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Investigating Young Children's Music-making Behavior: A Developmental Theory

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Investigating young children’s music-making behavior:
A development theory

by Paul Morehouse

A final project submitted to the Faculty of Claremont Graduate University in partial fulfillment of the requirements for the degree of Doctor of Philosophy, in Education.

Claremont Graduate University
2012

Approved by
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APPROVAL OF THE DISSERTATION COMMITTEE

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Abstract

Investigating young children’s music-making behavior: A development theory

Paul Morehouse

Claremont Graduate University 2012

We have many developmental theories contributing to our understanding of children as they meander steadfastly toward maturation. Yet, none have reported on how young children interpret the qualitative meaning and importance of their own music-making experiences. Music created by average, not prodigious, young children is perceived by adults as “play” music rather than “real” music. But do young children take the same view as adults? When Piaget speaks of the young child’s qualitatively unique view and experience of the world (Ginsberg & Opper, 1988), can we assume that his statement encompasses young children’s predispositions related to music-making? Music is understood to occur when people act intentionally to produce and organize sound into rhythm and form. The guiding questions for this study are, What evidence is there to show that, when following an adult music leader, young children can engage in authentic music-making behavior and produce identifiable musical structures that move beyond random sounds or ‘noise’? What evidence is there to show that children’s music-making behavior develops according to developmental stages? This qualitative field study observed and videotaped over 100 children between 2 and 7 years old who chose to engage in music-making behavior in a socially-rich school environment during structured activities guided by an adult “music leader.” The data gathered from this study suggest that young children’s motivation to make music derive from predispositions unrelated to notions of cultural and artistic expression thereby differing from adult musical needs and are instead based on more primary responses to their own developmental needs and their social environment. Functioning as “music leader,” the PI appeared to serve as an indispensable interface for assuring authenticity in the children’s
music-making at all stages of development. The older children did not introduce any novel behavior specifically related to making music. However, due to the progression of cognitive and social maturity across the range of ages, new extra-musical behavior (EMB) slowly emerged at each developmental stage always seeming to enrich the experience relative to a particular group.
Dedication

This work is dedicated to
all adults,
past, present and future,
who have acted or will act accordingly,
to create a musical Zone of Proximal Development,
out of wisdom and love,
on behalf of
the true nature of
young children’s relationship
with music,
as music-makers.
Acknowledgments

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CHAPTER 1

Proposal

Introduction

Research Problem

Theoretical Framework

Purpose of Study

Research Questions
Introduction

Music is not an obscure or neglected subject. On a global scale, the range and scope of human involvement in music is almost immeasurable. In the US alone, the net sum of expenditures related to the production and consumption of music reaches into the billions of dollars annually (NAMM, 2007). Clearly, our world is a world of music and, according to Miller (2000), evidence shows it’s been that way for at least the past forty thousand years and probably much, much longer. Music is considered by many to be a defining human conceptual artifact that emerges from deep within the human psyche and is intimately connected to the human ethos.

Even the most fleeting glance at American history shows that, from the earliest period, our citizens have shown a strong attraction to and an appreciation for music (Keene, 1982). Accordingly, the value that music brings into the lives of children has never escaped the sensibility of many people. In the education sector, fervent advocates have relentlessly voiced the importance of maintaining a place for music in our education system. Some people who currently fall into this latter category are involved in early childhood education. This is fortunate because conclusions drawn from an examination of recent musical practices, musical preparation, and music education needs, as reported by early childhood professionals in the United States indicate that 1) music is recognized as having an important role in child development and 2) there is now greater awareness among early childhood educators of music’s importance in early childhood education (Lee-Nardo, Custodero, Persellin, & Fox, 2006).
Anyone who is sensitive to young children and observes them as they interact with music will probably, at some point, stop and wonder about the child’s own experience of music. First, consider the child as a consumer of music. When a three year old hears a song or a piece of music (either live or recorded), what do they really hear and how does it make them feel? Or do they “feel” anything at all? A musical engagement can be very meaningful to an adult (as consumer or creator) but what does it mean to a young child? Also consider a two year old child sitting on the floor with a small drum or a four-year-old holding a pair of maracas. Neither child will need instruction in order to know what to do with those objects; each child will quickly discover that he or she can produce a sound by physically interacting with the object in a particular way. But what moves them to perform repetitive actions in measured sequences that, in effect, qualify as music-making behavior? Is the motivation the same or different as that of an adult who displays similar behavior with a full understanding of what he is doing, i.e., making music?

