished student pianists and quite proficient readers of notation. However, this did not reduce the value that they placed on iconic representation as they continued to use and explore it as a means of expressing musical ideas.

For these students, visual, iconic representations of the music offered a common vehicle for referencing the music. As a temporal art form, music does not stand still; it is ever moving, and once heard, remains only in our memories. The iconic representation provided a frame of reference, a clear way of visually noticing sections, pitches, dynamics, or articulation. As a teacher, and also as a researcher, I noted again and again that these kinds of graphic representations seem to naturally invite the observer to point and gesture, to physically feel the music as one listens, to enter its pathways. This joining of visual, kinesthetic, aural, and vocal strategies (as listeners frequently sing along) seems to be a powerful, sensory musical experience that offers students multiple entry points to enable their musical understanding. The success resulting when capitalizing on their own natural enactive strategies in tandem with the support of visual representation seems to increase the students' sense of musicianship, furthering their self-efficacy as musicians.

The Enactive Nature of Musical Process

The students in this setting naturally and spontaneously sang and moved (also noted in Bresler, 2004a; Campbell, 1998; Ferguson, 2004; Moorehead & Pond, 1941;

Wiggins, 1992) physically enacting or representing the music—the way it sounds, the shape of the melody or phrase, the pulse of the steady beat. Their actions may not have been complete representations, their movements may have been fragments, but in some way the actions contributed to their construction of their own musical understanding. The ways in which these students enacted the music while listening or while attempting to figure out an aspect of the music included humming; singing on a single syllable; whistling; head nodding; tapping a finger, toe, hand, or foot to the beat; patting, tapping, or clapping a rhythm pattern; gesturing with their hands and arms to show pitch relationships or the motion of a phrase; and imitation of playing instruments. Students' pointing to graphic representations of music was also an effective enactment of the music. Students pointed along in various ways, from their laps, up close to their faces with one eye closed, in the air, close to the paper, or actually touching the paper. Gestures ranged from precise—matching pitches and melodic lines exactly—to freer, more graceful motions indicating general shape of the musical contour or the music's articulation. Quite consistently, as these students became more confident in their understanding of the music, their gestures became freer. However, when they came to a place in the music that required scrutiny, their gestures became smaller, more precise and keenly focused once again.

When presented with new melodic puzzle cards, before they even heard the music, these students frequently anticipated the aural experience by tracing the cards, humming as they traced, imagining and predicting the music they were about to hear. Another aspect of the enactive nature of the students' musical process is that the enacting did not stop when the music (the recording) was not being played. The

students simply resumed the music by singing it and continued to work on the problem at hand. It may have been the current problem spot or a spot coming up, but working out the problem through singing and movement did not stop during the transitions or when the class had ended. Even when students announced that they were "done," their enacting of the music continued. The confirming of their ideas seemed to be a critical part of the experience. Especially during the contour map puzzles, when the music was played, students continued to point and sing, doing both with increased accuracy and confidence. Questionable areas are further investigated, then affirmed or refined accordingly, but confirming their decisions through the enacting of the music continued throughout the process. Consider the following vignette.

*

The students are working on a melodic contour puzzle, this time in small groups. Previous whole group experiences have provided groundwork for this problem; I have attempted to provide support through the progression of activities and the students have scaffolded each other through the modeling of enactive strategies, the understanding of the graphic representation, and the working through a difficult contour problem. The piece now under scrutiny is an excerpt from "March" from The Comedians *by Kabalevsky*[5]*. (See Figure 5.)*

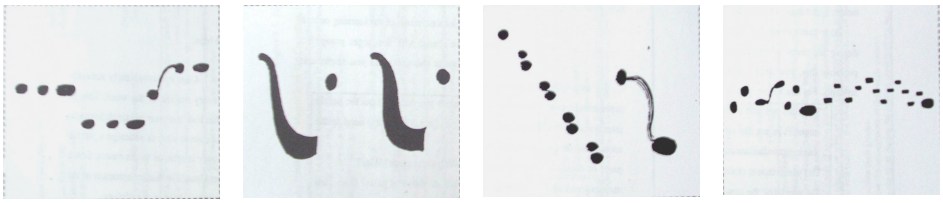

Figure 5. Puzzle Cards for Kabalevsky's "March" from *The Comedians*

Danny, Abby, and Keith are sitting cross-legged, in close proximity to the small set of contour cards. They are placing them into groups as they notice similarities among the cards. Based on their prior experience with other melodic contour puzzles, they know they will be listening to music in order to put the cards into the correct order. Danny predicts repeating phrases, due the abundance of cards. Some students are already tracing the cards, humming a possible tune that matches the contour.

As the music begins playing for the first listening, Keith points to a card, while Danny and Abby watch. Danny finds the appropriate card and sets it aside to begin the chain of cards that will map the contour of the music. Immediately Abby begins pointing very close to the cards and Keith sits back a bit, although he is now on his knees, enabling a better vantage point. Nobody is "taking turns," as they had originally planned. They just go—listening, moving, singing, pointing, watching, conferring—solving the

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[5] Espeland, in Wiggins (2001), *Teaching for Musical Understanding*, McGraw-Hill. Material is reproduced with permission of the McGraw-Hill Companies.

puzzle. Sometimes Danny is manipulating the cards, sometimes it is Keith or Abby; it appears that Keith is sitting back until he energetically points when he has found one. Abby points wherever she can—close to the cards or farther away in the air as the boys move the cards around. The music stops yet Keith and Danny continue to move cards around, singing the second phrase and pointing to the cards. Realizing through their singing of the music that they have made a mistake, Danny says, "Oh, whoops! It's only one of those." (The descending phrase appears twice on a single card). "I'll put this over here, 'cause I think there's more in here," he adds, as they prepare for a second listening.

This time through the piece, Abby again touches the paper directly with her finger as she points until Danny starts maneuvering the cards. Undaunted, she continues her pointing in the air, closer to her body. Keith is watching the cards closely and adds a gesture at the second phrase (the one in question during the transition) that exactly mirrors the contour. Abby is not just pointing, "allowing" her peers to manipulate the cards. Rather, she is intently watching, affirming their changes, and is quick to grab a card when she disagrees or when it is simply nearer to her and therefore easier for her to handle its placement. After the second listening, these three students have the cards in what they consider to be the correct order. On the third listening, all three are watching and pointing. Abby and Danny (who is also constantly humming during listenings and through transitions) are pointing in the air, watching the cards from their cross-legged positions, directly in front of the cards. Keith, who is a bit to the side of the group, is on his knees, often leaning over the cards. He begins pointing closely, then changes his gestures. They become more figural, like an artist's sweep of a

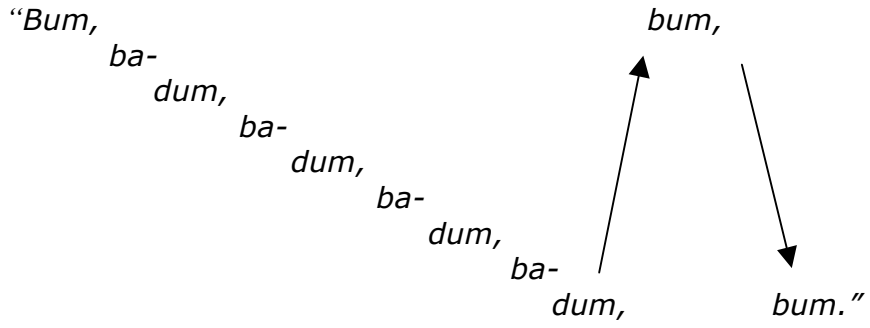
paintbrush or a conductor's gesture indicating the motion of a phrase. These gestures are "musical" in their representation, rather than the pitch-to-pitch pointing needed earlier to figure out the puzzle cards.

At one point, Abby pulls out a card and looks quizzically at Danny who puts it back in. She concedes, but when the music stops, asks me, "Is this one right?" Before I can answer, Danny intercedes respectfully, "That's right. This one's just higher than that one."

"Maybe they're just playing in octaves," Abby proposes.

"Yeah, they probably are," Danny concurs. Abby was right to question the cards, as the repeated phrases are drawn the same way even though the second time the phrase is heard, it includes higher pitches (though not in octaves). These students confer constantly, questioning themselves and each other, coming to mutually agreed-upon solutions.

As soon as the music stops, Danny says, "We got it!" Other students in the room cry out, "Do it again! Do it again!" The music continues with the three students singing along with the descending line and final notes of the phrase, all the while gesturing with the contour:



The music stops. Abby adds matter-of-factly, "Ours is right." Danny is still singing the entire piece, now with increased accuracy. The enactive and visual strategies these students employ appear to enable both their skill

level and their understanding of the music; their persistent personal involvement indicates a level of ownership of the music and of the solving of the musical problem.

*

Gesture, singing, and the interaction with visual representations seem to both enable musical understanding and enable students to express that understanding. The easily negotiated meaning among participants is primarily expressed nonverbally—as most verbal interactions attend to business matters, not the expression of musical ideas. That the successful completion of the puzzle was managed socially through a level of shared understanding that was nonverbal suggests the importance and validity of these visual, kinesthetic, and vocal musical expressions.

Shared Understanding

Students relied on singing and movement to express their ideas to me and to their peers. They understood—without verbal explanation—the meaning of these enactive and visual musical expressions. When asked a question about a section of music by a class member or me, as their teacher, students would invariably sing the phrase, gesturing in a way that reflected the music. Verbal descriptions were rare, as students seemed to find difficulty putting musical ideas into words. When Danny was asked, "Why do you think that?" he never spoke. He moved in multiple ways, feeling the music, as I sang the phrase. It was clear that his movements matched the music—that he was hearing the music in his head in order to move correctly, yet so subtlety. As is evident in the following vignette, Lauren and Jessica understood each other's musical

expressions, working together to solve the melodic puzzle cards through singing and gesture, uttering very few words.

*

A few feet away, during the same listening experience (melodic contour puzzle cards for "March" from The Comedians)*, Lauren and Jessica are set and ready to go. Their stacks of cards are orderly and they are patiently waiting for others to get ready. However, when the music starts, they cannot find the first card. The second phrase is heard and Jessica finds it right away and moves it aside, tracing the shape.*

Spurred on by the success of pointing to find the correct shape, Jessica and Lauren try pointing to the various cards as they listen, actually touching fingers to the shapes on the paper. Again, they find success, recognize the repeated pattern, and now have four cards lined up. While I am resetting the CD and offering words of advice to other students, Jessica points to a card in Lauren's hand and sings the tune. The music starts and they proceed. Lauren is now pointing along to the cards they already have in place and Jessica is in charge of finding the missing cards. With the puzzle almost completed, the girls trace the shapes, each with a hand on the small cards, tracing simultaneously.

Discrepancies are now easily discovered and this time they complete their map of the music. Other students are not yet finished, so the music is played again. Lauren moves to the other side of the contour map, viewing it upside down, yet this way she can reach the whole map as she and Jessica continue to point together. They find two places that need revision and they make the adjustment. The girls have completed the musical puzzle card

problem with almost no verbal interchange. They seem to understand each other in musical ways that need no additional explanation.

*

This use of movement and singing was part of Jessica and Lauren's (and the class') shared understanding. They understood the musical ways that others were using to express musical ideas. This, too, was part of the culture of the classroom. It was modeled by me as their teacher, understood and respected by me when used by students, and had become the "way we did things" in the music room. I valued it as a "way of being" for musicians as we interacted with each other and thus supported its use by my students.

The importance of shared understanding should not be overlooked, with Lauren and Jessica being a case in point. Providing opportunities for students to work together, giving and receiving peer support, was an intentional part of the design of this lesson. Allowing students to choose their own groups/partners further enabled successful problem solving, as students tend to choose work partners they trust or with whom they feel comfortable. Such interaction supports the students' own growth in musical understanding. As Wiggins (1999/2000) shares,

> it is essential that teachers understand and recognize the importance of shared understanding in the musical thought processes of their students. Shared understanding is the primary basis for musical problem solving and for the development of musical understanding. In planning instruction, teachers need to create opportunities for students to share musical ideas. They need to both accept and encourage verbal and musical conversations that occur among students as a productive part of their music learning experience. The learning that takes place under these circumstances is invaluable to the musical growth of the individual student (p. 87).

When such musical conversations occur without teacher prompting or intervention, then the interchange appears to be student-driven and thus student-valued. The students' own interactions are influencing their musical understanding.

Peer Scaffolding

Peer scaffolding is a prominent feature in these vignettes. Scaffolding is any assistance offered by a teacher or peers that enables another person to accomplish a task, discover or move toward a solution, or enable understanding. Many times the scaffolding among peers is synergistic, with the help that one student offers another providing clarification for himself as well. The assisted student may, only moments later, be assisting the other in a new situation. In the vignettes described above, scaffolding occurred spontaneously and continually. Students were constantly conferring with each other about possible solutions, sometimes through conversation, sometimes with just a look, the removal or addition of a card, or a sung phrase and gesture that explained their intention.

The modeling of singing and moving by some students who were able to figure out the problems became a type of scaffolding for other students, who then also started pointing or gesturing, especially when the problems become more difficult. An example of this occurred in an earlier vignette when Danny and I confirmed his answer by pointing and singing. When finished, his neighbor quietly stated, "Oh, I get it." These modeled strategies proved to be a powerful source of support for students who were initially struggling, yet when taking on these strategies for themselves, were able to be

successful. Kassie is a case in point—she freely seeks peer support when she says, "I need a partner."

*

Kassie has entered the classroom late and is trying, by herself, to solve the melodic contour puzzle for Kabalevsky's "March" from The Comedians. *After two listenings, she is still struggling and announces, "This is hard" with an underlying tone implying, "I need help." After another listening, she announces, "I can't do it. I need a partner." Leah, who had been trying to work alone, joins her and they seat themselves on the floor near Mark and Jeff. They listen again, but this time they are watching Mark and Jeff, who gesture a lot and point quite closely to the cards. By now, it is time to move to the whole group discussion of the puzzle, using the large cards on the board. As I play each phrase, students tell me which card to put up next. Kassie continues to watch Mark and Jeff pointing, eventually moving over to join them, and begins to point to the cards with them. Soon she is raising her hand with answers, showing her understanding, enabled through the support of her peers.*

*

Through their experiences in this classroom, interacting with peers was recognized by the students, if subconsciously, as an important student strategy. As a teacher, I value the nature of social interaction and realize that students will accomplish far more when working together than when working alone. Through situations like the ones described above, the students naturally seek peer support. It is not viewed by them as cheating; it is a collaborative effort that brings everyone farther along than they are

able to accomplish when working alone. In such a learning community, students support one another, with the source of support frequently changing based on the problem at hand. They are not unobservant as to who may be struggling nor are they insensitive to each other's needs. In the same way, they rejoice in one another's success, applauding one another's accomplishments. In such learning environments, students readily seek the support of others and also readily provide it, whether in overt actions or subtle asides. When provided with opportunities for collaboration, as when working in small groups, students seem to recognize that the assistance of others, particularly of their peers, will enable everyone's success.

Evidence of Multiple Modes of Representation

Informal observations occurred as I observed my students while class was in progress, but it was through formal data analysis—scrutinizing the recordings made during class—that I was able to look more carefully, repeatedly, at everything that was happening in the classroom, among students, and with individual students, across several lessons. What was most apparent to me was that students consistently used these enactive, iconic, and symbolic modes (terms first used by Bruner, 1966; in this case language as the symbol system, not musical notation system) in a variety of ways and that there are examples of all of these modes of representation in every listening experience. Unlike Bruner's (1966) description of these processes, these representations did not appear to be hierarchical in students' use during these lessons, i.e., starting with enactive and ending with symbolic. Rather, they were constantly integrated in a variety of constantly changing combinations. Bruner notes that "what is abidingly interesting

about the nature of intellectual development is that is seems to run the course of these three systems of representation until the human being is able to command all three" (p. 12).

With that in mind, I will note that verbal discussion was supported by enactive and iconic experiences. Students do have a difficult time putting musical ideas into words, and consistent with Bruner's (1966) ideas that it is through experience that we formulate images and then apply labels to them, these students—through musical experiences and the use of these natural, student initiated strategies—were then able to speak about what they understood about the music, and could speak with greater depth and detail about it. Movement and singing were used by all students, regardless of musical ability; in fact, the students with more prior experience with music seemed to use these strategies more readily and were initially more successful in solving listening problems. Those students who followed this model became equally successful in time.

Students would use smaller gestures when initially solving a problem and wider, freer motions once they had become more familiar and comfortable with the music, moving closer to the graphics when a problem spot would occur. Larger, more graceful movements were used for easier problems or once the problem had been solved and the student could immerse herself in the music. Movements, like a conductor's gestures, were quite individual and personal in style. Yet, while being unique, they had commonalities that enabled understanding among the group (supported by the community's shared understanding of the music).

As a result of studying the audio- and video-recordings, I learned that students continued to sing, hum, gesture, and point throughout the class period. Just because the

music was not being played or sung (for group interaction) did not mean that students had stopped their personal interaction with it. When I may have thought students were "fooling around," they were frequently at work, singing the last phrase repeatedly until they could sing it correctly or find the melodic contour card they had been searching for. Other times, having found the correct card, they would sing the next phrase and begin searching for it in anticipation of my direction to do so. When the puzzle was complete, they did not sit back and wait (or get into trouble). These students would continue to sing the piece and point precisely or gesture more freely to their contour map. This continued even when class had ended and they needed to be packing up, often times singing to themselves as they lined up at the door. These students were doing these things naturally, of their own accord, even when "making noise and moving" might be construed by a teacher as "not paying attention." Sitting still and being quiet is not the way of musicians as they interact with music, as these students showed me, even when listening—*especially* when listening. It is the enacting of the music through singing and moving, or experiencing it through visual representation, that allowed students to enter the music, to make it their own. Harwood (Harwood & Wiggins, 2001) echoes these sentiments.

> As a young teacher, I pictured the classroom as a concert hall whenever I played recorded classical music for my students. For me, stillness was part of 'showing respect' for the composer and performer. Thus, I required that my students sit motionless and mute while the recording played…The students resisted and for years keeping them quiet and still became what I then thought of as a problem in behavior management…Sadly for those students, I realized only many years later that they were in fact offering a genuinely musical response when they wanted to move with the sounds…My insistence that they conduct themselves [otherwise], in such an unnatural and unresponsive way must have seemed arbitrary, even downright peculiar (pp. 32-3).

Verbal interaction in the form of language is a symbolic mode of representation and was used interchangeably with the other modes of representation. These students were fifth graders and were quite capable of conversing with each other; it is not as though these students were too young to adequately express themselves verbally. However, it was evident when observing students and studying the recordings that the more time (the more listenings) students had with the music, and the more ways of experiencing the music (enactively, iconically, etc.), the more sophisticated their verbal discussions became. Language was assisted by experience—repeated and in-depth experiences, not single or surface experiences. In addition, it was frequently noted that just prior to a student's hand going up with an answer, some sort of movement or singing had taken place; for example, as described earlier when Danny pointed and sang, had a sudden look of "aha!" and then shot his hand into the air. Others, too numerous to mention, had similar responses. These strategies enabled understanding and provided groundwork for verbal response.

That being said, most verbal descriptions simultaneously included singing and gesture. There are examples when students would gesture while listening to the music and then use the same gesture while verbally describing it. "It goes like this" would frequently reference a gesture or sung phrase.

*

Abby is listening to the ending of "Finale" from Stravinsky's Firebird Suite*. Her arms are extended over her head, and she twirls her hands during the climactic ending, pointing her fingers upward as the piece ended; when the music stops her hands drop heavily into her lap. When given an*

opportunity to describe the end of the piece, she used the very same motion. "It gets really, really, like clouds with all the notes up there (hands above her head and hands twirling in the same motion). And then it just goes down (drops her hands into her lap)."

*

These observations have led me to believe that verbal exercises may not be the best way to start a listening experience with students. It seems that it is important to provide opportunities for students to experience the music in many ways and through many listenings before verbal dialogue about the music is initiated. Students build understanding through experience (Dewey, 1916, 1938/1998) and through these experiences, create images, connect these images to ideas formed through their prior experiences, thus enabling new ideas, shifting and refining ideas, or furthering ideas. It is only then that verbal discussion, still often supported by visual and physical manifestations of the music, becomes accessible and meaningful.

Thus, as a result of formal data analysis and informal classroom observation, it became evident to me that people may not relinquish one mode of representation as they acquire skills in another; rather they seem to continue to use all the modes simultaneously. As new schemas (Anderson & Pearson, 1984) were constructed and ideas were fleshed out, new images—through enactive, iconic, and symbolic modes of representation—were used as instruments of thinking. It is not the mode that is important but its use to form and express understanding (Bruner, 1966). Particularly, enactive and iconic modes of representation—movement and visual images—enable the experiences to which labels can later be applied. As we continually experience new or

more complex ideas and situations, we are constantly moving through these modes, making connections and revisiting images in order to formulate understanding.

Images and metaphors (Bruner, 1996; Lakoff & Johnson, 1980/2003, 1999) are powerful connectors to what we know, to images that we have previously constructed, to forming and extending ideas that are in process.

> The most powerful technique for arousing one of those action-related modes of dealing with the world is through [visual] depiction….For images are not only prototypes of categories, but also stopped action frames in narratives. When human action finally achieves its representation in words, it is not only in universal and timeless formula that it is expressed but in a story—a story about actions taken, procedures followed (Bruner, 1996, p. 158).

Herein lies the strength of the use of enactive (kinesthetic) and iconic (visual) representation in music education. Music, as a temporal art form, is a type of narrative of human expression. Iconic representation of music allows for a stopped action frame of the experience—of the sounds heard, of voices singing, of hands manipulating instruments, of the creation of human expression, of the sharing of this expression through listening, of feeling felt. Visual representation provides a metaphor of the sound, a way to connect something to the sound, and a way to share that idea with others. The enactive (action and gesture) mode of representation, when used with the iconic mode, provides a way to process that image and serves, like the iconic mode, as a supplemental way to express understanding. Bruner, in the preface to Vygotsky's (1962) *Thought and Language*, explains, "for it is the internalization of overt action that makes thought, and particularly the internalization of external dialogue that brings the powerful tool of language to bear on the stream of thought" (pp. vi-vii). Here we see

reference to the relationship of action, social dialogue, and symbolism (language) as it supports thought.