It is generally known that children are attracted to different kinds of sounds and enjoy producing sounds in a variety of ways. Yet, what is their level of understanding of that fact that sometimes, when they make certain sounds in certain ways, they become “music makers”? Are they able to differentiate between the occasions when their sound-producing efforts result in random sound (noise) as opposed to structured sound (music)? If young children can differentiate between these two levels of sound
organization, are they then able to ascribe different levels of value and meaning to them? Considering how gradually most growth and development occurs, it is likely that young children’s ability to perceive and make music also emerges in stages. But what do these stages look like? When and how do they appear?

We quickly realize there is a plethora of questions that arise as we begin to consider the realm of experience occupied by young children and their music. For example, what thoughts, feelings, and perceptions do young children experience when engaged in making music? What does it mean to a young child to have possession of a sound-producing object (a musical instrument such as a drum) and make it “speak” in concert with a group of classmates and a teacher engaged in the same activity? Does this experience impact a three year old in much the same way as would other “sound-making” experiences, e.g., dragging a stick along a fence or pushing a button on a plastic toy to begin a loop of pre-recorded electronic sounds? Or, when engaged in even the simplest level of authentic, communal music-making, are children stimulated by meaningful, primordial, evolutionarily-informed “triggers” that connect the child, albeit unconsciously, to important behavioral patterns that help define their human experience and simultaneously offer unique opportunities in critical areas of their early development?

At the beginning of this introduction, I acknowledged that music is not obscure or neglected. However, the same cannot be said when considering music-making in the lives of young children. For various reasons including the influence of normative (adult
defined) views of what music is and the role music plays in human society, young children are not, in the perception of many people, considered to be creators of “real” music. This statement is not meant to characterize adults as insensitive or uncaring. Music is important to those of us who love it. That is why, at times, we will spend hard-earned dollars on our favorite music say, for example, fifty, eighty, one hundred or more dollars for a ticket to a concert.

It is an unlikely scenario to think of filling a concert hall with patrons - several hundred or even thousands of people - paying high ticket prices to hear an “orchestra” of average (not prodigious) three and four-year old children play music. When benevolent, supportive adults (mostly family members) gather to hear children play music, it is usually out of a sense of support for the children in their fledgling efforts to learn about music; it is because they love and care about the children and not so much the quality and character of the music they create. Also, imagine a teacher in a preschool classroom keeping a beat on a drum while a group of four-year old students respond by joining in with “toy” maracas and tambourines that the school provides. Would the music arising from this performance strike our adult ears as “real” music, that is, music that addresses our musical needs? Probably not. Due to maturational differences in musical perception between adults and children, the music created by average young children is not perceived by adults as “real” music. But does the child take the same view as the adult? Because the character of the music is different, does that imply that the meaning is different to our youngest groups of music-makers?
There are consequences due to the existing gap in our understanding of this issue. The inherent propensities of young children (seven years and younger) to be music makers have gone virtually unrecognized in many schools, and efforts to enrich their early education through developmentally appropriate music-making activities have been highly marginalized and, in some situations, discounted entirely. Moving past our adult experiences with music and music-making and our (adult) interpretations of children’s experiences of music and music-making, we should ask: do we really understand the relationship that young children have with music and what it means to them? What is our understanding of how children interpret the qualitative meaning and importance of their own music-making experiences? We have a realistic sense of the losses a child suffers when deprived of certain core human experiences such as normal social contact or language development but what do we understand about the losses they may incur when they do not receive opportunities to engage with music, especially in the preoperational stage of development, approximately between the ages of 2-7 years?

When Piaget speaks of the young child’s qualitatively unique view and experience of the world (Ginsberg & Opper, 1988), can we assume that his statement applies to music? In other words, can we interpret Piaget’s view to mean that a young child’s music-making experiences are an aspect of their qualitatively unique life experience? In drawing his conclusion, Piaget did not preclude any specific facet of children’s lives so we can assume the answer to the latter question is yes.
As the gatekeepers of children’s education, it is inevitable that our values and beliefs ultimately inform the content and character of curricula presented in schools. This, of course, holds true for music education. Most adults will readily accept the idea that music is “a particularly human adaptation to life” (Slobin & Titon, 1984) and is ubiquitous throughout all human cultures, currently and historically (Mithen, 2006). What is less familiar is the fact that “contemporary Western notions of ... music as art are unusual” (Walker, 1987).¹

Without question, the overarching paradigm in music education derives from a view of music that is perpetuated by general society, i.e., that music is one of the performing arts. Within this paradigm is the concomitant idea that a work of art is a discrete “product” and can be evaluated by specific criteria to determine its artistic merit. In the areas of music that involve older children and adults, this paradigm makes sense. Moreover, these ideas are completely embedded in the American psyche including the educational arena and are not normally, or easily, challenged. Consequently, university-level music education texts freely express this current paradigm to prospective teachers:

“As art, music is deeply embedded in our daily lives...” (Winslow, R., Dallin, L., & Weist, S., 2001, p.1).