Musical Expression and Metaphor

As I continued to study the literature on learning and constructing meaning, I was intrigued by how these enactive and iconic modes as described by Bruner in the 1960s, which I found to be so valuable for myself and my students, were so closely tied to Lakoff and Johnson's ideas about metaphor theory and the ways people construct meaning. Lakoff and Johnson (1980/2003) suggest that

> the essence of metaphor is understanding one kind of thing in terms of *another*….Metaphor is not just a matter of language, that is, of mere words….*Human thought processes* are largely metaphorical. This is what we mean when we say that the human conceptual system is metaphorically structured and defined. Metaphors as linguistic expressions are possible precisely because there are metaphors in a person's conceptual system. Therefore, whenever…we speak of metaphor….it should be understood that *metaphor* means *metaphorical concept* (pp. 5-6, emphasis in original).

Lakoff and Johnson (1980/2003) suggest that are many ways in which we use metaphor to construct meaning. We associate things physically (feels like), spatially (physical relationship to), orientationally (up or down, over, etc.) or visually (looks like), usually in relationship to some sensory experience with our own bodies. New encounters with a physical object, like for example, a dachsund, may be referenced to a prior experience with a beagle. We see, hear, smell, and feel similarities and differences. We judge size in relationship to our own bodies. We perceive whether objects are in front of us or next to us. The physical nature of the object allows for more discrete judgments about it and its connection to the surrounding world.

When the new concept is less tangible and more abstract, like music, the use of metaphor to describe one's experience increases and invariably crosses domains. Music is not concrete, and as a temporal art, its fleeting nature makes it even more difficult to describe. Without pictures or words or commonly recognizable shapes, the intended message of music is purely abstract, and even with text, the intent is rarely literal (Langer, 1942/1960). Listening to music produces a personal response, another abstract experience difficult to describe, compounding the problem of delineating what it is. Thus the extensive use of metaphor to describe music, usually relating it to something that occurs physically or to a commonly shared feeling.

If we use visual and physical metaphors to organize and conceptualize our images about the world, it makes sense to me that students would enact these metaphors as they listen to music. They sing the sounds that go "up and down," they move in ways that are like the ways the music "moves," they draw or look at drawings that "look like" the way the music sounds. This enacting of metaphorical musical images enables students to make meaning while listening to it, as the movement and visualization enables further refinement of the original idea. The thinking mind and the doing body are mutually supportive in the process of meaning making. Lakoff (1987) asserts

> thought is *embodied,* that is, structures used to put together our conceptual systems grow out of bodily experiences and make sense in terms of it; moreover, the core of our conceptual systems is directly grounded in perception, body movement, and experience in a physical and social character (p. xiv, emphasis in original).

Embodied Cognition

Campbell (1998) suggests throughout her book, *Songs in Their Heads,* that children naturally embrace music in their lives and that in doing so, move, clap, and sing with music. Campbell shares that

> children think aloud through music. They socialize, vent emotions, and entertain themselves through music. Their bodies stretch, bend, step, hop, and skip in rhythmic ways, while their melodic voices rise and fall, turn fast and then slow, loud and then soft. Their music can be "seen" and heard in their playful behaviors, some of it a realization of the songs in their heads. It is almost as if children exude music (p. 4).

While not working in a structured school music classroom setting, Moorhead and Pond (1941) analyzed the musical experiences of young children observed in a free and natural environment, and found children to be intrinsically musical. Everything about the young child's world—the immediate environment, his social interactions, his own voice and movements, heartbeat, and breathing patterns became part of the child's musical expression. Aside from social interaction, Moorhead and Pond determined physical activity to be the next greatest factor in the young child's musical understanding. Chant and spontaneous songs were often accompanied by or initiated from large motor movements such as walking, running, marching, climbing, dancing, building with large blocks, patting clay, or using tools (pp. 12, 35). Like Cohen (2001), Moorhead and Pond emphasize the important relationship between movement and musical cognition. They contend that "the beginnings of musical techniques are in the large muscles of the body and in the larynx" (p. 39). The rhythmic relationships of breathing, kicking, crying, squealing, clapping and striking of objects are the baby's

first experiments in sound. While the origins of these sounds are experimental, the young child soon begins repeating selected sounds for her own pleasure (p. 39).

Dura (1998) posed the question, "How, precisely, does music produce a sense of movement in the listener experiencing that music?" (p. ii). Through a survey and synthesis of the literature, Dura reports that the entire body is involved in listening, "not only in the physical act of hearing, …but also in the physical reaction to heard music" (p. 325). Dura also claims that the body has an integral role in cognition since our "muscle memories of past experiences, symbolized kinesthetically, enable us to experience aesthetically" (p. 326). The use of music as metaphor is also considered, as Dura acknowledges the need for humans to make sense of the world and the notion that humans "possess the ability to see and hear movement where none actually exists" (p. 330-31). Dura concludes by reaffirming the strong connection between movement and music, as the notion of movement occurs at many levels: as mental imagery, as sound moving with flow and flux, and as bodily movement, both internal and covert (p. 337).

Walker (2000), in a discussion concerning movement and metaphor, argues conclusively for the embodiment of musical knowing.

> We are embodied beings existing in tangible space….It is impossible that the processes involved in musical knowing and understanding can be disembodied when music making itself is so embodied. It is time, therefore to put the body back into the music…and move toward theories of music cognition and hermeneutics that do not separate physical and mental processes. In is in their integration that the truths of musical knowing and meaning lie (p. 40).

Ferguson (2004) analyzed the expressive movements of children while listening to music, valuing the students' "movements to music as a demonstration of musical understanding, a kind of marriage between aural and physical continuums" (p. 53).

Ferguson also suggests that "movement can both express and shape cognitive processes" (p. 53). Music is felt and known physically as it is performed, but it is also felt and known physically by listeners. The movement enables the knowing and the knowing enables the movement.

Bowman (2000) states that "whatever else music is about, it is inevitably about the body: it is invariably an embodied practice" (p. 50). He suggests that we do not just think or hear music, "we participate with our whole bodies. We enact it. We feel melodies in our muscles as much as we process them in our brains—or perhaps more accurately, our brains process them as melodies only to the extent our corporeal schemata render that possible" (p. 50).

Bowman (2004) extends his ideas when considering this dually integrated way of knowing. Rather than thinking of cognition as representational or enactive/emergent, he suggests the interdependence of mind and body—negating dualism or the separation of mind and body. Rather Bowman recognizes the synergistic nature of mind and body as people make and find meaning in situated contexts.

> Cognitive capacity emerges from reinforced neural connections between one's senses and motor system. In this way, sense, perception, action, and conception are mutually informative, and structurally linked to one another in important ways….The body is minded, the mind is embodied, and both mind and body are culturally mediated (p. 36).

Cohen (2001, p. 3) suggests that "musical schemas…appear to have sensory motor, kinaesthetic roots." She refers to Piaget (1970) and the Pillsbury study (Moorhead & Pond, 1941) for support of this notion, including her own research (Cohen, 1980), which "has led her to see movement as the source of musical thinking" (2001, p. 6). The data presented here also reflect that as musical ideas are forming,

children use a variety of strategies to work out these ideas, and that the musical ideas are supported by physical gesture. The use of movement or singing or visual representations enables students to work through musical ideas, and their interaction with thinking becomes the foundation of musical ideas.

The intuitive use of these strategies by students makes them valuable and legitimate strategies for teacher use in the classroom, and a powerful tool for enabling reflection-in-action while listening to music. It also provides a medium or tool for students to visibly share what they know about music, which can be difficult to express verbally. In an earlier study, Cohen (1997, p. 4), states "the insightfulness of…children's…analysis suggest to me that listeners can 'get in touch' with their organizing schemes by way of movement and the movement, or even the attempt to capture the correct movement, serves as a mediator between subconscious and conscious knowledge." Cohen (2001) affirms the essential connection between doing and thinking that enables understanding and a meaningful experience. "The act of reflection ensures that 'doing' music….is not a mindless, mechanical action, but a mindful and 'feelingful' encounter. Reflection (both intuitive and conscious) ties together the act of 'doing' music and the cognitive activity that gives meaning to the action" (2001, p. 16).

I was skeptical when first reading the conclusions of Moorhead and Pond (1941) and Cohen (2001)—that musical knowings are so closely interdependent with kinesthetic response, that they regarded movement to be the source of musical cognition. I was reluctant to place so much importance on physical musical understandings and to relinquish my dualistic vision of the mind, which valued a more

conceptually abstract understanding of music. The legitimacy of their claims later became apparent to me as I reflected on my own physical way of being as a musician and as I observed my students and reflected upon the ways they valued both representational and enactive methods of knowing and sharing musical ideas. I had experienced embodied cognition and thus understood it tacitly, but I had difficulty putting it into words (Polanyi, 1966). Reading additional literature (Bresler, 2004a; Lakoff, 1987; Lakoff & Johnson, 1980/2003; Lakoff & Johnson, 1999) which I intentionally searched out as I tried to explain what I knew but could not say—brought into full view my unspoken understandings of embodied cognition. The literature enabled me to articulate verbally what I had experienced myself and now value as an essential human way of knowing the world, particularly music.

As I try to explain embodied cognition now, the metaphor of intersubjectivity between mind and body is helpful. While not exactly the same, there are points of similarity that open the door for people to consider the notion of embodied cognition. Intersubjectivity (Rogoff, 1990) between people is "a process involving cognitive, social, and emotional interchange" (p. 9). Intersubjectivity is a shared understanding among participants, that when working together, enables growth both independently and mutually. The interaction with others in supportive cognitive and physical ways creates something new that is greater than what could have been generated alone. It is in this way that I see connections to mind and body interaction—that each supports the other in ways that enables understanding greater than could be accomplished alone. While I know that there are biological and physiological underpinnings to support embodied cognition, the metaphor of intersubjectivity is helpful (for me).

Because of what I learned from the data and the literature, I would suggest that this is a synergistic interplay, deeply embedded in our embodied minds. The metaphorical images that we create as we listen to music both enable and are enabled by the kinesthetic response to music. Visual representations, which require the integration of eye, hand, ear, and mind, are also inextricably linked to musical knowings and construction of those knowings. When students respond and interact with music, explore and experiment with physical and visual metaphors while listening, they construct meaning when they discover familiarities and variations—sounds and shapes and movements that are similar, different, unique, or intriguing; and which ones, for each person, best represent what one is feeling and hearing. The notion of embodied cognition supports what I observed in the lived experience of my music students as they worked through of these metaphors—visually and physically negotiating musical sound and finding meaning as they made sense of it.

CHAPTER SIX

ENABLING MUSICIANSHIP THROUGH MUSICAL MAPPING

Based on what I had learned through the literature and the initial data analysis, I was motivated to design listening lessons (integrated with performing and creating lessons as part of the regular curricular experiences of these children) which would draw upon student strategies and the notion of embodied cognition. I had observed that among the ways my students enabled their own understanding were personal strategies such as enacting music through singing and gesture, and that they valued iconic, visual representations of sound as ways of framing what they knew about the music. I had observed my students' strong sense of agency in functioning and being respected as musicians. I had observed that they valued collaborative learning and the growth that interaction with others generates. I also observed that my students had very specific ideas about music—some common and some unique—and that they were eager to share what they knew with others. The sharing that occurred in the classroom seemed to validate their personal sense of musicianship.

Responding to Students Through the Curriculum

With these things in mind, I delved into the literature that dealt with student-centered projects based on music listening, particularly those which would not only encourage, but necessitate the use of multiple modes of representation for students to successfully complete the project. These modes of representation, which I now consider

to be some of the ways humans use to create conceptual metaphors for musical sound, were valued by these students, and by intentionally incorporating them into lessons, I hoped to further enable their success as musicians.

I returned again to the studies by Cohen (1997, 2001) and Dunn (1997) which I had previously found both fascinating and informative. Cohen's use of kinesthetic analogues supported the ways that I had seen my students express themselves musically through gesture. Her students had created kinesthetic symbols for the music and had done so in a teacher supported environment. To begin, Cohen created a kinesthetic analogue, or "musical mirror" which she modeled for her students, providing them with a window into her musical understanding and allowing them, by inviting them to perform it with her, to enter into the experience—*her* listening experience. It was her goal to "let the children mirror my movements and—by entering into my movement analogue—enter into my head, to experience my musical thought process" (1997, p. 2). Later the students were invited to create their own musical mirrors. Working with a new piece of music, the students listened repeatedly to the selection, reflected on its many aspects, and by attending to the ones most salient to each listener, created movements to represent their musical understanding.

Moving to the Dunn (1997, 2004, 2005) studies, I began looking at the ways he had used graphic representation for the same purposes—exploring ways to enable students to outwardly express what they knew about the music and to create problems that encouraged reflection-in-action (Dewey, 1916) while listening to music. Dunn (2004) identifies the maps that his college students created as "figural maps" that include graphic representations of the mental images created by students while

listening, a "visual representation of an individual's intuitive, musical sense of the piece" (p. 4). Rather than figural maps, I describe the graphic representations created by my fifth grade students as "musical maps" because they created more of a graphic musical score representing actual musical ideas and themes within the music, with an emphasis on melodic contour.

While other researchers (Barrett, 1997, 2001, 2002, 2004; Kerchner, 1996, 2000; Upitis, 1987, 1990a, 1990b, 1992) have studied the invented notation of younger children, without the support of teacher scaffolding or social interaction, Dunn (1997, pp. 4-8), provided groundwork for his college students' experience with some introductory activities. First, the students watched the instructor trace an existing map, followed by discussion. Next, the students traced the map along with the instructor while listening. The students were then given individual copies of the map, circling parts of the map that did not work for them. Through repeated listenings, students were invited to replace those parts that did not work for them with representations of their own design.

With another musical example, students followed with their eyes (while listening) another short map created by the instructor and listened to excerpts of additional musical examples while attempting to create visual representations for them. These were done on the board in front of the room so they could be shared and discussed, with an emphasis by the instructor on the individual nature of listening and the validity of each person's representation. Students were then given a recording of a piece of music and were given the task of creating a figural map by the next class period (five days later). On the day of the students' presentations, their maps were

placed on the wall prior to class. Time was allotted for students to write a few sentences about their mapping experience. Students each traced their maps for the class while the music played. Once each student had traced his or her map, they took turns moving around the room tracing other students' maps. Time was again given for students to write about the experience of tracing other students' maps.

Student-Created Musical Maps: Groundwork

The Cohen (1997) kinesthetic analogues and Dunn (1997) figural maps became models for a mapping unit for my own fifth grade students. My intent was to design a project that would provide students the opportunity to be creatively engaged in listening to music, and would allow them to represent and develop their musical ideas in collaboration with other and by using multiple modes of representation, with the end product being a graphic representation. In preparation, I practiced making maps to various musical selections and decided to use "Ballet of the Unhatched Chicks," from *Pictures at an Exhibition* by Mussourgsky, as the music students would use to make their own musical maps, the culminating project in this listening unit. Following the models provided by Cohen and Dunn, I prepared a map using an excerpt from "Love for Two Cats" by Ravel (Figure 6). This model was designed to lay groundwork for the students' efforts, allowing them to enter my own musical experience and see what another musician might create to represent musical ideas. This map and the subsequent activity also provided examples of graphic representational 'vocabulary' for students to draw upon when designing their own maps (in addition to graphic representations

already in regular use in the classroom). To support this, I intentionally used a variety of shapes, lines, and colors to represent my musical ideas.

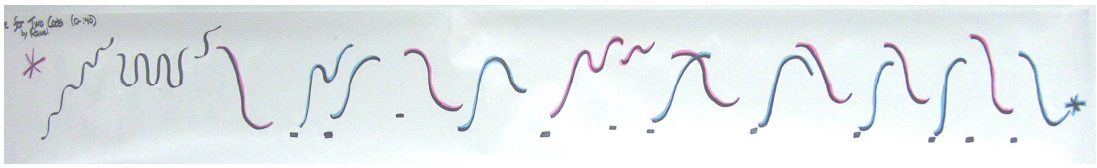


Figure 6. Map for Ravel's "Love for Two Cats"

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When the students entered the classroom, the "Love for Two Cats" map was already on the board. On the map, the two musical voices are represented by different colors. I tell the students that they are eventually going to make their own musical maps, but that first we will do some practicing. I tell them that I have made the map on the board and I wonder if they will be able to follow it. We will listen to the music and see if they can figure out why I did what I did when I made the map to show what I heard in the music.

As the music begins, (the name of the piece is clearly written on the map) the students are instantly quiet, eyes fixed on the map. Initially there are grins as they hear the sounds of the cats represented musically. Keith and Abby begin pointing immediately. Lauren and Jessica are watching intently. As soon as the music stopped, Lauren claps her hands with glee

and with a big smile on her face says, "I got it." There is instant chatter all around the room, with "I got it!" called out to me from several directions.

We listen again and this time several students are tracing the map in the air from their seats, some are making meowing noises. Hands are raised and students are eager to be called on. Students suggest that it sounds like cats and we discuss the title. I let them know that we will listen one more time and then I will be asking for a volunteer to trace it for us. This time, from my seat, I model tracing the contour with my hand, even using two hands at times. Jessica, too, is carefully and gracefully tracing the contour. When there is a "pffft" sound, she touches her fingers together and releases them appropriately with the music. Jessica has raised her hand after every listening and I invite her to trace the map for the class, encouraging others who may also want a turn to trace the map to continue pointing from their seats. Because of what I have learned from the literature about embodied cognition (as explained in Chapter Five) and from analyzing the data thus far, I value the use of physical gesture in working out musical problems. I continually model this and encourage my students to physically enact what they are hearing.

Jessica traces the map with amazing precision as the class watches and listens intently. When she is finished, she has a grin on her face and returns to her seat with a confident gait. Around the classroom, her classmates' hands go up in a desire to be the next person to point to the map—these students are very eager to show what they know about the music. I pause and ask the students, "Why do you think I used two colors on the map?" Again, hands go up and I hear, "I know! I know!" Roger explains that there are "two voices," a girl cat and boy cat, and the class

concurs. Over the course of the class period, several more students come up to point to the map, never tiring of the activity; students continue to point from their seats, their gestures becoming clearer and more expressive. When students trace the map incorrectly and get ahead of the music, they are quick to wait for the music to "catch up." They know how the graphics fit with the sound.

After a few more students have pointed, Jessica asks, "What are the dots on the bottom for?" I ask the class, "Does anyone know?" Roger asks, "Are they breathmarks?" Keith says, "They're rest points, aren't they?" Lauren has an idea but struggles to put it into words. The class cannot come to a consensus, so I ask them to listen to the music again, especially thinking about the marks at the bottom. "Point along and see if you can figure it out," I suggest.

The music starts and I walk to the map to point along, but quickly sit back down again, catching myself, wanting to give the students the opportunity to figure it out for themselves. Leah has moved out of her chair and is near the front of the room on the floor, as is her habit to gain a better vantage point. Almost all the students are pointing along from their seats, perplexed by this new problem. "They are rests!" someone says. "But someone plays there!" Jessica insists. They are so engaged in their discussion that they are no longer listening and so I stop the music midway. "An instrument plays there!" Jessica states. "I think it is a cello or bass violin or a harp being plucked." Some originally considered it a rest because the melodic cat sounds were pausing. They now hear the low string sound during the "pauses." Through repeated listenings and with the support of

others and the graphic nature of the musical map, they have come to notice something new, something particular about the music.

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This vignette provides further examples that support the students' valued use of visual and enactive support structures in order to make meaning while listening to music. The map allowed students to enter into my listening experience, to listen carefully and by figuring out my visual representation, to "figure out what I had heard." Through repeated listenings, tracing the map, and through the support of peers, they were able to "see and hear" things not noticed during the first listening. It was the beginning of enabling students to understand the complexity of musical response, their own and that of others.

The Map as a Frame for Musical Interaction

In the next lesson, students were presented with a partially completed map. While Dunn (1997) used individual completed maps and encouraged his college students to change what "did not work for them" (p. 5), I chose, with my younger students, to do this as a whole class project. A large map of an excerpt from Haydn's "Surprise" Symphony was on the board (Figure 7).

The icons had been placed straight across in places where the melody actually goes up and down. There were no changes in the size or shape of the icons to represent dynamics. The end of the map was more descriptive, yet not entirely accurate. The map was laminated so that students could draw on it with dry erase markers without leaving

permanent changes on the map. After the lesson, the marks could be wiped off and the map reused by students in other classes.

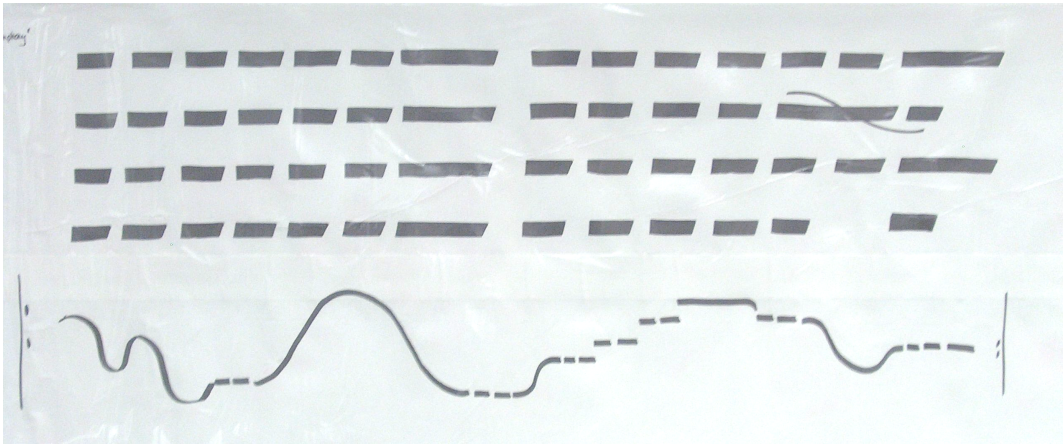

Figure 7. Map for Haydn's *Surprise Symphony*

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I explain to the students that the map is not entirely accurate and that I would like them to follow it. If they have an idea about how they could improve it, they can make changes by drawing right on the map with a dry erase marker. Before the music begins, Leah, again seated on the floor near the board, is pointing before the music even begins, singing "dun dun dun dun dun dun dun." I announce that I am about to start the music and Leah has her hand positioned in the air, ready to point exactly when the music begins.

The music starts and someone calls out that they don't get it, so I point to the first two lines and then sit back. After the "big boom," some students are startled and lose their place, so I point momentarily to get them back on track. As the music progresses, Leah points emphatically throughout, biting her lip in concentration. Others are pointing as well, although in smaller gestures. Sandy is pointing very expressively, not just following the icons but gesturing duration and articulation with conductor-like movements. Like Sandy, Tina uses extremely expressive gestures to point along, with staccato or legato hand and arm movements, a throwing out of her hands for the "loud spot," and even collapsing her body slightly in a shrinking motion in quieter sections. Conner and Dillon are pretending to play violins, and are "bowing" the duration of each note quite accurately, even making shorter bowings when the music is quieter (neither plays the violin).

When the music ends, Leah raises her hand, "I know how to do it. I know how to do it," she insists. She jumps up and stands at the board, determined to be the first "pointer." Several others raise their hands, consistently those who were pointing along, ready to volunteer to point to the map. Lauren, who was uncertain with the "Love of Two Cats" map, now is confident that she can point to this one.

Before I invite a student to come up to point to the map, I ask if anyone noticed places where they might change the map. "Are there places where the map could show loud and quiet differently? And the music—does it go in a straight line all the time?" Lauren, without raising her hand, says, "No, it goes up and down," with a 'Hello! What an obvious question!' tone of voice. Observing that not everyone is not at her level of understanding, I

play the music again and ask the students to listen this time to see how they might change the map and ask Carly to point along while we listen. She points to it very well and several students clap for her when she is finished to applaud her efforts. Lauren is so ready and frustrated about wanting to express her ideas, that I call on her to be the first one to come up and change the map. Keith and Abby are also invited to come up and draw on the map at the same time. They cannot quite remember where to draw their changes, "I know what it is, but I can't remember exactly where it is." I play the music while they are at the board so they can "find their spot."

*Other students are encouraged to follow along in order to find something these students have missed. While listening, these three students are pointing in the air with their markers, carefully looking for their "spot." They draw something, conferring with each other about their marks, heads in a huddle. When the music is over, these students explain what they have done. Lauren has added dynamic markings (*mf, p, ff*), terms with which she is very familiar from her private piano lessons. Keith has made the pitches go up and down. He sings it for me and then says, "It changes pitches." I ask him what he has done at the bottom of the map, as I do not understand his markings. Keith says, "It's four notes. It just doesn't go 'doooooooo,' (singing it legato). It goes 'do-do-do-do' (singing it with detached articulation)." "Oh, it's not smooth. I get it now," I affirm. I had drawn that section with a curved line.*

The class progresses with other students coming up to the board to make their changes. With repeated listenings and observing the ideas of their peers, students find more and more things to change, with increasing

detail. Jessica notes another section where the contour goes up and down, singing the pitches singly in a 1-3-5-3 pattern. Danny revises another students' dynamic markings, "This whole part was even quieter than in the beginning," he explains. I ask the class, "why do you think the person who wrote this piece made this part go quieter and quieter and quieter?" Jessica answers, "So it could be really loud at the end," pointing to the exact spot. Nathan, commenting from his seat, (he was not one of the students at the board) refers back to Jessica's comment. "But it doesn't go up once it hits one. Two are the same, then the next two are the same, then the next two are the same," explaining that the pitches move in pairs, not singly. He was not distracted by intervening discussion and was determined to refine this correction, now a 1-1-3-3-5-5-3 pattern.

More and more students have gradually gravitated to the front of the room to get a better view. Some of the more confident students are still in their seats. Danny sings the tune through most transitions. Less confident students (including mainstreamed special needs students) are now highly engaged at the front of the room and are calling out to their peers at the board about things to change.

Danny is in his seat, but walks politely up to me (rather than calling out) to say that all the shorter notes are staccatos. It seems important to him that I knew that he knew this about the music, as no one else had mentioned this yet.

Nathan is one of the students who has been called up for the next set of revisions, and he is making changes, singing the tune for himself before the music is even played again. He is changing the icons to move in pairs (reflecting his earlier comment), although he is confined to the left-

hand section of the map because others are working on the right-hand side, and is particular about explaining that to me later. Roger wants to accentuate the very quiet section even more and when explaining the "big boom" (as it is now referred to), he claps his hands once, sharply and loudly, representing the startling nature of this section.

Stacy is not sure how to draw her changes; instead writes across the top of the map, (completely unsolicited) "no words – says a bunch." When questioned about this, she simply tells me, "Well, this music has no words, but it says a bunch." She innately has expressed the ineffable nature of the meaning found in music and her inability to put it into words, or even into pictures.

We have gone overtime and the students' classroom teacher steps into the room to see what we are up to. I explain that this in an incomplete musical map that we are improving. Leah quickly adds that she thinks it was just fine—she could follow it in one try. I listen to one more student's idea about what to change, then suggest that we listen to it again and have someone point to the map to share what we are doing with their teacher. Leah is selected to be that person and she willingly traces the map for all of us, yet with a marker in hand. Kassie joins her as they both have more to add. The rest of the class is still very attentive, moving, tapping feet, humming and even whistling the tune as the music is heard. I suggest, in an attempt to model different ways of drawing what we hear, that "at the big loud spot" I would possibly draw a different shape (I draw a starburst), and then add casually, "But that's just my own personal opinion. You might think of something else."

The students are eager to show their teacher the "Love of Two Cats" map, and since I have a break in my schedule after this class, we quickly change the maps and I ask for a volunteer who has not had a chance to point to this map yet. Brenda is selected and points along while the rest of the students meow with the music, watching Brenda trace the map with rapt attention. They continue to be intrigued by the shapes and sounds and interplay of the voices.

*

The map has become a frame—a stationary representation of music, valuable because of the elusive nature of this temporal art form. The map provides fixed points of reference for the music, allowing students to interact verbally and nonverbally with the music and each other in more tangible ways. This interaction is an example of what Bamberger (1991) refers to as a "conversation with the materials."

Musical Maps and Conversation with Materials

Bamberger (1991) suggests that as children create graphic representations during multiple hearings of a piece of music, the creation of the written material becomes something that

> holds still so that children can reflect *on* it. In a conversation back and forth between playing on the paper and looking back at the trace left behind, the children can learn about their own knowledge, their *functioning knowledge,* which ordinarily escapes scrutiny as it passes by in action and through time (p. 52, emphasis in original).

Because music is an art form that is temporal and thus refuses to hold still, it becomes difficult for students, while listening, to hold on to their musical ideas and

even harder for them to develop them. Ideas come to mind, but are fleeting as new music is heard and new images replace current or passing ideas. When the music is finished, students have experienced so much that, while they may be able to discuss the most recent musical idea, it may be difficult for them to return to earlier musical images. Sloboda (1985) compares this to the "listening to a lecture or the reading of a book, the details [of which] may fully engage one's intellect *whilst* one experiences the unfolding of ideas, but they may leave few recoverable traces at the end of the session" (p. 151, emphasis in original).

When students are able to listen to the music many times and, with others, recreate their experience through the design of a graphic representation, a conversation ensues (Bamberger, 1991, 2000; Bamberger & Schön, 1991)—individually and socially—that acknowledges and further enables musical understanding. This conversation with the materials—the materials being, first of all, the music, but also the concrete materials of the map, the paper and markers—is a constant give and take, a listening, thinking, listening, gesture, listening, singing, listening, thinking about how to draw, listening, drawing, process. It continues with listening, conversing with partners, listening, evaluating what was drawn, listening, changing what was drawn, listening, confirming what was drawn, listening while sharing what was drawn.

Barrett (2004) suggests, "not only do symbol systems represent, manipulate and communicate ideas, importantly they transform human thinking….I suggest that children's use of notation (both invented and conventional) has the potential to transform their musical thinking, as they think about the representation of this thinking" (p. 8).

Wertsch, Tulviste, and Hagstrom (1993) describe the ways that individuals, acting collaboratively in sociocultural settings, use symbol systems to negotiate meaning. Citing Vygotsky, they state,

> in Vygotsky's view, 'the following can serve as examples of psychological tools and their complex systems: language, various symbols for counting; mnemonic techniques; algebraic symbol systems; works of art; writing; schemes, diagrams, maps, and mechanical drawings; all sorts of conventional signs; and so on' (Vygotsky, 1981, p. 137). In all cases, these mediational means are… appropriated by groups or individuals as they carry out mental functioning (Wertsch, Tulviste, & Hagstrom, 1993, p. 341).

While the use of musical maps was not originated by the students in my study, the use and creation of the maps came to be a valued vehicle for the expression of their musical understanding.

Creating a musical map requires listening, responding creatively in order to draw a representation of what one hears. Within this process is constant reflection to define, edit, refine, and elaborate, all while collaborating with others, justifying one's ideas or learning from another's ideas. This all occurs while listening, interacting with the music in a real and personal way. By drawing the map, students are able to provide a canvas for the musical frame of understanding that develops within the experience.

Bamberger (1991) argues that

> a hearing is a performance; that is, what the hearer seems to simply find in the music is actually a process of perceptual problem solving—an active process of sense-making….[It] is both creative and responsive—a conversation back and forth between the music, as material, and the hearer as he or she shapes its meaning and form in some particular way (pp. 8-9).

A student's personal perspective will both *shape* his or her experience, as evidenced in the uniqueness of each map, and a student's personal perspective *will be shaped* by his or her experience as meaning-making generates musical understanding for each

individual. The process of conversing with the music, but also with the design of the graphic representation, propels this understanding, refines and defines it, enabling it to be tangible rather than tacit.

This notion of conversation with the materials—music, map, and others—is supported by Shively's (1995) description of knowledge as distributed, both across individuals and artifacts; that "the construction of music knowledge does not occur solely within the 'head' of the learner" (p. 111). Rather, when functioning alone or with others, learners' thinking, doing, and representing of ideas are distributed internally within the person and externally throughout the learning environment (Perkins, 1993; Wertsch, Tulviste, & Hagstrom, 1993). Bruner (1996) refers to this in his description of collaboration as "sharing the resources of the mix of human beings involved in teaching and learning. Mind is inside the head, but it is also with others" (p. 87). Because of the interactive (not isolated) roles of mind, body, activity, and setting, learning is described as distributed. "'Cognition' observed in everyday practice is distributed—stretched over, not divided among—mind, body, activity, and culturally organized setting" (Lave, 1988, p. 1). It is the very interaction of these roles that enables students to interact in ways that provide multiple perspectives on a learning situation, those of others and in the ways that interactions with artifacts (i.e. a musical map) enables a reflective conversation with self concerning the formulation of ideas and ways to represent those ideas.

I would suggest the metaphor of writing as inquiry, particularly writing as done by qualitative researchers when interpreting lived experience, and consider its

relationship to the creation of musical maps and the notion of conversation with materials. Richardson (2000) shares,

> I consider writing as a *method of inquiry*, a way of finding out about yourself and your topic. Although we usually think about writing as a mode of "telling" about the social world, writing is not just a mopping-up activity at the end of a research project. Writing is also a way of "knowing"—a method of discovery and analysis. By writing in different ways, we discover new aspects of our topic and our relationship to it. Form and content are inseparable.
>
> Writing as a method of inquiry departs from standard social science practices. It offers an additional, or alternative, research practice. In standard social scientific discourse, methods for acquiring data are distinct from the writing of the research report, the latter presumed to be an unproblematic activity, a transparent report about the world studied. When we view writing as a *method*, however, we experience "language-in-use," how we "word the world" into existence (Rose, 1992). And then we "re-word" the world, erase the computer screen, check the thesaurus, move a paragraph, again and again. The "worded world" never accurately, precisely, completely captures the studied world, yet we persist in trying. Writing as a method of inquiry honors and encourages the trying, recognizing it as embryonic to the full-fledged attention to the significance of language. Writing as a method of inquiry, then, provides a research practice through which we can investigate how we construct the world, ourselves, and others, and how standard objectifying practices of social science unnecessarily limit us and social science (pp. 923-4, emphasis in the original).

When we write, we are thinking conceptually, but we also interact with words (through computer as tool) and the interaction itself furthers and refines our own thinking and understanding. In the process of reflection-in-action while writing, while expressing meaning, meaning becomes clarified and ideas are developed.

When we create a musical map, we are thinking in sounds, yet we also interact with graphics (through paper and markers, or equivalent, as tool) and the interaction itself furthers and refines our own thinking and understanding. In the process of reflection-in-action while mapping, while expressing meaning, meaning becomes clarified and ideas are developed (Figure 8).

This, then, became my goal in designing these lessons in which students would create musical maps—to enable deeper conversations with the music as students sought to represent their musical ideas in graphic representations.

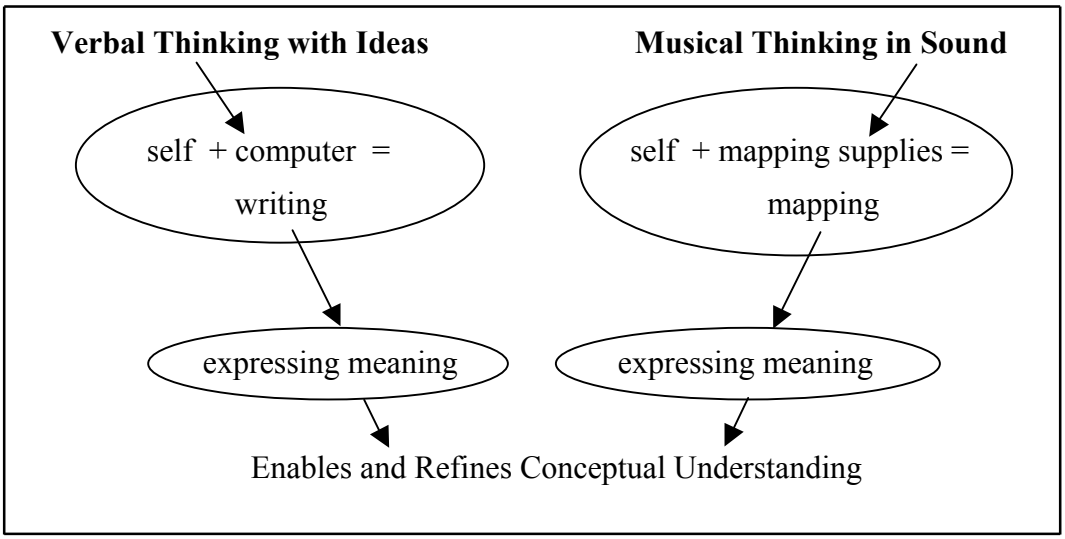

Figure 8. Writing as Inquiry—Mapping as Inquiry

Providing Additional Groundwork to Enable Student Success

Previously, the students in this setting had worked with graphic representations of music throughout their music classroom experiences, and more recently, had interacted with music through my own musical map (which I had provided as a model), and had worked together to fill in a partially completed map. In the next class, I sought

to provide additional groundwork that might enable students to begin drawing their own musical maps for a new piece of music, Mussourgsky's "Ballet of the Unhatched Chicks." Drawing upon Cohen's (1997) kinesthetic analogues, it was my hope that by enacting the music through singing and gesture, students would begin to internalize the music, forming the beginnings of their musical ideas for what would become their visual representations of the music.

*

As students enter the classroom and take their seats, I tell them that today is the day they will begin working on their own musical maps, and that we will listen to the music several times before beginning to draw. I also let them know that they will not be required to map the whole piece, just the first section, unless they are able and want to map the second section. (A first listening can be overwhelming. Knowing they are responsible for only the repeated A sections reduced the initial anxiety of the size of the task. However, most students did end up mapping both sections.)

In anticipation of the first listening, my only instruction for the students is to start thinking about how they might draw it. As the music begins, Danny's and Abby's hands are already moving, sometimes just a finger moving, sometimes with hands climbing. Anna is playing with her hands like puppets talking to each other, singing the end of the piece, with her hands alternately moving to the two-note phrases. Lauren and Jessica are patting their legs, and Lauren makes a bigger, heavier motion on the accented fourth beat of the initial phrases of the A section, looking at Jessica to show her or maybe to see if she notices it, too.

When the music is over, Danny immediately says quietly, "It plays the same thing over and over again." Roger, whom I had thought seemed to be very off task, proves me wrong by saying, "It goes, then it stops...and it sounds like when you're on a piano and it's going up the keys" (motioning with his hands to the right, the direction an ascending line on a piano would move). Leah, whose hands had also been moving like puppets, adds, "It sounds like…" (pausing thoughtfully) "...a conversation," Mark, who had been watching her, says, filling in the blank she had left. Leah agrees, "Like two people talkin' only without talkin'."

I affirm their insightful answers and suggest that we listen to it again to determine the form. These students are experienced with determining form by listening and I had previously drawn four boxes on the board. I tell them that there are four sections, that we will need to label them things like A, B, or C, and that I'll let them know when each section starts. "Do you think there was an Intro?" I ask. "No," they say, almost in unison. "There wasn't one, was there? So what would we call the first section?" I ask. Once again, they answer "A," almost in unison. I draw an A in the first box. As each section comes along, I indicate the new section and the students accurately label the sections A A B A. Jessica and Lauren are still patting, Leah is working out the music with her imaginary puppets, yet all three readily answer the form questions while seemingly immersed in their movements. When the music is over, Leah immediately puts down her hands and insists, "It has a coda. It has something different at the end." We discuss whether it is a coda because it is so short, but recognize that it is definitely something different. Now looking at the form, we realize that with the repeating sections, they really only have to draw two sections (A and

B), and I allay fears by letting them know that drawing the B section is optional.

Before beginning the third listening, I ask them to pretend their fingers are pencils and to draw the music in the air, so they can figure out how the music goes. This time all hands are moving, up and down or left and right, climbing at the ascending pattern, or using extended motions for the ending sustained pitch. I have intentionally not modeled gesturing during this piece so as not to influence their gestures.

Some students have stopped gesturing by the end of the piece. I ask, "How could you draw the ending?" Bethany volunteers and extends her right hand with her second finger pointing, drawing a long horizontal line in the air. Simultaneously, Shelly, sitting next to her, draws an arch over her head with a fully extended arm. Interestingly, both are showing the forward movement of the sound, even though it is one sustained tone.

Lauren and Jessica are not only very good musicians, they are very good friends who almost always sit together and generally choose to work together. They both begin pointing with concentration, each with a different way of drawing, yet with each hearing their "drawing in the air" becomes more uniform with each other. At first, both girls draw the long sustained note as stationary. While the next listening, Lauren moves her hand vertically and Jessica moves her hand horizontally. During the next listening, both girls are moving their hands horizontally.

Across the room, Danny is "drawing" the high and low notes of the A section and is correctly drawing two different ascending lines—one longer and the other as two shorter lines. For him, the long sustained note is drawn vertically, from low to high like a rocket ascending. We listen to the

music several more times, with students pointing in the air, motions becoming more purposeful as the music becomes more familiar. Once I can hear students singing or humming to themselves along with the music, I know they have begun to internalize the music and with the assistance of their gestures, may be more successful when attempting to draw their graphic representation of the music.

*

While not complete kinesthetic analogues like those created by Cohen's (1997) students, these students were representing their musical ideas kinesthetically as a result of their interaction—their conversation—with the music. Their movements were temporal graphics in the air, the beginnings of pathways of feeling and knowing—personal ways of responding to the music, of interacting with the music, and expressing the resultant musical ideas.

Musical Maps as Tools for Enabling Felt Pathways of Musical Understanding

The next step of the project was for students to draw rough drafts of their maps. I reminded them that they must know what their maps mean and that, when they are finished, they must be able to demonstrate their ideas to the rest of the class by pointing to their maps as the music plays. It is important that they understand the goal of the project and what is expected of them. Students are invited to choose their own groups and group size varies from two to four. Large sheets of construction paper are distributed. Students may choose to sit in chairs but most are sprawled on the floor. I repeatedly play phrases of the A section until the students tell me they are finished and we move on to the next section.

*

As students work on representing the A section, some students are drawing everything out (Figure 9), while others draw shorter sections and encase them in repeat signs (Figure 10).

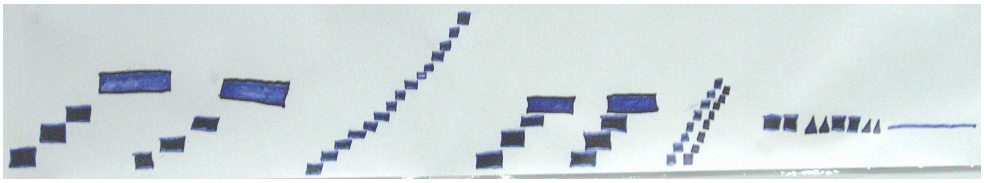

Figure 9. Example with no Repeat Signs

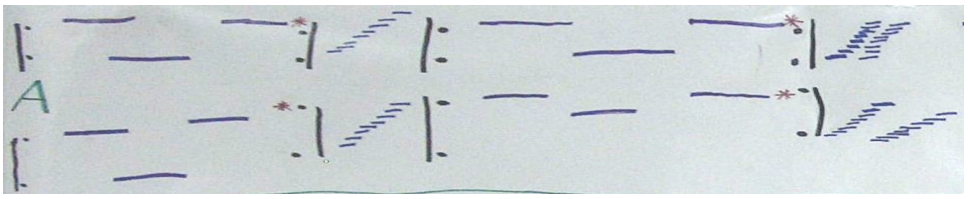

Figure 10. Example with Repeat Signs

Tina gets up to sharpen her pencil and, in her absence, Heather points along to what they have drawn. Each group has a scribe and the other members of each group confer, point, or take the pencil (or get their own pencil) to add or edit the graphics. The students continually point to what they've drawn while listening and then quickly draw what is new, yet

frequently change what they have drawn after pointing to it and realizing the need to edit or think of a way to improve it.

Lauren and Jessica are working together. Lauren has the pencil and Jessica watches carefully as Lauren draws and then points along to what she has drawn. They are finished with the first phrase before the others and are frustrated because they want to hear the next phrase, the ascending line. I suggest that they go ahead and just sing it in their heads. Lauren begins to draw, but cannot remember it precisely. Jessica sings it with her and they continue. I play it for them this time and they sit up and count the number of steps on their fingers. Every time it is played, Jessica counts to 16. Lauren looks up from her drawing and says "8." She looks at Jessica's hands (six fingers are up) and with exasperation says, "How do you get 16?" I happen to be standing near them and explain that there are two sounds for each step. "Oh, I get it!" she exclaims and hurriedly returns to their drawing.

At this point, Lauren turns the pencil over to Jessica indicating that drawing the rest of the map will be her responsibility, sharing the work fairly. They are at the point of the two shorter ascending lines and are once again working out the steps on their fingers. They get to the penultimate phrase, listen to it without drawing, and as soon as it stops, look at each other, sing it accurately in unison, and both bend over to draw it on their map, this time singing it slowly as Jessica draws the shapes that represent these difficult intervals, with Lauren frequently pointing to where the next pitch should be placed. They anticipate the long sustained note, sing it and draw a long horizontal line, placed higher up on their paper (Figure 11).

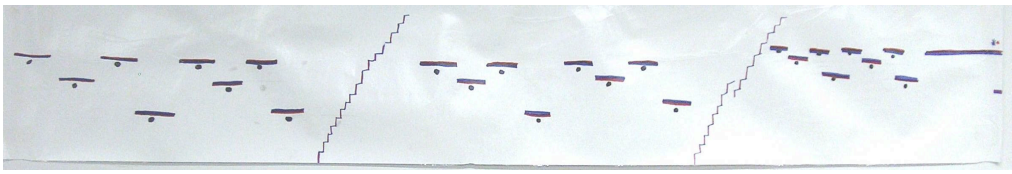

Figure 11. Jessica and Lauren's Map

They have made a mistake, and in erasing it, have torn the paper. While Lauren repairs it with tape, the music is playing, and Jessica, unable to point to the map, now points in the air. As soon as Lauren is finished repairing the map, Jessica, with music still in progress, never loses a beat. She easily transfers her pointing to the precise place on the map where the music is at that point.

Working nearby are Danny, Abby, and Roger. Abby has the pencil and is trying to draw the first phrase of the A section. She looks up at Danny and asks "Like that? Down-up-down-up?" He sings the phrase, accenting the 4th and 8th pitches, and with his hand open, gestures the higher and lower pitches accurately (Figure 12).

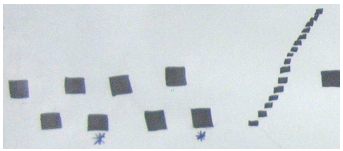

Figure 12. First phrase of Danny, Abby, and Roger's Map

Roger and Abby point to what she has drawn while Danny continues to sing and gesture the shape of the phrase. Danny says, "No, up-down, not down-up" and Abby adjusts the map.

I have been playing the first phrase over again and when it stops, Danny continues singing the piece where the recording has left off. He continually repeats this ascending pattern, as do other students around him. Amidst all this, Danny indicates to Abby that she forgot to draw the pitches of the first pattern; she sings and points to her map, then adds the missing marks.

As I play the ascending pattern, Abby asks, "How many times does that go up?" In reply, Danny sings it, making a rolling motion with his hand that indicates beat more than pitches. Abby begins to draw, and Danny sings it very slowly, counting the pitches on his fingers, but loses track and stops. I play the music again and this time he counts on his fingers while listening. "Twelve," he says. The music plays again, Danny counts again and when the music is over, he has counted to 13 and now looks puzzled. The music continues to play, starting from the beginning, and Danny and Abby continue to work on their map, with Roger looking on.

Abby is doing most of the drawing, and points to the map with her pencil as the music is playing. Danny sings and gestures constantly and can give Abby immediate feedback to help her with the map. When the music comes to the place where the long ascending line is split into two sections, Danny actually points to the paper, drawing imaginary lines with his hand to express his idea. "It's not the same," he tells her, referring to the first ascending pattern. The music is playing and he sings along when the split phrase is heard. "It goes up twice. The second one starts down." He is still

singing and counting the steps on his fingers. "Eight for the first one," he tells her. He listens again. "Eight the first time, seven the second time" (Figure 13).

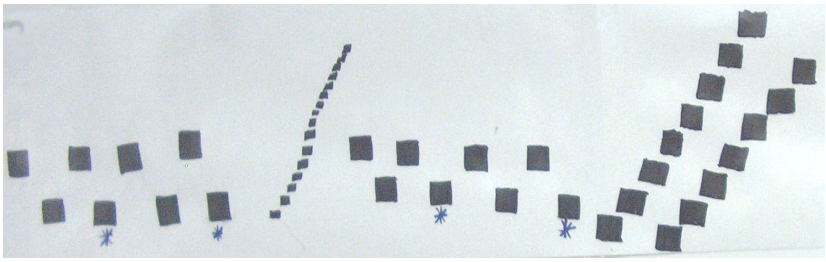

Figure 13. "Eight the first time, seven the second time."

The music is repeated from the beginning and he continually sings along, while Abby once again points to the puzzle with her pencil. The whole class has not worked on the last phrase yet, but Danny sings it during the transitions between listening and working on the map. "Here's the next one," he says as he "draws" it with his hand on the paper, accurately indicating the melodic contour of the phrase, then draws the long sustained pitch in the air, as he runs out of paper. Abby does not see him, so he draws it again with his hand. She draws the first pitch and cannot remember where to draw the next one, so he again, more slowly, draws the imaginary marks for her. He is quite specific about the pitch relationships, "And then it goes one lower," singing it slowly (Figure 14).

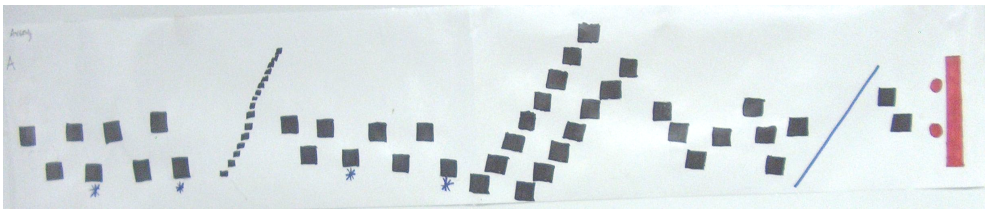

Figure 14. "And then it goes one lower."

All around the room, students are asking, "Can we hear that again?" Like Danny, they are quite determined to get their maps just the way they want them and repeated listenings have become a necessity. Danny is not the only student singing, various phrases are sung simultaneously around the room as students work on their maps.

Most students are pretty far along with their rough drafts by now, so instead of playing individual phrases, I return to playing the entire A section, reminding them that they had decided that the A section occurs twice and so they will hear it twice in a row. Students are singing along, tracing their maps. Abby walks up to me to tell me that she has noticed a sound after the long sustained note, and she shows me how she has drawn it.

*

Observing the students' process as they created their maps, I realized the enormous potential for enabling students to form *felt pathways* during a listening experience, similar to the "felt paths" experienced in performance settings. Jeanne Bamberger, in *The Mind Behind the Musical Ear* (1991), suggests that

> the *sequences of motions* that we practice and internalize in the process of carrying out familiar activities—most particularly sequences of actions that we internalize in learning to perform on an instrument, sequences that we both make and follow with each new performance—that these action-paths become our most intimate ways of knowing that piece. I call these internalized action-paths "felt paths" (pp. 9-10, emphasis in original).

I have extended this term to *felt pathways* and believe that through tools like musical maps, students can form pathways of knowing and feeling while *listening* to music, in addition to paths that Bamberger describes that are formed when performing music. Several student strategies come together to make this possible: a) the use of movement to enable drawing and to confirm ideas while tracing the drawing; b) the use of inner hearing to create the graphic representation; c) the use of singing or humming that accompanies the entire creative process; and d) the use of creativity with the perspective of one's own lens to design, look at, analyze, evaluate, and edit the graphic representation. What is unique about felt pathways is that these kinesthetic personal knowings are not a result of movements learned in order to elicit sound physically from a musical instrument, as are Bamberger's "felt paths." Rather, these felt pathways are internally produced pathways of feeling and knowing that are a result of the imaginative response of body and mind when listening. These vignettes of the students' process of mapmaking provide further examples of the notion of felt pathways of knowing and feeling formed while listening to music.

*

The students are ready to work on the B section, and since we did not trace it in the air with our imaginary pencils earlier (I had not anticipated getting this far), we take some time to listen to it again in order

to first draw it in the air. After just a few listenings, students are already drawing. Lauren listens but cannot sing it yet. She tries to draw something, but stops, apparently perplexed as she slaps her hand against her forehead. "It's hard!" she exclaims, but continues to draw. Gradually she adds more and more graphics as she listens, points, and fills in what is missing.

Jessica is just listening. I tell the students that the first two phrases are similar, but not the same—they will have to figure out how they are different. These two phrases are played again, and Jessica's hand shoots up: "It's louder!" "Yes," I answer, "and what else?" Danny adds, "There's a ring to it. Like a ringing sound." "Yes," I affirm, "they've added instruments. How can you show that?"

The music is played again, and Jessica comes to life, taking the pencil from Lauren and fixing the map. This time when the music plays, Jessica creates a clapping motion that combines the melody and background patterns of the piece; she is hearing them as one unit.

Class time is running short and I play the whole B section several times. Lauren points along, and when a new section is heard, stops and says, "This one is hard to draw." Jessica again takes the pencil and makes wavy lines (Figure 15).

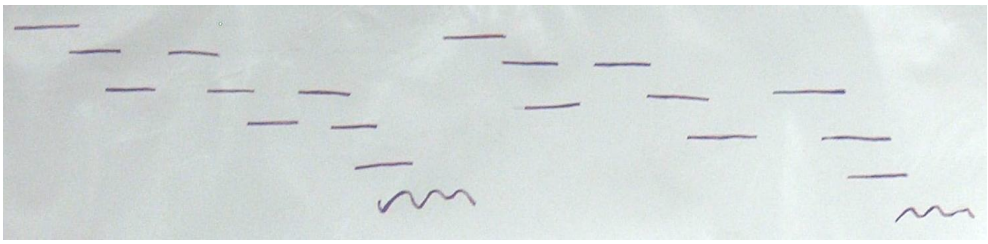

Figure 15. "This one is hard to draw."

Other students are also stumped as to how to represent this part of the music. "How could you draw that?" I ask the class. "Like this!" Lauren stands up and makes a horizontal wavy line in the air with her hand, much like the one Jessica has just drawn on their map (Figure 16).

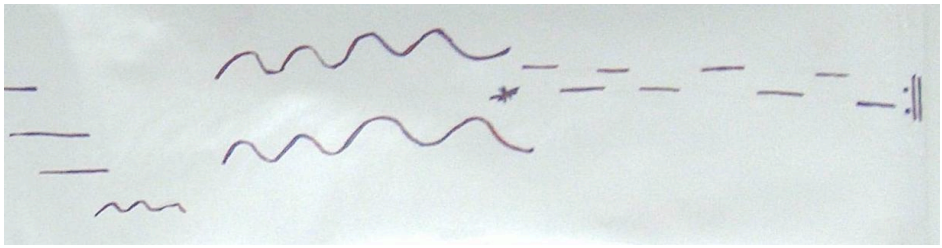

Figure 16. Jessica's Horizontal Wavy Line

The music plays again and instead of just listening, Jessica is making an interesting rocking motion with her hand that fits the music, sometimes combining patterns. When Lauren again looks to her for help, Jessica suggests what to draw by showing Lauren her motion while singing it.

Class is almost over and I suggest that we listen to the whole piece. Lauren and Jessica watch their map carefully, and instead of tracing it by touching their hand to the paper, they are gesturing expressively in the air, in sync with their drawing, singing all the while. Lauren notices something that needs work and fixes it, missing the B section. Both girls pause as she makes the correction. She finishes just in time for the last A section and Jessica jumps right back in at the correct spot singing and pointing to their map.

Meanwhile, across the room, Danny, Abby, and Roger are working on their representation of the B section. During the first listening to the B section, it first appears that Danny is just listening, but then his fingers begin to move, barely tapping the floor, matching the pattern of the background music (accompanying lines). During the second listening, he gestures more broadly, sometimes showing the melody and the accompaniment, but most often gesturing with the background music.

We turn to listening to the B section phrase by phrase. There is some frustration among the students with the first phrase, so I sing the melody. Danny looks at Abby, gestures and instead sings the background—for him, this is more salient. It is what he notices and attends to. When this phrase repeats, he now sings the melody as he has noticed something different (the ringing sound) that he associates with the melody (Figure 17).

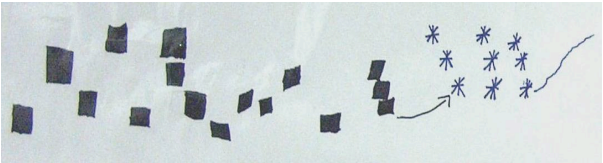

Figure 17. Danny and Abby's Map (beginning of the B section)

When Danny sings this phrase, he sings it with a "brrring" sound. To gesture this melody, he opens and closes his hand like a starburst for each pitch, moving his hand up and down as well. As the music progresses, Danny's gestures cease, then resume at the last section where his hand moves back and forth, and eventually settles into an up and down motion as the pitches move higher and lower (Figure 18).

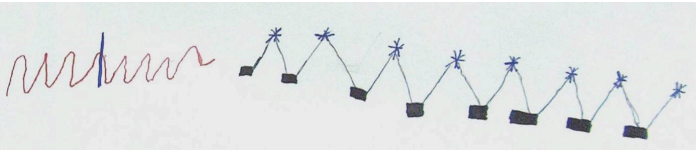

Figure 18. Danny and Abby's Map (end of the B section)

With successive listenings, his singing becomes increasingly more accurate and he is able to fill in all the sections with appropriate gestures—wavy horizontal lines with a lift in the middle or jagged up and down points within a horizontal line.

Abby steadfastly works on the map, conferring with Danny, listening to him sing the phrases and watching his gestures, which Danny occasionally "transfers" to the paper with an imaginary pencil.

*

The students' gestures, while recurrent, were also continually developing. Gestures became more sophisticated, singing became more accurate, and visual graphics were continually edited or being given more detail. Confirming one's work or simply following the map for one's own pursuit were common occurrences. In addition, even after time had past, students could and would easily and accurately trace their maps, enact the music vocally, and focus on the visual representation that they had created. The procedural strategies used to create the map were similarly employed when later reliving the map or describing it for others. Like the muscle memory of an instrumentalist who can easily run through a piece learned long ago, these students had created "felt pathways" for a piece of music experienced through listening. The map

served as a frame for discussion with others, for enabling others to enter into one's musical experience and into the meaning one had made of the experience, but it also served as a frame for the reliving of one's own musical experience. The "landmarks" and "road signs" that each student created on their musical map provided the outline *for themselves* of a deeply felt musical experience and the opportunity to relive that experience by recreating the "felt pathways" created when making the map. These students were making meaning through listening—through "felt pathways" of musical thinking felt internally and expressed externally (Figure 19).

Cohen (2001), too, observed that the kinesthetic analogues created by her students served as a frame for musical dialogue. Cohen shares that

> pupils' attention was focused on the means by which the composer achieved the experience described….Here the movement gestures (mirrors) serve as a meeting point between intuition and analysis as movement gestures serve as a common reference point for verbal analysis. This is the case both when the pupil is analyzing his own hearing of a piece as he/she works at evolving an appropriate mirror for it, or when he is absorbing analytical information from the teacher's mirror….Mirrors not only provide entry to the musical experience but also provide a concrete reference point from which one can connect easily to a study of compositional processes at work in creating the experience (p. 15).

Reflection-In-Action

In order to show graphically what students know about the music, they must think and rethink about what they hear in the music. Reflecting on their listening, on their understanding of that listening, of their gestures and how they might be transferred to paper, and whether or not what was gestured and drawn accurately depicts the meaning they are intending, requires reflection-in-action—thinking that informs their

Creating the map – felt pathways developed

The musical map functions as a frame for:

- Nonverbal and verbal discussion of the map and the musical ideas represented.
- Allowing others to enter into one's musical listening experience.
- Reliving one's own musical listening experience.

Sharing the map – felt pathways relived

Figure 19. Map as a Frame for the Lived Musical Experience

doing and doing that informs their thinking. This on-the-spot reflection that informs action, reflexive with actions that enable meaningful understanding, is at the core of these students' experience as they complete their musical maps.

*

Before the students came back to class the following week, I prepared large blank sheets of paper for the final drafts of their maps, about 12" high x 5' long. Students have their rough drafts to work from and are supplied with pencils and markers, and upon request, rulers and 'white-out.' With the recording of "The Ballet of the Unhatched Chicks" on 'repeat' (repeating continually), the students work on their maps, redrawing what they had already drawn on the scrap paper, editing, adding colors and all sorts of graphics to show what they have come to know about the music. Students are working feverishly within their groups, listening and pointing,

conversing between groups, and sometimes extending their maps by taping on paper extensions when they run out of room.

With student work well underway, I am able to walk among the groups and offer assistance when it is solicited. A few students have realized that when drawing their rough draft the week before, their efforts were insufficient and in seeing their peers' work are unnerved. With their permission, I draw a few simple shapes on their paper, trace it appropriately, and ask if they understand it. After seeing their nods, I suggest that they "fill it in" or try to "add more," and they are quickly back to work. The resulting maps of these students are simpler than others that are produced, but they still convey the musical experience of these particular listeners, and in the end, these students are equally proud of their work (Figure 20).

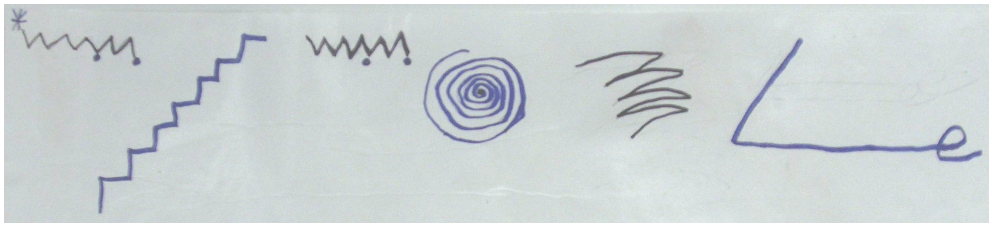

Figure 20. Example of a Less-Detailed Map

I begin the class by playing the piece and allowing the students to review their maps. My intention was to once again play the music phrase by phrase as they transferred the first drafts of their maps to the "good paper"

for their final copy. I played the first phrase, stopped the CD, and the whole class continued to sing the rest of the piece. I ask them if they wanted to hear the music a little at a time, or if they just want me to play the whole thing over and over. "The whole thing!" and "Over and over!" were shouted out to me instantly and unanimously. They were ready to return to the whole piece, had a good understanding of the parts, and wanted to be left to themselves to work and listen without my intervention.

Even though Lauren had done most of the drawing of the rough draft, Jessica, her partner, now joins Lauren in drawing the final copy. They are very precise in their drawing of icons and have requested a ruler. While the music plays over and over, students are able to work on any part of their maps, regardless of what is playing. By this point, they know the music so well that they can tune into the sections they are scrutinizing as it is played or if the music is not in the right spot, can sing the section they are working on. The room is fairly noisy as students are constantly conferring with each other and the music plays. It is difficult to discern particular conversations, except to witness constant gestures, references to the rough draft, heads together in deep concentration, and an urgent "play it again!" when the CD player stops unexpectedly. Jessica and Lauren also negotiate spacing of graphics, colors, placement of staccato marks and repeat signs. Soon they have delegated areas of the map and are working on different areas simultaneously (Figure 21).

On one occasion, Jessica is waiting for Lauren as she erases some marks in the A section in order to move it over and make more room for Jessica's section. Jessica hums along with the music playing the B section

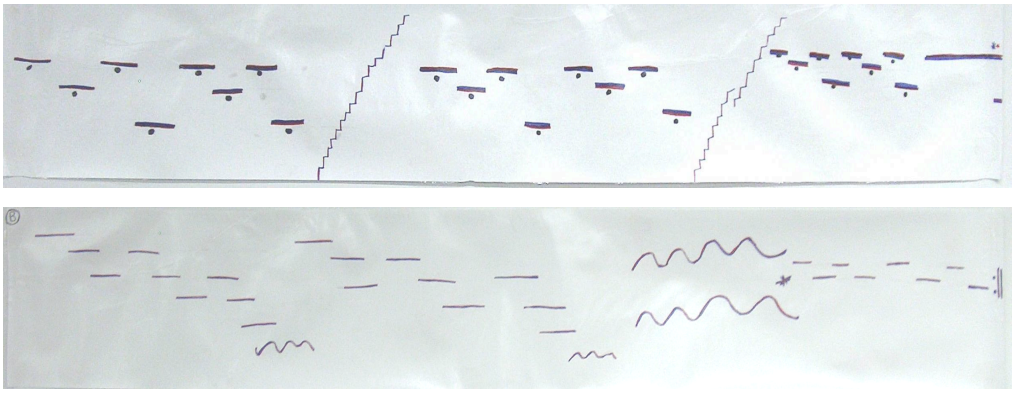

Figure 21. Jessica and Lauren's Map

section and gestures the same wavy motion that she used the previous week. Then she turns and easily rejoins Lauren drawing the A sections. She slips easily among the parts as she seems to know them so well.

Meanwhile, Nathan, who was absent the week before and needs a group with whom to work, has joined Abby, Danny, and Roger. The music is played as a review and Nathan watches intently as Danny and Abby point in the air, and as Roger, who appeared to not be particularly involved last week, proves me wrong again by being able to point quite precisely to the map. Nathan understands the map and is quickly on board. He borrows a square magnet from my icon box and begins to help Abby make shapes. Danny sees a discrepancy in the map and makes corrections. The accented 4th pitches in the first two phrases need his attention. After drawing something, he sits back, sings the phrases, accenting those notes, and gestures up and down with his hands, making a pouncing gesture were the accents are. "We have to put, like a boom, in it. Maybe like one of those star things," he explains to Abby, who has begun to work on the final draft.

Roger, who, last week, had widened his eyes during the long sustained note, takes the pencil from Danny and makes a correction at that spot on the map. He has his own ideas about how that should look. Danny and Nathan begin talking about a video game, although Danny continues to watch Abby draw, and can, at any given moment, begin singing the music and advise her on her drawing.

It has become cumbersome for four people to be working on the map at the same time, so Danny and Nathan start working on the B section, and Roger remains to help Abby with the A section (Figure 22).

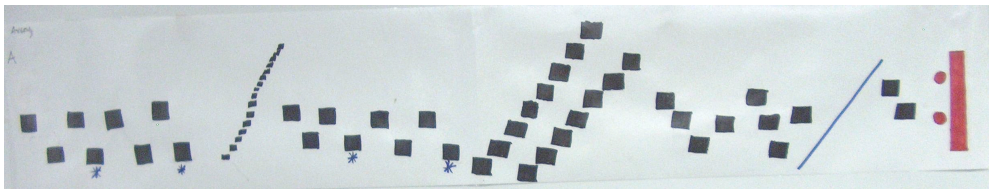

Figure 22. Four Students—One Map, the A section

Danny and Nathan are now off camera, but they are physically right at my feet and I am able to watch them work. Danny is singing phrases while fine-tuning his rough draft. He is particularly drawn to the background music of the B section and sings it continually. As is evident from their map, Danny draws these pitches amazingly well. He also continues to sing the second phrase of the B section with a "brrring" sound, which he did last week as well. As he draws the succession of pitches, he traces and sings at

the same time, filling in the next notes, singing slowly as he draws. He keeps telling Nathan, "It goes like this," as he sings, traces, and draws.

They have come to the last phrase and cannot figure out how many pitches there are, and thus do not know how many marks to draw. Danny sings it, emphasizing the higher notes, singing a "brrring" there, too. "It's the 'brrrings,'" he says. "Count the 'brrrings.'" Nathan and Danny sit back with fingers ready. Danny traces the map up to that spot and as the music in question approaches, Nathan assures Danny, "I'm ready," acknowledging the importance of the task at hand. As the phrase is heard, they count off the notes on their fingers, hands moving with the beat. When it is over, Danny says "eight," immediately (he seemed to lift fingers and count simultaneously). Nathan first looks at his hands to see how many fingers are up and tells Danny, "eight." (While coming to the same conclusion, Nathan seemed to simply raise fingers with each sound and then had to look at them to count how many there were.) Danny begins to draw graphics as Nathan watches. The music starts over from the beginning and it takes Danny almost the entire piece to draw this section. He finishes just as this phrase begins and he easily traces what he has just drawn and seems satisfied with the result (Figure 23).

Abby comes over to see what they have been working on and Danny traces the B section when that music plays. "Cool," she says, when he is done. "This plays when this plays," Danny says, rather intrigued, indicating the first two phrases. He has drawn the background music for the first phrase and the melody for the second phrase, but they both play together both times. It is as though this is the first time he has noticed this, even

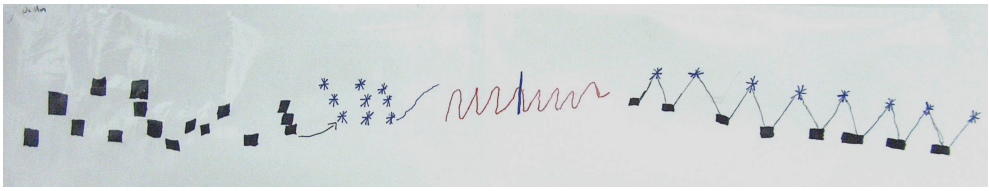

Figure 23. Four Students—One Map, the B Section

though he has heard the music dozens of times by now. As the music again repeats and approaches the B section, Danny says, "I'm gonna see if this plays when this does," as though he needs confirmation of his discovery. He sings and traces the B section yet again. The section ends. "Yup," he says, very matter of factly, satisfied that he was right about his discovery. Abby was watching him and adds a vertical lift mark in the third phrase and Danny agrees. After many listenings, and watching Danny trace it, she is yet making critical discriminations about the music and adjusts the map. Class is about to end and they have not yet transferred the B section on to the good paper for the final copy and so they discuss when they might come back to do this before the next class. Their classroom teacher allows them to stay immediately after this class period and they take the map into the hallway to work on it, occasionally popping their heads in to listen to the music as the next class is also working on the same project.

*

Because of what I have come to understand about reflection-in-action from the literature (Dewey, 1916; Bamberger & Schön, 1991; Schön, 1983, 1987) and from what I have learned through data analysis, I consider the making of musical maps to be a

valid and valuable creative listening experience. While not a concert hall listening experience, musical mapping is a compelling music classroom listening experience, because listening and responding to the music through the creation of a visual representation of the music requires "reflection-in-action" and enables students to develop and explicitly share their musical understandings in a socially supportive environment. According to Dewey (1916), learning will occur when reflective thinking is enjoined with experience, in an environment with these characteristics:

> First, that the pupil have a genuine situation of experience—that there be a continuous activity in which he is interested for its own sake; secondly, that a genuine problem develop within this situation as a stimulus for thought; third, that he possess the information and make the observations needed to deal with it; fourth, that suggested solutions occur to him which he shall be responsible for developing in an orderly way; fifth, that he may have opportunity and occasion to test his ideas by application, to make their meaning clear, and to discover for himself their validity (p. 163).

Asking and enabling students to create musical maps is a valid musical listening experience as it embraces the components listed here by Dewey. In particular, I would suggest that as a "continuous activity," mapping was particularly meaningful to students "for its own sake." This meaningfulness has many layers. The very act of making the map was an enjoyable creative process. The depth of exploration of a single piece of music, while recreating it in one's mind and finding a way to express that understanding graphically was challenging, interesting, and fun. It required collaboration with others using both verbal and nonverbal dialogue. The project allowed for multiple points of entry with everyone being able to achieve success at his or her own level.

Another important aspect of this project is that students were enabled to create a representation of what they knew and felt when engaged with the music. Very few

activities in a music classroom allow students to express themselves so fully when listening to music. I am not suggesting that everything a student comes to know about the music is represented on the map, but the map does provides a useful starting point for the sharing of ideas. The making of the map allowed the music to stand still, to create points of discussion that all could refer to. Finally, as will be reported later, it was apparent at the end of the project that students were very eager to share their maps with others, to be able to show others what they knew, in a way that was personally creative and expressive. Students were pleased and intrigued to realize that responses to music listening can be both common and unique. While some common characteristics of the music appeared on every map, there were also unique elements to every map—things that represent the individual and what she brings to the experience.

As the teacher in the classroom, I was able to informally observe this amazing process of student engagement with music. As the researcher, I was empowered to reflexively analyze data, review the literature, and constantly reflect upon what I was experiencing in this classroom. I came to understand the creative nature of listening, the teacher's role in enabling student musical understanding in the classroom, and the unique potential of musical maps to enhance student interaction with music while listening. As a music educator, I found this "window" (Davidson & Scripp, 1988) into the musical process of children's listening, the creation of a map to express ideas and the ultimate sharing of those ideas to be a valuable and rewarding experience. Witnessing the creative nature of listening, the evidence of musical understanding that the maps provided, and the affirmation that students give to each other as they celebrate the common and unique characteristics of the shared maps was an insightful and

transformative experience for me as a music educator. While not to minimize the importance of product and the follow-up discussion, for me, and it seemed for my students, no matter how intriguing the final product of the map or the resulting discussion that followed, the essential value of the activity was the experiencing of the music in a complete, personal, and intimate way. Cohen (2001) concurs,

> no matter how impressive the children's ability to discuss compositional devices, it is crucial to remember that analysis is *not* the ultimate goal. Both the 'in-action reflection' and the conscious awareness of the perceptual process and compositional devices lead to maturation in musical cognition. However, this is not the ultimate goal either. The ultimate goal is the *musical experience* (p. 16, emphasis in original).

Reflection-On-Action

Cohen (2001, p. 14) reports that there is a strong connection between the intuitive nature of musical reflection that occurs while creating the musical mirror and the conscious reflection that occurred after the performance of the musical mirror. Intuitive reflection ensures the greatest likelihood that the listener will enter into a meaningful and personal dialogue with a musical work and thus arrive at a stage of truly 'knowing' the piece. However, once the piece has been experienced in this way, it is also important to reflect on the experience in a conscious manner (verbally) in order to consolidate the experience itself and what has been learned from it.

Like Cohen's musical mirrors, mapping requires the external and expressive representation of musical ideas. As stated earlier, several student strategies come together to make possible the creation of musical maps: a) the use of movement to enable drawing and to confirm ideas while tracing the drawing; b) the use of inner

hearing to create the graphic representation; c) the use of singing or humming that accompanies the entire creative process; and d) the use of creativity with the perspective of one's own lens to design, look at, analyze, evaluate, and edit the graphic representation.

The integrated use of these strategies—all needed for students to successfully think in sound as they recreate the music while designing a musical map—makes mapping, like kinesthetic analogues, a useful tool for enhancing student understanding about music and allows students to know a piece of music in an intensely personal way. In reference to "knowing within," Reimer (2003) states, "the higher quality of affective experience is a direct result of a process that enables feelings to be precise, accurate, detailed, meticulous, subtle, lucid, complex, discriminating, powerful, meaningful. *In this profound sense, composing music and listening to music educate feeling* (p. 101, emphasis in original). The process of creating a musical map enables this kind of musical thinking, feeling, and knowing; and the sharing of the map allows for a unique outward expression of that experience. Let us now consider the outward expression of these students' musical ideas as they share their maps with their classmates and me.

Communal Sharing of Maps: "Look at What I Heard!"

The final part of the mapping process was for students from each group to trace their musical maps for the class, pointing to them through time as the music was heard, followed by class discussion. This part of the experience included reflection-in-action as the listeners watched another group's map and actively reflected on the ways they

represented musical sound. It also included reflection-on-action, when participants engaged in dialogue concerning the music and the map after the experience.

Class procedure was to put each map on the board, listen to the music, and see whether classmates were able to follow the map. Then the creators of the map would trace the map for us while we all listened to the music again. Spontaneous and unsolicited applause followed the viewing of every map. Students celebrated the efforts of their peers but also seemed to clap for the sheer enjoyment of listening and watching, like one might clap after an exciting moment in a movie or sporting event. Free discussion would follow, generally with very little need for me to generate discussion with questions. I occasionally asked, "Could you follow their map?" after the first unassisted listening, or asked students to explain certain aspects of the map that I found interesting or knew to be special from individual conversations we had had during the process—hoping that students would share these ideas with their peers. Students, however, were usually able to ask these questions for themselves and did not need my prompting.

Students were incredibly anxious to share their maps with the class. It did not matter if their maps were simple or complex; they were anxious and even impatient to have their turns. Students near me would tap my arm and say, "Can I go next? Can I go next?" It seemed to me that it was very important for them to share with everyone what they had created, what they had heard, and how they had represented it. While they had experienced listening to the whole piece of music, the maps represented those aspects of the music that each listener had attended to and chosen to make explicit. Other aspects of the music were certainly heard as well and may have been understood tacitly. Like a

geographic map that shows landmarks of a certain place without being able to capture its essence, these maps indicate salient features of the students' listening experiences, yet do not represent everything known and felt. However, the special nature of mapping allows everyone a chance to show everything they have come to know about a piece of music, what they perceived to be interesting or important, and what they were able to represent graphically (Gromko, 2003). Mapping allows more opportunities for learners to share musical ideas—much more than they would be able to show by just answering one or two questions in the course of a class period. Mapping enables learners to share larger ideas—ideas that represent their musical thinking in a creative and personally expressive way (see Chapter Seven, Map as Metaphor).

By the end of this listening experience, students truly knew this music from within and this was reflected in the amazingly accurate way they could point to their maps as the music played. If someone lost his or her place on the map, group members would rush in to help or step in to take over, or point together with hands practically on top of each other. Even when students did lose their place when tracing their maps, they easily found musical landmarks—music that they knew and specific marks to represent it that easily got them back on track. Students who completed only the A section would patiently wait while the B section played and be right there to point again when the A section returned. Leah, Sharice, and Kassie drew their B section on the back of their paper and quickly devised a way to show their whole map. Rather than putting it on the board with magnets (making the B section unseen), Leah and Kassie held it in the air and quickly turned it over so that Sharice could point to the entire map.

Students also would do on-the-spot editing when tracing their maps. When carefully pointing to a map in class, some would still find discrepancies. If there were not enough marks, students would simply finish the phrase by pointing in the air or on the board, making imaginary marks resembling the music. The gesture was understood by all and never questioned by the other students.

By reading the following excerpts from our "reflections-on-action," I invite you to sit in our discussions of the students' musical maps.

"I Never Heard It Until I Saw It On His Map!"

Roger: Wow, that was a good one! I could follow it all the way through!

Seth: I think that was the best one yet! (Figure 24).

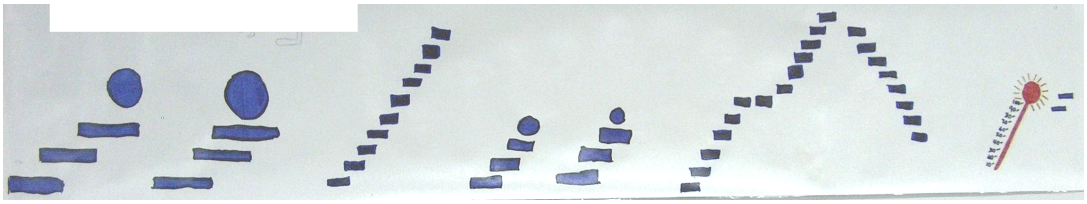

Figure 24. Kevin's Map

Tina and Marie were anxious to share their colorful map (Figure 25).

Conner: Dang! (in an awestruck tone of voice)

Mrs. B: What did you think about that? Wasn't that cool?

Conner: Yeah. It was sorta hard to see…you could hear it, but at the end of the A, it was like, kinda hard to follow, cause it was going so quick.

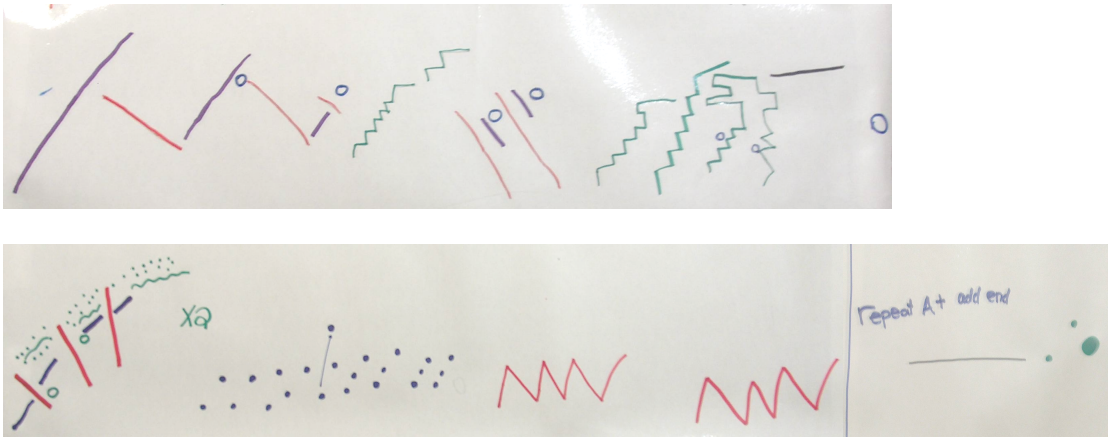

Figure 25. Tina and Marie's Map

Tina: Oh…(she traces the section and sings it)

Mrs. B: It's kind of squiggly isn't it?
(To Tina and Heather): Why did you draw it so squiggly?

Tina: 'Cause it goes like really fast (raises an index circle and rapidly draws a vertical spiral in the air).

Mrs. B: Anything else?

Kent (rather emphatically): How come you did 3 at the end? There's 5 at the end!

Tina: No. (She sings and points to the tag, singing a three note phrase, not 5 separate pitches. The singing and pointing is her explanation, nothing else.)

Mrs. B (to Kent): That's just how she hears it. (I sing it again.) The shape of the phrase is how she heard it.

Seth: What about those blue dots? (Tina points at the A). No, at the B section.

Tina: Oh. That's background. It's not exact either. It's just showing that there is background music. (She gestures a sweeping motion at that spot).

Mrs. B (to the class): Do you remember that there was background music there? Several nodded yes, although most had not drawn it on their maps. Even as descriptive as mapping is, it is still just a partial expression of their experience and understanding.

Cindy, Madison, and Bethany are next to share their map (Figure 26). They ran out of paper for the B section and added extra paper twice to make it long enough. They have represented two layers of music at the end of the B section, which Bethany maneuvers with two hands pointing simultaneously.

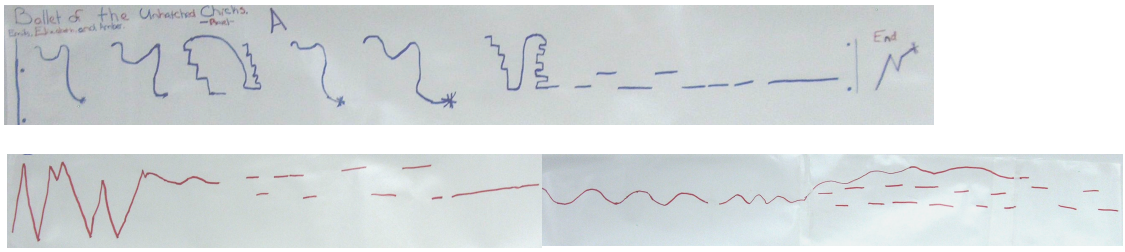

Figure 26. Cindy, Madison, and Bethany's Map

Tina: We couldn't read it at the end…of B (place where they have two layers).

Mrs. B: Oh…that's a pretty interesting spot. We might have Bethany point to that this time, 'cause she figured out how to trace that two-handed. (Bethany points to it.) There are two things going on at one time. (The music is played and Bethany successfully points to both layers.)

Tina: I liked the way it was pointed to at the same time.

Mrs. B: Did that help to have them do that?

Tina: Yes, like totally.

Alex and Jerry had drawn a very clear map (Figure 27) and had used only angular lines. They pointed to their map accurately.

Figure 27. Alex and Jerry's Map

Dillon: Were you going to use circles? Cause you practically made everything in like, sharp lines.

Mrs. B (sounding intrigued): They did, didn't they? Did you notice that?

Dillon (with a hint of criticism): You guys made everything in sharp lines.

Mrs. B: The thing I like about this project is that everybody's is different. Everybody draws it the way they hear it—it's just your own thing. It doesn't have to be a certain way at all—it doesn't have to be curvy, it doesn't have to be circles, it doesn't have to be sharp lines—it can be whatever you think.

Bethany (thoughtfully): It's like map stuff…cause you put your personality into it and the people around you and stuff.

Mrs. B (smiling): That happens a lot when we listen to music—what you are and what you hear makes a whole new thing.

Shelly and Jill used chicken feet for the shapes on their map, in honor of the *"Unhatched Chicks"* (Figure 28).

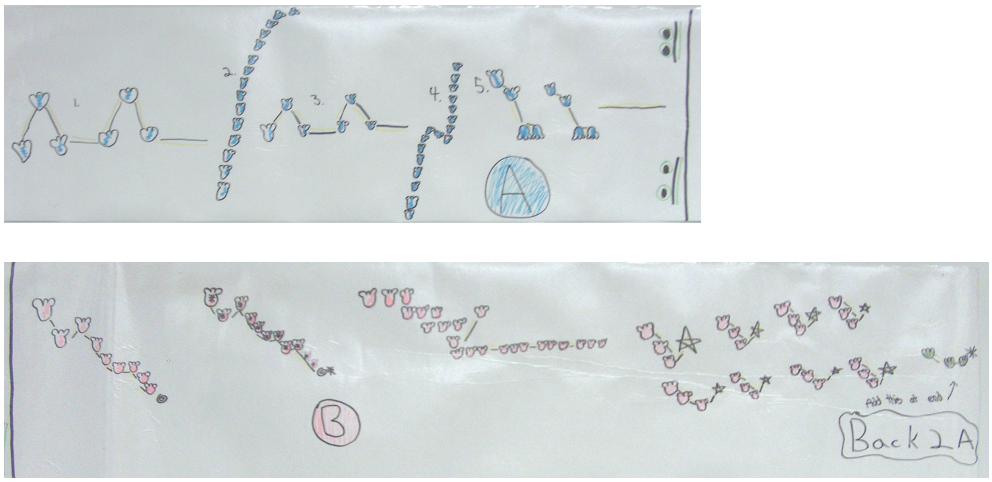

Figure 28. Shelly and Jill's Map

Jenny: I thought the second part of B….I thought it was cool how they had the little stars on the chicken feet, because there was like two parts going. You could really tell.

Mrs. B (to Shelly and Jill): Were there two parts going?

Shelly: It sounded like glistening.

Mrs. B: There was glistening in there, like an added instrument?

Shelly: Mm-hmm (nodding yes).

Mrs. B: Is that why you did that?

Shelly: Yup.

Mrs. B: Very observant of you!

Students continued to discuss the map yet continued to sing and gesture to say what they liked about the map. These students used the map as a frame, saying "in the A" or "in the B"…yet then sang the section in question. This map was very clear and detailed and the students were impressed with its accuracy and clarity.

Sandy: It even looks like a dance.

After Jenny and Kathi shared their map (Figure 29), their classmates were particularly intrigued with the footprints they had drawn along the second half of the B section.

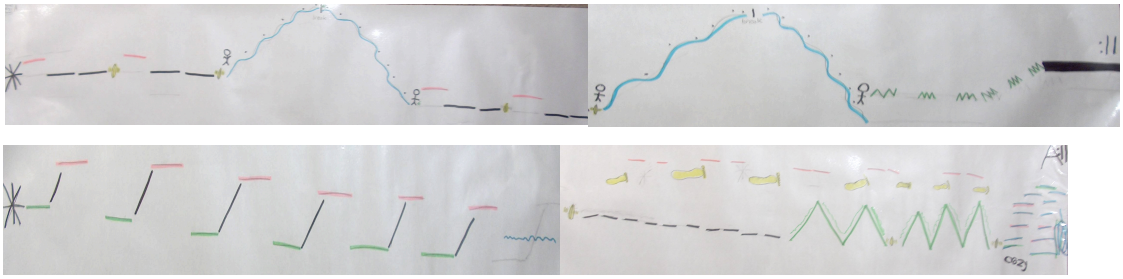

Figure 29. Jenny and Kathy's Map

Seth: What are those footprints? (Footprints had been drawn along a line in the B section.)

Jenny (running her hand along the footprints, Figure 30): 'Cause when we heard this and all like through that, we heard like this sound (steps deliberately and sings) dun, dun, dun, dun…like steps.

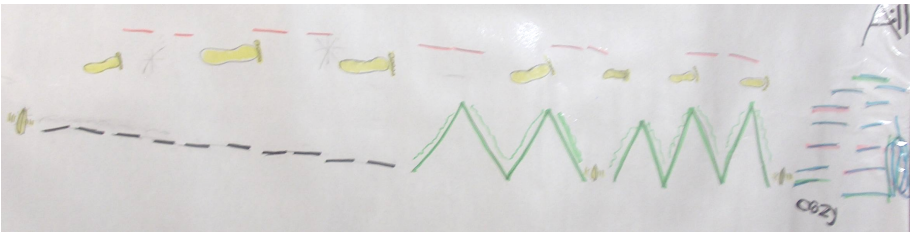

Figure 30. Jenny's Footprints

Kathi, her partner, interjected, "Like stepping." I suggested that we hear it again and asked her to point to the "extra stuff" so we could see what it was for. Jenny traced it again and while pointing to the melody, looked up and said, "Hear it?" While pointing, she made a stepping motion with her other hand that perfectly fit the background music. The map had served as a frame of reference for gesture not just verbal communication.

Mandi and Simone share their map (Figure 31). These girls had drawn horizontal and vertical lines in two different colors. At the end of the A section they had similar lines and colors intermixed. When they pointed to it, each took a color, jumping in and out of the pointing as necessary. At the place where the graphics are together, they pointed to their assigned parts at the same time, hands bumping into each other, showing how two things were happening at the same time.

Mrs. B (to the class): Do you get why they have two things right there?

Class: Yes.

Mrs. B (to the girls): Tell us! Tell us why you have that!

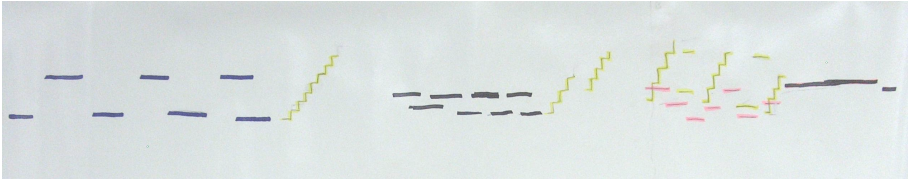

Figure 31. Mandi and Simone's Map

Mandi: You can hear this music and you hear this and you can hear this going through it (points to vertical lines) and so we put lines (horizontal lines) that this keeps going until this comes (long sustained note represented at end).

Mrs. B: Ah! (to the class) do you get it? Did you hear it? Who never noticed that before—that those two things were going on at the same time? (Hands go up). Yeah, that was pretty cool.

Oliver has drawn a particularly clear and detailed map (Figure 32). His classmates are duly impressed with his ability to both hear and graphically articulate what he understood about the music. (Oliver had a partner, but did most of the work and sharing of the map alone due to his partner's absence after the first day of the project.)

Shelly (referring to Oliver's map): I thought it was neat how they really listened to the music and they saw that the, I don't know what you would call it, the weirder part of the music kept going. You know, I thought it was hard. (She is referring to the extra layers he has drawn in two places.)

I asked Oliver to point to the extra layers this time as we listened to it again. When it was over, I asked the class, "Did you hear it?" "Yeah" several answered, in a tone more than emphatic.

Cathy: I thought it was pretty neat that they use different shapes for the different sounds. Like using dots instead of just lines.

John: I have a question. Why did you use those dots on the lines?

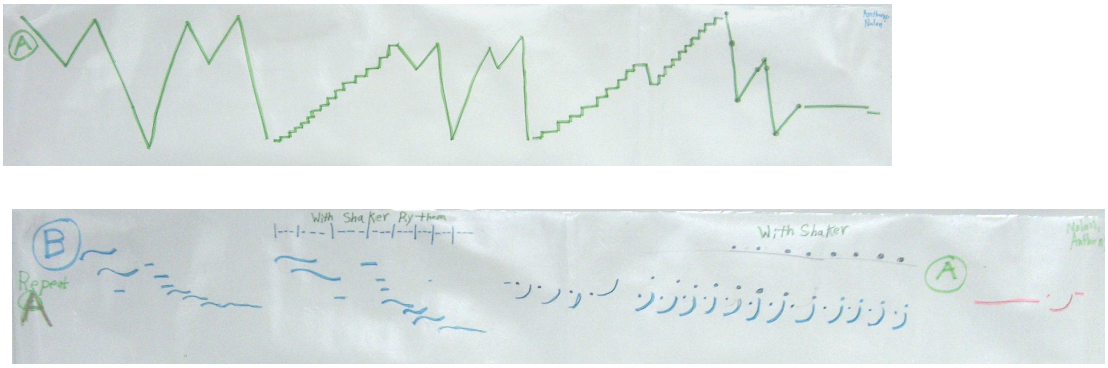

Figure 32. Oliver's Map

Oliver: 'Cause it would be just big lines, but I'm showing where the pitches stop (points to phrase at the end of the A section).

We listened again so that Oliver could point and show us what he meant.

Kelly: I thought…I thought that their map was neat because it showed all the different little things, little things that were added. Nobody…*I don't think that anybody else really heard those things until they saw it on the map* (emphasis added).

Mrs. B: Oh, what a good point!

Several students were intrigued by the multiple layers that Oliver had drawn and continued to ask questions about it, saying it was "neat" how he had done that. We finally asked Oliver to trace his map again, and he pointed to as many layers as was physically possible.

By listening to the music while tracing the maps, these students were sharing their musical listening experience. Indeed, as supported by the notion of embodied cognition, the maps "came alive" when students physically traced them. By tracing the

map's graphics, one could understand the students' intentions, their intuition about the music as represented by the nuance of their gestures. The map was the frame for the creation of the map and now served again as a frame while students relived the felt pathways formed during the creation of the map. Because the other students had also developed felt pathways while creating their own maps, their understanding of the music was richer and the watching of another's map had new meaning. Students were easily able to recognize similarities, realized by the ease with which they were able to follow other students' maps. Yet when something was new or different, they were startled or intrigued, noticing nuance that they had not previously noted or subtlety in another's interpretation. This is similar to the nuances that performers feel when the felt path of their musical knowings are slightly altered with each new performance of a well-loved and well-rehearsed piece of music.

Dunn (1997) was particularly interested in the ways that figural mapping allowed students to express their musical understanding in a tangible and expressive way, and valued the juxtaposition of common and unique elements in the students' maps, enabling students to see that each perspective was valid, that there were no 'right answers.' This supports that notion that listening is a creative experience (Webster, 1987). "While there were some commonalities in the maps, difference were numerous, such as the number and location of groupings, level of musical gesture represented, and what was represented. This variety indicated that music may indeed be co-created by the listener…[and that] an individual has a great impact on what is heard and how the music is represented mentally and visually" (Dunn, 1997, p. 15).

It is this deeply personal interaction with the music and personally expressed response to the music through mapping that allows others to enter into our listening experience and enables students to notice the common and unique ways that people respond to music. “I never heard it before until I saw it on his map!” is a particularly insightful comment for a youngster, and yet indicative of the ways that students responded to this experience. Each map brought a new musical idea to the forefront, or offered insight about a fellow musician that had not been noticed or celebrated before. The sharing of maps allowed a unique opportunity to share musical ideas, but even more importantly allowed each student to be valued as a member of this musical community.

Interviews

I found that our time in class did not allow time for enough discussion about each group’s map, so, for the purposes of this research study, I arranged to meet with each group of students to discuss their map. This occurred during the school day in agreement with their classroom teacher, in a meeting room at the school that had ample room to display the maps and to videotape the interviews (the music room was not always available). Each of these sessions took about 20 minutes, or until we had exhausted our discussion and students had had enough opportunities to trace their map for me, which seemed to be what they really wanted to do.

"How Did You Know What To Draw?"

I was intrigued by the ways students reflected upon the music and made decisions about what to draw. Asking them how they knew what to draw seemed particularly important and elicited thoughtful responses.

"We listened...and the motion of it...it helped me know what to draw." To begin each interview, students would trace their maps. Usually before they began, they would decide which group member would point, or they would delegate areas of the map to be traced (usually one person would point to the A section and another person would point to the B section). I would ask them to describe the symbols and to explain what they were trying to say with the map. Typically, students explained where things went up and down, quieter or louder. Sometimes certain marks indicated specific sounds ("the dots are dings," or "it sounds like a cymbal crash). I asked about what they drew that was special or would try to draw out verbal dialogue with questions like this one that I asked Sandy, "What about that red star after the three lines. What's that for?" Again, Sandy simply sang the phrase, pointing to the three lines and star, and when finished said, "The little beep sound." She then showed me another larger star at the end of the line, sang and pointed to it and said, "and then we have another one here, because it's bigger" (meaning louder). I asked Dillon and Conner, "Why did you use curvy lines here and straight lines here?" Dillon replied, " 'Cause the music sounds like it goes like that (curvy). 'Cause it's like a sound that goes up and down (gestures a curvy line) and makes a low pitched noise and then a high pitched noise. Like a roller coaster."

I always tried to ask each group this question, “How did you figure out what to draw? What helped you figure out what to draw? Sandy said, “Listening.” She paused, then added, “The motion of it (Sandy gestures). It helped me know what to draw.” (Figure 33).

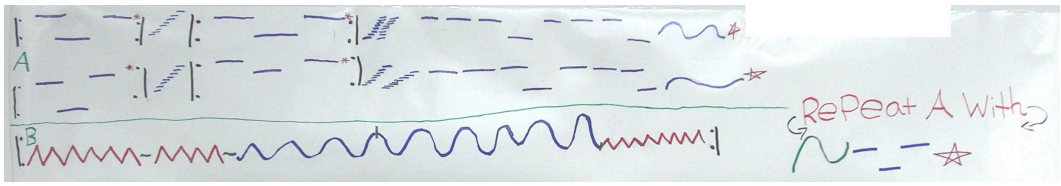

Figure 33. “The motion of it. It helped me know what to draw.”

“You have to sing it in your head.” Danny and Abby were explaining their map to me, yet continued to use gesture and singing as much during the interview as they had when they created the map. This multiple mode of communication was also evident when students were sharing their maps with their classmates.

Mrs. B: Let’s listen and you can point to it.

Abby pointed to the A section and Danny pointed to the B section.

Mrs. B: So now I’m wondering…if you can try to tell me why things are the way they are, or just tell me why things are the way they are. Why you drew them the way you drew them.

Danny: There’s stars, why we put them under it, that’s the note that like, standed out – stood out.

Abby: Like it was like (sings and points along with the contour on the map) dun, dun, dun, DUN, dun, dun, dun, DUN.

Danny: It stood out more, like a bell or something.

Mrs. B: Why do the boxes go up and down like that?

Abby pointed to the spot.

Danny: It was like a skip, it was dun, dun, dun, dun (sings melodic line and gestures hand up and down). It just keeps going up and down.

Mrs. B: What can you tell me about the second row, Danny?

Danny: Well, with the stars – kinda the same thing – they kind of stood out. With this wavy line (wiggles fingers) – it was like a blurry line, like with two notes being played back and forth (sings a buzzy tone, hands are motioning back and forth).

Danny: And this swirly line – it was smooth going and that's what it felt like (gestures hand in a rolling motion).

Abby: And that blue line was a break and then it kept going.

Mrs. B: OK. So that blue line is where there's a break. Can you think of anything that helped you make the map just right?

Danny: I think we would sing, like to figure this out (points to beginning of line 2), we would have to know the pitches to know where they would be placed on the paper.

Abby: We remembered it when were drawing it and then we went back and listened to the music and then got it exact.

Mrs. B: Right – sing it, check it, sing it, check it, draw it. Can you think of anything else? Why don't you point to it one more time and see if you can think of anything else that you could tell me that would help me know how you figured it out. What you were thinking when you were making it.

Danny/Abby: OK (music plays and they trace it).

Mrs. B: Did you notice anything on the very last time through?

Danny/Abby (immediately): Yeah!

Mrs. B: What?

Danny: It was like...(sings ending). And we didn't put the extra.

Mrs. B: The little end tag?

Danny: Yeah

Abby: I think we probably realized it, we just didn't know how to add it on.

Mrs. B: Just didn't do it?

Danny: Mmm-hmmm.

Mrs. B: Anything else?

Abby: That helped us draw it?

Danny: Well, you would have to…you would have to find out where they were placed…you would have to sing it in your head (gestures to his head, near his ear).

"Singing it" or "hearing it in your head" indicates the internalization of the music that these students experienced while listening to the music and creating their maps. Yet the expression of their ideas remained enactive and visual—using the map as a visual frame while singing and pointing.

"When you do the map thing, everyone can express themselves." Cindy and Bethany seem particularly communicative when expressing the personal nature of mapping and the importance of the shared experience. Cindy, Bethany, and Madison made a great map. Cindy is a special needs student who, as a fifth-grader, was almost completely mainstreamed. Unfortunately, Madison was absent on the day of the interview.

Bethany, who is very articulate, traced the map first, following it perfectly. Cindy tried next and would occasionally get lost, but persevered and could find her place when she got behind. She asked to do it again, and she did much better the second time. When I told them that I would like to ask some questions about their map, Cindy stepped back and said Bethany could do it. Bethany could describe what every symbol was for, but Cindy was quick to step back in and finish Bethany's sentences or make additional comments. It was obvious that she did know what they were trying to express and was able to say it in her own words, although in order to describe it, both girls would also sing and trace the patterns. These girls had also drawn two layers at the end and could explain that—while singing and pointing.

Mrs. B: What can you tell me about making the map? Was it hard or easy to do?

Bethany: It was sort of easy and sort of hard. It was harder when we did the first copy because we had to listen to the music and think out the stuff. It was easier when we did the final copy because we actually knew what to do for that but we had some problems like here (points to the A section, Figure 34).

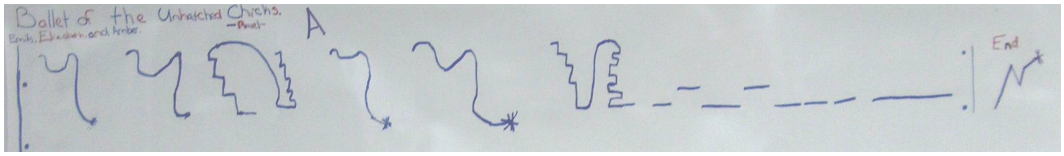

Figure 34. Cindy, Madison, and Bethany's Map, the A Section

Mrs. B: What was hard about deciding what to draw for what the music sounded like?

Cindy: Because of the choices we had to make and the music went so fast. And we didn't know what to draw.

Bethany: Yeah, it came so fast. We didn't know what to do for it.

Mrs. B: So then how did you finally decide?

Cindy: Because we listened really closely. (Cindy points to their map) Like, it just started and then went down and then up and then down (tracing her map).

Mrs. B: Did you have to sing it out loud or in your head to draw it or could you just draw it by listening?

Bethany: I could draw this (A section) just by listening, but this was hard (points to B section, Figure 35). I had to sing it to draw it.

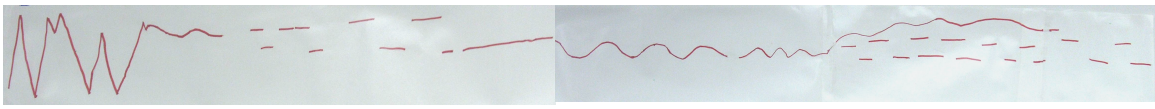

Figure 35. Cindy, Madison, and Bethany's Map, the B Section

Cindy: We could listen to it but we also had to sing it. It helped with the rhythm of it. By singing it, we know the motion of it and we'd know what to draw.

Mrs. B: Did you like doing this? Do you think drawing the map helps show what you know about the music?

Both: Both smile, nod emphatically, and say, "yes" at the same time.

Mrs. B: Yeah, me too. I think sometimes it's hard to talk about music, but a map is a cool way to…

Cindy: You can show what you're thinking.

Bethany: When you do the map thing, everyone can express themselves…. You can show what you're thinking but also show what you're like and stuff. Cause these lines look like party designs and stuff (points to A section) Like these lines are energetic and we're energetic…

Cindy: and that's what the music sounds like…

Bethany: …the music is energetic, but so are the people in the group working on it too. Sometimes you have to throw in a little of your personality to know what you're like and…

Cindy: …know what your friends are like who you are working with you…

Bethany: …like you know what you want your map to look like,

Cindy: …but you really have to know the people you're doing it with.

They were talking at the same time, but both seemed to understand that the collaborative nature of this project took an element of shared understanding. They were sorry that Madison was not there, and told me that the ending was her favorite part—she "loved" drawing it.

Bethany: We each expressed a little of our ideas together. (Bethany says this as she points out different things that were Cindy's and Madison's ideas.)

Most interviews consisted of each student in the group wanting to have a chance to trace the map, adding a few explanations about their graphics. In spite of the multiplicity of experiences that provided groundwork and enabled them to complete their maps, it was still hard for them to put everything into words. What they could explain verbally was still less than what they had described through graphics. As articulate as Cindy and Bethany were, they frequently used singing and gesture within verbal explanations. It seems as though the listening, watching, and tracing is a better

vehicle than words alone for them to show what they know. This visual frame supported sound and gesture as much, if not more, than verbal interaction. Our primary mode of communication remained musical.

The maps all contain common elements yet each is unique in the ways that the students chose to represent musical ideas—melody, contour, what particular sounds they attended to or found interesting. Some students showed multiple layers. A few used staccato or dynamic markings; several used repeat signs, a commonly used notational symbol in my classroom. When they did not seem to have anything else to say, I would suggest that they point to the map one more time. It seemed to all of us to be the right way to finish our discussion and some seemed almost relieved to be able to do so, as it was the most pertinent way to share their musical ideas and for some it was a struggle to "say all the words." It seemed as though they wondered why I asked them to talk about it, as the map showed exactly what they wanted to "say." Students who had not had a turn to trace for me were anxious to do so and would sometimes ask to trace it before they left. Almost all had the same reaction when done—they would look at me with a big grin. They were both proud and happy with their work and seemed to look to me, a fellow musician and "musical mapper," for approval, with an expression that said, "Pretty cool, huh?"

CHAPTER SEVEN

ESSENTIAL MEANING

The interactions described in the previous chapters are examples of reflection-in-action. Reflection-in-action is often described within the context of professional development in teaching, referring to the many ways teachers respond to students and situations in the classroom. This concept is also applicable to learners, who may be better enabled to construct their own understanding in any given context if they are able to engage in both reflection-on-action and reflection-in-action. Dewey (1910/1997) explains that reflection occurs when something curious or problematic appears in a familiar or formerly understood setting and an implicit understanding must be made explicit (pp. 214-7).

> Explicit thinking goes on within the limits of what is implied or understood. Yet the fact that reflection originates in a problem makes it necessary *at some points* consciously to inspect and examine this familiar background. We have to turn on upon some unconscious assumption and make it explicit…. Projection and reflection, going directly and turning back in scrutiny, should alternate. Unconsciousness gives spontaneity and freshness; consciousness, conviction and control (pp. 215, 217, emphasis in original).

Schön (1983) carefully and systematically fleshes out these ideas. He describes knowing-in-action as those activities that are guided by tacit knowing, particularly everyday rituals and routines. "We behave according to rules and procedures that we cannot usually describe and of which we are often unaware" (pp. 53-4). Schön goes on to say that

> in examples like these, knowing has the following properties:

- There are actions, recognitions, and judgments which we know how to carry out spontaneously; we do not have to think about them prior to or during their performance.
- We are often unaware of having learned to do these things; we simply find ourselves doing them.
- In some cases, we were once aware of the understandings which were subsequently internalized in our feeling for the stuff of action. In other cases, we may never have been aware of them. In both cases, however, we are usually unable to describe the knowing which our action reveals.

It is in this sense that I speak of knowing-*in*-action, the characteristic mode of ordinary practical knowledge (p. 54, emphasis in original).

Reflecting-in-action, then, goes beyond knowing-in-action. Reflecting-in-action assumes that we sometimes consciously think about what we are doing. It involves knowing to, and knowing how to, reflect upon ordinary action. When we are functioning in a familiar environment and we encounter something novel or unsettling, we must first be able to recognize this occurrence as problematic, then choose to attend to it, with reflection that informs our understanding (Bamberger & Schön, 1991).

> Much reflection-in-action hinges on the experience of surprise. When intuitive, spontaneous performance yields nothing more than the results expected for it, then we tend not to think about it. But when intuitive performance yields to surprise, pleasing and promising or unwanted, we may respond by reflecting-in-action (Schön, 1983, p. 56).

Schön (1983, pp. 61-2) delineates two types of reflection, both of which took place during the students' work in the mapping project in this study. Reflection-on-action occurred after the making of the maps, when each student group intentionally shared its map, explained its meaning, and engaged in discussion with those who had viewed it, who were also now engaging in reflection-on-action. Reflection-on-action is a post-event review through which one considers the event's elements and outcomes.

Reflection-in-action occurs during the event, "when action can still make a difference to the situation" (Schön, 1983, p. 62). This is the on-the-spot problem-finding/problem-noticing reflection that may result in problem-solving, if the participate chooses to attend to it. It occurs when "something falls outside the range of ordinary expectations" (p. 68). In order to engage in this type of reflection, we must allow ourselves to "experience surprise, puzzlement, or confusion in a situation which [we find] uncertain or unique," (p. 68) and then choose to examine the perplexities of the circumstances.

Bamberger (1991, pp. 270-1) uses the metaphor of a windshield to delineate reflection-in-action even further. (This metaphor was also referred to in Chapter Three as it connects to reflective practice in research.) Since a windshield is glass, we may look through it in order to look beyond it, in order to go ahead, as in functioning in a situation, encountering something new but proceeding ahead anyway. When there is something out of the ordinary on the windshield, we may pause and consider it, a sort of "stop-and-think" within the experience[6]. Finally, since the windshield is glass, in looking at it, we may see a reflection in it. This can be startling or subtle, and we may see it, respond to it, and proceed forward all the while continuing with our action. This sort of embedded reflection is what Bamberger refers to as reflection-in-action. These reflections are sometimes known or "felt" and sometimes may be so subtle that they pass by unnoticed. I consider these reflections to be both conscious and unconscious, even as they happen on the fly rather than in a stop-and-think with immediate reaction,

[6] Schön credits Arendt, 1978, with this term. Arendt states that "all thinking demands a *"stop*-and-think" p. 78.

or in a post-event reflection. Yet because my students, when sharing their maps, sometimes described what they were thinking or why they edited their maps, I would suggest that not all reflection-in-action is subconscious. As we become more conscious of our thinking, we are more likely to be able to note moments of reflection-in-action. Because of the collaboration involved in this project, students were—in the process of mapmaking—already sharing thoughts (verbally and nonverbally) about their actions. As students were asked to share their maps with the class, they had the opportunity to share the process and product of their mapmaking, and thus begin to think about their musical thinking, to engage in metacognition (Costa, 2001; Metcalf & Shimamura, 1994; Pogonowski, 1989b).

Reflection-in-action is deeply embedded in the personal perspectives of each student. What students bring to the mapping experience in terms of prior experience with music, listening, graphic representation, gesture, singing, sharing ideas with others, drawing, and designing graphics to represent music, making meaning while listening results in an infinite number of ways one might approach this project. Each person responds to different things in the music, finds things that are intriguing or problematic, and then creatively, each with her own lens, chooses to depict these things in a way that makes sense. It is because of the diversity of my students' responses to music when making sense of sound and finding ways to tangibly share that meaning, that I consider listening to be a highly creative process.

Listening as Creative Process

> A creative idea is in some sense a reformulation of existing ideas; there is nothing completely new under the sun….Creative approaches are ideas that forge a new connection between ideas and tools that are already familiar: "Creativity lies in the capacity to see more sharply and with greater insight that which one already knows or that which is buried at the margins of one's awareness" (Rogoff quoting John-Steiner, 1985, in Rogoff, 1990, p. 198).

"Listening to music is a personal experience. While there might be some immutable characteristics where agreement may exist between listeners, there could be a variety of ways to listen to and mentally structure a piece of music" (Dunn, 1997, p. 4). These underlying, common characteristics will exist because people are all human beings who are in the same place at the same time listening to the same music. But because of the individuality of each listener and the wide range of life experiences that each brings to the listening situation, people listening to the same performance could (and probably would) have different perspectives on the music. While some elements of the experience will be shared, others will not (von Glaserfield, 2005; Greene, 2005). An individual's personal preference will influence the way the listener selects particular subjective and objective aspects of the music to which he attends. Prior musical experience may shape the way the listener notices phrasing and timbre, form, or tonality. Some listeners may experience a deep personal response while others may not. The individual variations of ways people notice and reflect upon the meanings created while listening to music are infinite.

Peterson (2002) elaborates on this when stating her ideas about listeners as "creative music makers."

> During music listening, the listener constructs mental objects corresponding to auditory events presented by a performance, but which also legitimately differ

> from the mental representations of other listeners. In accordance with the skills, background knowledge, attitudes, and goals of the listener, and through a process that can involve creative musical decisions on the part of the listener, these aural mental objects are selected, categorized, organized, related to other memory objects, transformed in various ways in combinations with those memory objects, and incorporated into a mental model that becomes the listener's unique perception of that musical work. The thinking in and with sound that generates such a mental model is the music making carried out by listeners, just as the thinking in and with sound that generates a composition is the music making carried out by composers….The product of listening is also potentially novel and valuable to the listener, and may have varying degrees of impact on the listener's subsequent musical thinking (p. 238).

Sloboda (1985) suggests that while humans, when listening to music, are able to hear everything in the music at once, they can only attend to one aspect of it at a time. "Our difficulties in attending to two concurrent melodies are not so much due to an incapacity to take them in as to an incapacity to subject them to the same kind of *analysis* simultaneously" (p. 167, emphasis in original). A listener may choose, out of any number of reasons, to attend to a particular aspect of the music, and only after many listenings, when what the listener attends to first has become internalized, begin to notice other aspects of the music, or ways in which the initial melody is changed or varied. For each person, particular aspects of the music which are the most attractive may vary. It may be an affinity for a particular timbre, melody, or rhythmic pattern that first capture one's attention. For example, Danny was immediately taken by the background music in the B section of "Ballet of the Unhatched Chicks." For most other students, the melody line was most salient at that point.

The number of listenings required before attending to additional aspects of the music is usually dependent on person's prior experience with music (Sloboda, 1985). This was true in the case of Oliver, the only student who determined the form after the

first listening (without being asked to do so) and who was one of the first students to hear and represent multiple layers in the music, which was not the norm for my fifth grade students. It is in creating felt pathways while listening that one forms one's own personal journey through the music and through repeated listenings becomes familiar with the pathway and begins to notice those things which surround the path. For me, this provides some explanation of why students, when listening to the music and watching another person's map, would say with astonishment, "I never heard that before I saw it on his map!" Without their personal felt pathway, this novelty would not have been noticed. Without Oliver's map and his presentation of it, his peers would not have attended to the aspects of the music that were present, which they did hear but did not *attend to* when creating their own maps. Oliver's unique perspective allowed them to perceive the music in a new way.

The nature of reflection, the thoughtful process through which listeners make meaning while listening, suggests that listening is creative and not passive, as some may suggest. Elliott (1995) argues that while creativity involves something being made, "it is the tangible outcome or product that has priority in determinations of creativity" (p. 216). Since, for Elliott, listening has no tangible product, it does not fall into this category. *"Creative* is a congratulatory term that singles out a concrete accomplishment that knowledgeable people judge to be especially important in relation to a specific context of doing and making" (p. 216, emphasis in original). More specifically, Elliott states that "the words *creative* and *creating* apply to the achievements of musical composing, improvising, and arranging that are original and significant within the context of a particular musical practice" (p. 219, emphasis in original). Finally, Elliott

addresses the question of whether or not listening can be considered creative. He refers to advocates of this belief as people who "hype" the notion that listeners are creating along with the music (p. 220). Elliott emphatically states that this "claim is false….When someone listens, his or her covert act of listening does not count as creating. For music listening, by itself, produces no tangible musical achievement that others can witness and judge as competent, let alone original and significant" (p. 220). The only tangible product to listening that Elliott recognizes is a written criticism, which he would consider to be a literary, rather than musical, achievement (p. 221).

Sloboda (1985) opposes this view, saying that while listening does not have a tangible physical product, it does have a product—an emotional response that is universal to all human beings. In addition, Sloboda recognizes that while the end product is not observable, there is "considerable *mental* activity…a series of fleeting, largely uncommunicable mental images, feelings, memories, and anticipations" (p. 151, emphasis in original).

Cutietta and Stauffer (2005) also question Elliott's views on the role of listening. Rather than valuing listening solely for its support of performing and creating, they maintain the value of listening for its own sake and emphasize the need for music education to support students in creative listening experiences, without suggesting that the value of listening remains in its support of performance, as suggested by Elliott (1995, p. 274). Cutietta and Stauffer state that "listening as thinking-in-action in the act of listening…*can* be enhanced by making music, but music making does not guarantee the advancement of listening skills" (p. 139, emphasis in original). Cutietta and Stauffer go as far to suggest that "listeners…have lived experiences from which they construct

their own meanings about what it is to be a listener [and] what it is to listen….It may be that individuals who are only listeners possess a kind of musical understanding that musicers can never hope to attain" (p. 140).

I would suggest that listening is highly creative; reflective thinking that generates new insights for an individual in any discipline is highly creative, whether those insights are novel for others or not. Such thought does not necessarily generate a product. We all have moments of creativity that remain with us alone and are never shared as a tangible product, but that does not mean that we are not creatively thinking and generating understanding. Dewey (1934) states that when perceiving art,

> a beholder must *create* his own experience….Without the act of recreation the object is not perceived as a work of art. The artist selected, simplified, clarified, abridged and condensed according to his interest. The beholder must go through these operations according to his point of view and interest (p. 54, emphasis in original).

Fosnot and Perry (2005) extend this notion in greater detail, supporting the ways that symbolic representations empower reflection and new insights.

> We may not understand in the same way as other humans who have had different experiences, but by using language, stories, and metaphors and models, we can listen to and probe each other's understanding, thereby negotiating and constructing "taken-as-shared" meanings. Constructing symbolic representations empowers us to go beyond the immediacy of the concrete…to become conscious of our actions on the world in order to gain new knowledge with which to act….The construction of this generalization in a symbolic form within a medium creates a tug on the individual experience highlighting the differences between it and the symbolic representation. *Reflection on these representations…may bring about new insights, new constructions, new possibilities, when one subsequently returns to reflecting on the experience"* (pp. 30-1, emphasis added).

Listening as Reflection-In-Action

As music educators, we seek to enable our students to generate this sort of creative musical thinking while listening, composing, and performing. Because of the inherently internal nature of listening, educators have sought ways to enable students to make their thinking more visible so that it may be supported in ways that are meaningful, in ways that will generate growth in musical understanding for the students.

We see the evidence of students' creativity while listening from studies such as Barrett (1997), Cohen (1997, 2001), Dunn (1997), and Espeland (1987), where these teacher-researchers have designed listening experiences for students that enable them to express the meanings created while listening. Reflection-on-action, the spending of time after an experience to think back on what has happened, is an important part of the process. Because of the temporal nature of music, reflective thinking, particularly reflection-in-action, is equally critical. Reflection-in-action describes the "constructive process through which individuals come to know the unique characteristics of a situation as the situation unfolds" (Schön, 1983, p. 9). Reflection-in-action is intentional—it requires critical thinking while functioning in a problem-solving situation.

This describes the types of situations that these researchers and I have sought to create—experiences that require and necessitate the use of reflection-in-action in order to be successful. For example, in order to successfully complete melodic puzzle cards or to create visual or kinesthetic representations of music, students must constantly be reflecting on the music, on their understanding of the music, and of their representation

of the music. For Cohen (2001) and her kinesthetic analogues, "movement functions as a tool for learning when students are encouraged to express how they hear a piece of music through their own creative movement. The process of developing their dance interpretation serves as a tool for reflection through action" (p. 9). The results of these activities, whether visual or kinesthetic representations, later become the frame for sharing and discussing musical understandings (reflection-on-action). While reflection-in-action is vital to the creation of the musical representation, reflection through discussion after the project is completed is equally valuable. "Mirrors, and other tools for intuitive, in-action reflection, provide the teacher and the pupils with a common reference point which allows discussion to focus on musically significant features" (Cohen, p. 16). However, one must remember that it is neither the product nor the concluding discussion that is the end in such activities. The ultimate goal is the mindful and reflective musical experience while listening. Cohen concludes,

> the act of reflection (whether intuitive or conscious) ensures that "doing" music, whether in listening, performing and even in improvising, is not a mindless, mechanical action, but a mindful and "feelingful" encounter. Reflection (both intuitive and conscious) ties together the act of "doing" music and the cognitive activity that gives meaning to the action (p. 16).

This notion of reflecting and responding to that reflection while the action is occurring, rather than solely when the action is over, supports the assertion that listening is creative, active, and individual. Reimer (1989, pp. 128-9) confirms the idea that listening is creative. He proposes that the listening experience is filled with the discerning of melodic content, of musical structure, of awareness of music occurring, previously occurring, and the anticipation of what may come next. The listener selects what will be attended to and affectively responds to the musical experience as a whole.

Because all these things are mediated by past experience, they are experienced in ways that are unique to each individual. In a later edition, Reimer (2003) explains this further:

> Listeners are called on to make sense of the music, to "put it together" with mind, body, and feelings. Each individual listener must bring to that task his or her technical capacities to hear the complexities of the music, a "peculiarly musical aesthetic searching" for musical meaning, and a spirit of openness to inner growth as a result of doing so. In a real sense it is not possible to listen without being imaginative, original, inventive—that is creative—because no experience except one of chaotic, meaningless sounds could occur *without* acts of individual imagination to create meaning out of what is being heard (p. 117, emphasis in original).

These descriptions of the individual and creative nature of listening resonate with the following description of constructed realities, where there is "always an infinite number of constructions that might be made and hence there are multiple realities….The meanings and wholeness derived from or ascribed to these tangible phenomena in order to make sense of them, organize them, or reorganize a belief system, however, are *constructed realities*" (Lincoln & Guba, 1985, p. 84, emphasis in original). Meanings constructed while listening, whether internally felt or also externally manifested, are nonetheless real, creatively constructed meanings. Webster, (2002, p. 26) defines creativity in the context of music as "the engagement of the mind in the active, structured process of thinking in sound for the purpose of producing some product that is new for the creator," and later adds that analysis, both written and mentally represented, is the product of creative listening (p. 29). Wiggins (2002) summarizes, "listening is a creative process in that individuals hearing and interpreting a piece of music recreate the music in their minds as they listen, bringing personal interpretation to the experience which makes it meaningful" (pp. 79-80).

The Map as a Frame for a Lived Experience

The completed musical map—the graphic representation of musical understanding—serves as a frame, providing the lens for reflection upon the lived experience. Each map is unique, revealing the distinctive nature of each listener and his personal encounter with the music. Yet, the shared listening experience provides points of commonality both in graphic representation and in the meanings discovered through listening. Thus, the map provides a frame for reliving the experience, for further exploration, for sharing of ideas. It may not represent everything someone experienced when listening to the music, but it is a frame, featuring salient points or things to which the listener especially attended.

I would compare the 'map as frame' to the transcription of an interview. The transcription of an interview is not 'the interview;' it is a recording of the words that were spoken, but it is not the actual experience. It does not carry the energy or the nuance of the interaction of the interviewer/interviewee. It does not reveal expression of the voice or the way the eyes looked or the tilt of the head. It is a recording of an event, but it is not a recreation of that lived experience. The interview is the engagement of people with each other (Kvale, 1996). Musical maps are similar. To look at a map is to see shapes and lines, but without the interaction of the person with the music, the map is a flat, inanimate representation of what was a dynamic lived experience. Polanyi (1966) explains "tacit knowing," saying that we know more than we can articulate. Upitis (1992) compared this to children's invented notation of music, and I, too, have observed this to be true. Upitis states that "children's notations [do] not necessarily give a full picture of their ability to represent music. Thus, it is important…to give children many

opportunities to use and make sense of various systems….The more they articulate the more they find that they know" (p. 54). Students represent what is salient or important to them, those things which are meaningful during their musical encounter. This does not mean that other features were not heard or tacitly known. What is known tacitly is sometimes brought into focus when watching another student's map and noticing something new—something known but not personally articulated.

When students share their musical maps with the class (as described in Chapter Six), the maps become a powerful frame for entering into another's listening experience. Students are incredibly anxious to share their maps and frequently beg to "go next." The sharing of one's map is not a "sit back and watch" experience. Rather, students stand at the ready, waiting for music to begin with a hand ready to begin pointing. As they trace the path of their musical experience, others have the opportunity to witness their response to the music, in the way they have selected to represent it visually, but also in the way they gesture through the map. When finished, other students will use the map as a way to locate the music (for example, with questions like, "in the B, what is that green thing?") but the communication invariably remains musical, reenacting the sound and their own process as they sing and gesture, and responding with, "oh, that means…" (and then point to the map, singing the corresponding phrase), followed by nodding heads as if all involved understand this type of communication. While some answers may be verbal, they are almost never completely verbal. Singing and gesture, with reference to the visual map, augment what words and the map cannot completely express. It is because of this experience with my students, their dependence on and preference for nonverbal communication to express

deeply personal responses to the music, that I have come to question listening activities that emphasize verbal response, or begin with verbal response. Like Cohen (2001), I have observed that nonverbal experiences when listening to music provide groundwork that enables later verbal responses to be more reflective and discriminating.

It is only in experiencing something first, recognizing its similarity to something else and also discriminating its uniqueness, that we are then able to form images and apply appropriate labels. Rosenfield (1988, p. 187), as cited by Bamberger (1999, p. 73), states that "we perceive the world without labels, and we can label it only when we have decided how its features should be organized." Bamberger continues this thought: "rushing children immediately into the end result of that process (i.e., *giving* them labels based on organizing features that others have evolved over a long history) may be to deny them the experience of first becoming effective pathmakers" (p. 73, emphasis in original).

Map as Metaphor

The more I have come to understand about metaphor, the more I realize that a musical map is a metaphor for a listening experience. As mentioned earlier in Chapter Five, Lakoff and Johnson (1980/2005) state that "the essence of metaphor is understanding and experiencing one kind of thing in terms of another" (p. 5). Metaphors in learning are not simply literary tools; the words represent meaning and it is concepts that are connected. Swanwick (1999) proposes that there are four elements to the processes of metaphor (all of which were used by my students in the process of creating musical maps):

- We internally represent actions and events to ourselves; we *imagine.*
- We recognize and generate *relationships* between these images.
- We employ systems of signs, *shared vocabularies*.
- We negotiate and *exchange our thinking* with others (p. 7, emphasis in original).

Metaphor enables us to connect something we know about, even partially, to something new; it may be a new concept or the clarification, refinement, or expansion of something already known. Like schema theory (Anderson & Pearson, 1984), which describes learning as the connection of new experiences to prior experiences within a cultural context, Lakoff & Johnson (1980/2005) suggest that "most of our normal conceptual system is metaphorically structured…[and that] *every* experience takes place within a vast background of cultural presuppositions" (pp. 56-7, emphasis in original). It is our social and cultural environment that enables us to make sense of the experiences of our lives, as our environment becomes the frame and lens through which we encounter metaphorical meaning. Swanwick (1999), in his discussion of metaphor, notes the importance of likeness and unlikeness in discerning the power of metaphor. He suggests the illustration of a child's drawing of a car. The child, interested primarily in the wheels, drew circles; the circles are *like* the wheels, and cars have wheels. Yet even though they represent wheels, they are not really wheels, they are still marks on paper. "Metaphor depends also on our capacity to discern *unlikeness*….these circles have become *symbols* which can be brought alongside other symbols in new graphic representations. This ability to generate novelty lies at the heart of discourse" (pp. 8-9, emphasis in original).

Maps are visual metaphors, a representation of reality. Maps are reality in the sense that they are physical pieces of paper, but like the child's drawing of the car, a map's value is in the ways it represents another reality. Even as geographical maps provide directional orientation or highlight physical landmarks, maps cannot show everything about the corner of the world they represent and cannot completely express the essence of the place they symbolize. The map has symbols that have been brought alongside other symbols in new ways, generating novelty in a way that depicts something that is unique, representing a place that is more than symbols.

If you have been to the Bronx and you study a map of the Bronx, you will see street names and landmarks that are indicators of that place, which may remind you of a lived experience of being in the Bronx with its sights and sounds and smells. The map provides focal points, but is not a representation of the total experience, of the essence of the experience, of things known but not easily expressed.

McCotter (2001) provides a useful metaphor of maps in connection to research theory.

> Not only does theory give us that background for our research, it also represents the ideas that we will find. The representation does not approach any kind of objective reality, but gives one understanding of that reality. Similarly, maps do not show reality, but merely represent it; we have to apply what we see on the map to what we see around us. The environment I perceive differs from the one you do.
>
> There are different types of maps, each of which gives us one perspective. Road maps, topographical maps, political maps, and geographical maps—each tells us one particular point of view. Like these different kinds of maps, each different theory will approach a specific, local, contextual experience in one particular way. Different maps also encompass different ranges of area. We can find maps that situate us on different levels. A globe gives us a macro-perspective; a local road map a micro-perspective….A map gives a context to which we can continually refer to interpret our surroundings. They can also place us regardless of the direction of our approach.

> Maps tell the story that has been experienced by the mapmakers. They do not substitute for the experience of 'being there;' they only show what was there on the day the map was made, in the way that it was seen by those cartographers. The perspective of the cartographers is clearly depicted in the map they've designed, and that perspective shapes the way we think about the world (pp. 12-5).

This perspective about maps as a context for interpreting our surroundings aptly describes my experience with my students and their mapping projects. These students experienced a musical context that they then described in a graphic form, much like a map—with landmarks and embellishments reflecting a personal perspective that both shaped their experience and was shaped by their experience. These maps very explicitly told the story of their experience. In addition, these maps were embedded in the cultural context of this particular music classroom—a place where graphic representation was highly valued and mutually understood, and where there was extensive prior experience with a variety of musical maps and with different ways of constructing visual representations of music.

Mapping as Narrative

I would expand this metaphor of musical maps as a representation of a lived musical experience to suggest that the maps themselves are a form of narrative. Barone and Eisner (1997) support the notion that narrative may take many forms, that it is not an exclusively verbal discourse.

> We have discussed artistically based approaches to educational research as if the primary medium through which such reports would be presented would be written prose. It is true that what has been called "storied narratives" and "educational criticism" have employed linguistic material almost exclusively. Scholars write and publishers publish. The coin of the realm is language, and written language at that, and we do not see, at least in the short term, these

> traditions being displaced. Nevertheless, it is important to point out that neither language nor number have a monopoly on the means through which humans represent what they come to know….Visual images, for example, make it possible to formulate meanings that elude linguistic description. Humans invented maps to make plain relationships that would be many times more difficult to describe in words or number (p. 90).

A story (narrative) is a verbal expression (written or spoken) of an essential meaning. In an attempt to express meaning, a speaker develops a story that has many parts, even landmarks. It includes details that expand our understanding of the whole. The story uses words and sentences and punctuation, but the story is not the words and sentences and punctuation. The essence of the story is the meaning that the words and sentences, when put together in unique combinations, convey. This description can be applied to music as narrative, as musicians convey meaning through unique combinations of sound. It is not the ink on the page (the musical notation, the dynamic and articulation markings) that has meaning, it is the sound, the essence of the music as these ink marks are interpreted and given meaning (Langer, 1942/1960).

Likewise, I would suggest that graphic representations of music, the musical maps of students, are a form of narrative. Like ink on a page, they tell the story of the creator's experience. Yet, it is not the ink that is important, it is the essence of the experience that has meaning. The marks on the page are not the complete representation of the experience, but they provide landmarks and points of meaning for each particular cartographer. These maps become a frame for the experience, a tool which enables each listener a way of allowing others into their experience, much like a literary narrative enables the reader to enter into the writer's experience.

> While our biological endowment affords our species the capacities to experience the environment, it is through culture that these capacities are extended or

> amplified. The forms of representation that humans have invented—writing, for example—have made it possible to create an indelible record of aspects of our experience, a record that memory alone could not sustain. Maps allow us to see a world we cannot see. These forms both stabilize our experience by fixing it in some medium and transport us psychologically to places we can encounter only through the forms of representation that populate our culture. Through music, painting, poetry, and story, we can participate in worlds that would otherwise be closed to us. (Eisner, 1994, pp. 18-9).

If the process of mapping is the lived experience and the creating of the map is the "writing" of the narrative of that lived experience, then the sharing of the map is the telling of the story and the tracing of the map while listening to the music is the reliving of that experience. Clandinin and Connelly (2000) suggest that there is a reflexive relationship among these elements of a lived experience shared through narrative—the living, telling, retelling, and reliving—which enables the construction of the narrative and which enables the transformation and growth of participants. In research, this responsibility falls upon the author. In the music classroom with maps serving as narratives, the students become the authors and are affecting change in themselves and others as they share their "stories."

I would suggest that musical maps allow us to participate in a unique world that would otherwise be closed to us—the world of our students' listening experiences. Cohen (1997) shared that one of the purposes of creating her own kinesthetic analogue and having her students watch her perform the analogue and later learn it themselves, was that it offered an opportunity for her students to enter into her musical experience. As described earlier in Chapter Five, her goal was to let the children mirror her movements by entering into her movement analogue, enter into her musical thought process. As a visible expression of musical understanding constructed while listening,

kinesthetic analogues serve as a valuable window into another's musical experience. In the same way, the visual nature of musical maps and the kinesthetic tracing of them—including, for me as the teacher, the observation of the process of creating a musical map—provide a window into another's musical experience.

Equally important, the sharing of the maps provides the opportunity for peers (who have been busy making their own maps) to enter into another's musical experience and for the creators of the maps to allow others to enter into their own experience. Like readers who recreate an experience for themselves while reading narrative, or listeners who recreate music when listening, observers of another's musical map are recreating the music and the person's listening experience through the sharing of that map, extending the scope of musical discourse through listening. The experience is mediated by each students' own personal lens, but the level of shared understanding from also creating a map for the same music offers valuable common ground for the development of musical ideas.

I consider this—entering into another's listening experience—to be a rare opportunity in the music classroom. When students perform or compose music, there are external ways in which the making of music provides others a means to share or enter into our musical experience. Because of the internal nature of listening, such meanings are seldom shared in tangible ways. Even during interactive classroom listening lessons, students might be able to share an comment or idea, but the opportunity to share *everything* that they have come to know about a piece of music with *everyone* in the classroom is a unique and enlightening experience.

Interpreting Minds: Commonalities and Accents

> En route once between Boston to Buffalo, I stayed for a couple of days with a former student and her family in Saratoga Springs. On the first evening we sat talking. After listening for a while one of her teenage daughters said suddenly, 'Mom, do I have an accent?' My inclination was to make a joke and say, yes, she certainly *did* have an accent and that the only person present without an accent was me, the visitor from England (Swanwick, 1999, p. 22).

When my students interacted with the music—had a conversation with the music—they also conversed with the materials of paper and pen, with the shapes and symbols they were designing, and with each other as they negotiated the meanings they were creating within their response to the music. This all took place within a rather tightly situated context—a fifth grade music classroom where all the students had experienced the same music lessons during the course of the year, with me as their music teacher, and they spent every school day together in the same classroom. These common bonds were helpful in that there was a high degree of shared understanding among the students and with me. Through the shared experience of creating the final maps for the same piece of music, all the students developed similar "felt pathways" for the sounds of this piece. When heard again while watching another person's map, the familiar pathway of feeling and knowing this music is recognized; yet a map's new or different features might cause the listener-observer to pause, to notice something new in what was considered "known."

Because another listener may notice something different or choose to represent the music in a unique way, the accents of another listener's response to the music are noticed. But it is in the commonality of the maps, the basic felt pathway, that when traveling it with someone else that we notice their "accent." It is as though we are

walking along a path that is so familiar that normally we can travel without watching our steps. If we walk the same path with a young child who notices every bug and bird and stone—things we have taken for granted—we take notice of everything that is around us, all that we thought was familiar is now new because it is shared with someone who is seeing it with a different perspective. This also generates the "can I go next?" urgency, as students realize they, too, have their own accent, that it is valid and interesting, and they are anxious to have it known.

The very nature of creativity while listening is characterized by reflection-in-action—recreating the images and meanings represented by musical sound and negotiating those relationships *while listening*. Creating maps, for my students, was an experience rich in reflection-in-action and one in which they seemed to sense a great deal of ownership. The opportunity to share everything they knew (or chose to represent) about a piece of music was unique—made more so by the potential of the map to symbolize their created pathway and, by their tracing of the map, allowing others join them on their musical journey, to enter into their listening experience and the ways that they made meaning of the experience.

The interaction with self, others, the music, and the created symbol system was a highly interpretive experience. "Because of our use of symbol systems we are not merely responders, but interpreters. We do not simply react to our environment.… but we also reflect upon our experience" (Swanwick, 1999, p. 26). This, too, is part of the nature of creativity while listening—the notion that we are all interpreters, that "experiences are mediated by interpreting minds" (p. 30).

For me, this is central to my role as a teacher—valuing my students as creative individuals, each with his or her own perspective and ability to interpret, not merely respond. Designing problems, such as the creating of musical maps, allows opportunities for such interpretation, as well as discourse with the music and with others, including myself. While making maps is not the only activity that enables such conversations, it is a significant one, because of the potential for students to make explicit what they implicitly know about music and to interpret those ideas. Within the creation of maps, it is inherently important that we would value our common experiences within the learning community for the shared understanding it fosters, yet also value each others' unique perspective—both key for enabling student agency as musicians. It is in such an environment of creative discourse, valued by students individually as they create their own maps, and valued later by all in the sharing of maps, that students see past the commonalities and notice the accents—their own and others'. In dialogues such as these, every voice is heard—and to be heard is to be respected.

Agency

An underlying sense of valuing permeated everything that was occurring in the classroom within the process of creating musical maps. Students were intrigued with solving melodic contour puzzle cards, intrigued with following my model of a map and with completing a partially completed map, freely using personal strategies to ensure their success. They were highly engaged in creating their own maps, and throughout every classroom experience were insistent upon sharing their ideas.

As I reflected upon the students' use of strategies, I realized that while these were strategies commonly used in this music classroom, students used these strategies on their own initiative and in ways that served their own purposes. There was a high level of engagement while solving the problem (process). While it may not be readily apparent from the individual vignettes, students across the classroom were highly engaged. They were intently listening, thinking, conferring, moving, and singing, working out musical ideas in their minds and bodies. Even when they had finished the problem, as described in the puzzle card vignettes, students would continue to trace or gesture to the musical map they had decided upon. They never seemed to tire of retracing the map and reflecting on their ideas.

There was also a high level of urgency to share what they had come to know (product). On a private, individual level, I would suggest this is also evidenced by the continual tracing and confirming of the puzzle cards even after pronouncing that the puzzle was complete. It is as though students continue to share the experience with themselves, a personal interaction with music, self, and musical map. On a more public level, when students have something to share, they are insistent on being heard—by their peers and by me, as their teacher.

As is evident in the vignettes, these students are insistent and persistent about sharing their ideas. In one example, students continued to repeat their ideas until the group "scribe" would write it down. Throughout other examples, hands were raised spontaneously and urgently, with standing and flailing about a common occurrence. Students moved their positions in the room to see better, to interact more closely with the musical problem and with others. They called out, "Do it again!" requesting yet

another listening of the music. Students naturally used personal strategies to solve the problem, because they *wanted* to solve the problem. They seemed unhappy with me if I moved on before all their ideas were heard. When not able to tell the whole class, they would come and tell me something about the music—knowing I would be interested in their ideas and wanting me to know something about them as a musician. As the authority figure in the room, but more importantly, as their model of what a musician is, they sought my approval.

The teacher's role in valuing multiple perspectives, of valuing prior experience in and out of the classroom, and especially of valuing student ideas during class, is imperative to student success. Students must feel free to share ideas or their sense of empowerment will be squelched; any agency towards functioning as a musician will be diminished. They have been working on the musical problem, their hands are raised, and they have something to say. They know something about the music that is new for them or that they consider to be unique. It is in being heard that they are valued and their musical ideas are respected. The teacher's role in this scenario is to provide the learning environment where this validation can occur freely, as a standard course of action.

I would suggest that underlying this sense of agency is the feeling of self-empowerment that these students have for enabling (or furthering) their own musical understanding. Note my use of the word "own." The students seem to want to do it and to do it for themselves, individually yet collaboratively as well. They seek ownership in the process and the product. Figure 36 depicts the range of strategies that these students

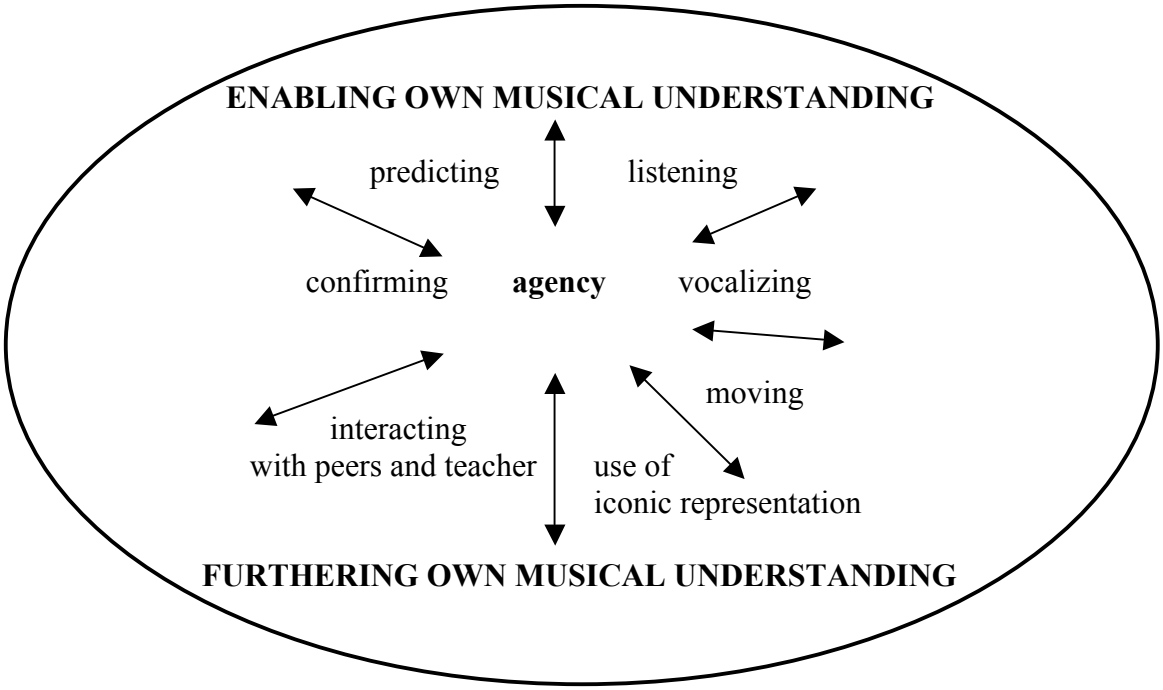

Figure 36. Strategies that Enable and Further Musical Understanding

used so prolifically to support the growth of their own musical understanding, as described in Chapter Five.

While working with these students and through repeated data analysis and reflection, I became aware that the agency of the students to function as musicians seemed to propel the situation. In this classroom, students were valued as musicians; they regularly performed and created music as musicians and were allowed to be musical in the context of their interests and their abilities, including the making of musical decisions. The same was true in listening experiences. Because the community (teacher and peers) valued their "way of being" as musicians, they felt free to move, sing, confer, share, question, and solve. Because the community valued their musical

ideas, they felt respected as musicians. This is what I regard to be the agency of the music student—to be *musical,* to function as a *musician* while listening, creating, and performing, to be empowered to *further their own musical understanding*. It is the development of their "musician voice," their sense of self as a person and their personhood validated by others when expressed musically. "Voice is related to students' capacity to formulate and air their thoughts, believing they have something worthwhile to say and feeling heard" (Stanton 1996, p. 41). It is the furthering of one's own understanding that fuels student agency. As they become more successful, understanding new or more complex musical ideas, their sense of efficacy as a musician rises. This fuels their agency to continually grow, and the growth fuels their agency. It is a never-ending cycle, a synergistic energy that internally propels students forward.

This synergism of student agency for self-empowerment is significant. Equally important is the reciprocal nature of student agency and the teacher's role to value students' musical knowings. Without these, learning may diminish because without a "need to know" and without someone to value what they know, student agency falters.

Bruner (1996) insists that agency and collaboration are to be considered together—a sort of yin and yang, impossible to determine where one stops and another begins. This supports my idea of the synergic nature of competence and confidence as intertwined components within student agency (see Figure 37). The collaborative nature of learning not only furthers thinking, but empowers learners as their ideas are validated, as they witness their contributions being affirmed and furthering the learning of others, not just themselves.

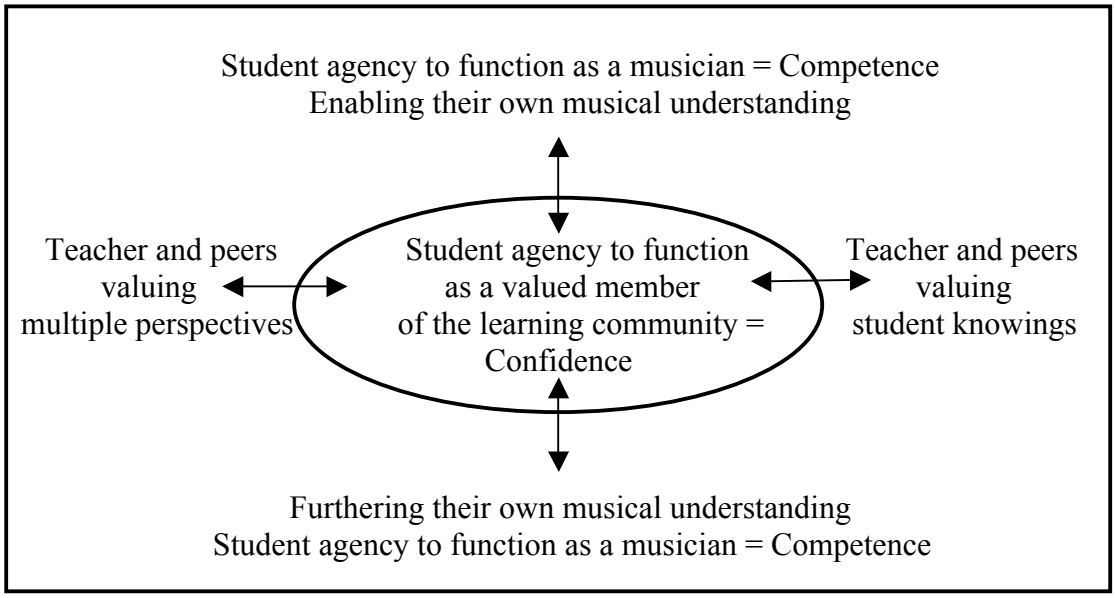

Figure 37. Agency as Self-Empowerment to Grow in Competence and Confidence

Bruner (1996) elaborates on the relationship of agency and collaboration, describing the way that discourse allows us to know ourselves while and because we come to know others.

> We do not learn a way of life and ways of deploying mind unassisted, unscaffolded, naked before the world. And it is not just sheer language acquisition that makes this so. Rather, it is the give and take of talk that makes collaboration possible. For the agentive mind is not only active in nature, but it seeks out dialogue and discourse with other active minds. And it is through this dialogic, discursive process that we come to know the Other and his points of view, his stories. We learn an enormous amount not only about the world but about ourselves by discourse with Others. Agency and collaborations are rather like yin and yang (p. 93).

To Understand and To Be Understood

As was evidenced by the high level of engagement, student valuing of the process of mapping was a dynamic underlying force of the students' experience during this study. The students' agency to further their own musical understanding—to grow in musical competence—was evident in the valued use of enactive and visual expressions of musical understanding and in their intense collaboration with others to find and share meaning. The students' agency to be valued as a member of the learning community—to grow in musical confidence—was evident in the urgency to share their ideas, particularly their maps, and to receive approval from their peers and teacher when doing so. *Everyone* wanted to share his or her map. None were reluctant or ambivalent about presenting their map to the class.

The discussion of the maps, with the scaffolding of watching the maps while the creators traced them, provided the forum for discovering the common and unique. Musical representations were varied, yet because of the shared listening experience with felt pathways of knowing and feeling well developed, each could enter into the listening experience of another, to find their way along the map, recognizing familiar musical paths and landmarks. Each map also provided new perspectives, nuances now noticed because familiarity provided the groundwork for discerning the unique among the shared musical expressions.

The musical maps provided the opportunity to enter into another's musical experience while listening. This in itself is incredibly important as we, as educators, seek to find ways for our students to interact with music and with others. However, the noticing of the common and unique is not just about the musical ideas or about how

they are represented by similar lines and shapes. It is about noticing the common and unique in one another. By noticing the various and similar ways that we each respond to music, we notice that we, as people, have commonalities that we share, yet each with our own unique perspective. This is the valuing that students so desire—that others in their learning communities recognize in each one of them that they know something about this thing called music and that what they know is very special—they understand. It is in knowing this about each other that we come to be understood.

APPENDIX A

INTERNAL REVIEW BOARD APPROVAL

Oakland UNIVERSITY

Office of the Vice Provost for
Research and Graduate Study

520 O'Dowd Hall
Rochester, Michigan 48309-4401
(248) 370-4925 Fax: (248) 370-4114

February 11, 2003

Ms. Deborah Blair
2417 Hancock
Port Huron, MI 48060

Reference: "The Nature of Children's Understanding When Engaged in Shared Listening Experiences" (#1059)

Dear Ms. Blair:

On behalf of the Institutional Review Board (IRB), responsible for the review of research involving human subjects, Dr. Christine Hansen, IRB Chair, has reviewed your submission referenced above and determined that as defined in 45CFR46.101(b)(3) the project, as currently described, is **exempt** from IRB review. **The exemption is granted for one year ending February 11, 2003.**

This exemption is made with the understanding that no changes may be made in the procedures to be followed until after such modifications have been submitted to the IRB for review and approval. If a consent form is required for your project, please include the Chair of the IRB as the contact on your informed consent form. **Researchers must retain a copy of the informed consent form in their files for three years and must provide a copy of the consent form to the subject.**

Any unanticipated problems involving risks to human subjects or serious adverse effects must be promptly reported to the IRB.

Two months prior to the expiration of this approval, you will receive notification of the need for updated information to be used for the project's continuing review.

Sincerely,

Judette Haddad

Judette Haddad, Ph.D.
Regulatory Compliance Coordinator

cc: Dr. Jackie Wiggins, Department of Music, Theatre and Dance

APPENDIX B

SAMPLE PERMISSION LETTER

August 25, 2003

To the parents of _____,

As part of a research project for my graduate studies at Oakland University, I will be observing the children in XXXXXX's fifth grade class to learn more about how children learn in music class. As part of this project, I will be teaching and videotaping each class from September through March. In addition, I will be asking two children to carry small tape recorders while they work. The tape recorders have small microphones that will record these children's comments and questions, which will help me to know how they are learning in class. My goal in engaging in this project is to improve both the music program at XXXXXXX School and my own teaching. At the end of the project, I will be asking students to come to the music room so that I can ask them questions about their final class project. They will do this with whomever they worked with on their final project. This conversation will also be videotaped so that I can remember everything the students tell me.

Participation in this study is completely voluntary. There is no payment for participation and refusal to participate will involve no penalty or loss of benefits. It has been determined that participation in this study poses no risks to the participants. All data (the video and audio tapes) will remain confidential. The tapes will be used for educational purposes only. Should the videotapes be used as part of the report, the children's faces will be blurred out. Your child's name will not appear in any report or study.

If you have any questions about the project or your child's involvement, please feel free to call XXXXXXX, principal of XXXXXXXX (###-####) or call me at home

(###-####). You may also contact my research advisor, Dr. Jackie Wiggins, Professor of Music Education, Oakland University at 248-370-2036 or email: jwiggins@oakland.edu. If for any reason you feel there is a risk to your child, you can call Dr. Christine Hanson, Oakland University Institutional Review Board at 248-370-3223.

Thank you,

Deborah V. Blair
Music Teacher

_____

Parent signature / consent for child's participation Date

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