¹ This, of course, implies that there are music traditions in non-Western cultures that view music in ways other than as a mode of “artistic expression.” While no cultural traditions are “wrong,” it is always in the best interest of knowledge and understanding to consider ideas from as broad a perspective as possible.
“Music is a powerful art form”
(Hackett, P. & Lindeman, C., 1997, p.3).

“Music is an art form created from sounds…”

“As the artist manipulates and arranges the media unique to a particular art ([such as] sound in music …), an expressive product emerges that we call a work of art”

“It is the intent of this course that you, the future teacher [will] learn principles for selecting, evaluating and performing music literature for children, as you also develop an appreciation for the power of the arts…”
(Miller, P., 2003, p.2).

Thus, for all intents and purpose, mainstream music education perceives music in terms of its artistic value. As a result, most pedagogy is predicated upon the idea of teaching students to appreciate, understand and/or perform music as an artistic “work.” Invariably, the study of “music appreciation” resides under the banner of “art appreciation.” Music education is art education. But does this perception make sense for young children who, while capable of presenting themselves as highly interested and enthusiastic music makers, are not developmentally mature enough to understand what adults regard as “artistic expression”? From this, we can realize the importance of asking, How can educators understand the meaning that young children construct from their early music-making behavior if it is filtered through socially constructed views that are not congruent with the child’s level of maturity and understanding?

Rather than being challenged on the basis of its relevancy for young children, this concept is regarded as foundational for early childhood music education. Current
evidence of this is found in Volume 2, Chapter 2 of the California Department of Education’s Preschool Curriculum Framework which addresses the visual and performing arts. An excerpt from the introductory paragraph reads as follows:

The visual and performing arts are as natural to young children’s lives as language and play are. The following activities are often referred to as children’s play: ... humming bits of a tune, banging on a drum, or swaying to music. But, as the California Preschool Learning Foundations, Volume 2 clearly point out, these behaviors in fact show elements of artistic expression and creation that support continuous development of artistic skills [emphases added] (California Department of Education, 2011).

From this evidence, the present study recognizes the importance of investigating how the concept of “artistic expression” is defined and whether such a definition should be differentiated for young children. More pertinent to this study, it is important to reexamine whether a notion of artistic expression pertains to the music-making experiences of young children and whether our normative view of this notion is adequate for informing a developmental theory of young children’s music-making behavior. This is especially important when one purpose of such a developmental theory is intended to help inform a new paradigm in early childhood music education.

We must then consider the pedagogical implications. In their report Eager To Learn: Educating Our Preschoolers (2000), the Commission on Behavioral and Social
Sciences and Education addressed the question, “How should teaching be done in preschool?” The report indicates that research suggests many teaching strategies can work by including “teaching through play” and “structured activity.” For some, this would appear contradictory because “play” and “structure” are often seen as being incongruent, the former being what children want, the latter what they need. However, Deci & Ryan (1985) define “game” simply as “play that has structure.” This view supports the present study given that the concept of “game” is much closer to how children experience music-making than “artistic expression.”

Arguably, young children experience music-making as a “game” due to the structures that arise from the physical creation of patterns of sound and rhythm. From this view, there is a conceivable path of reconciliation for these two alleged opposites: by presenting effective, interdisciplinary learning experiences that include, or are centered on making music, it is possible that socially engaged children can have fun while creating meaningful musical structures – usually juxtaposed with the language in songs – thereby receiving the building blocks of higher level developmental processes, on both inter-psychological and intra-psychological levels. Arguably, music-making behavior is aligned with constructivist views because it offers a mode of experience that directly serves specific developmental needs, especially in terms of constructing knowledge, a sense of self, and a nascent understanding of the world.

Deacon (1997) posits that learning is not so likely to fail if what needs to be learned is organized around the learner’s predispositions. Playfully he offers a
A hypothetical solution to young children’s language development suggesting that we “present [children] with a specially designed language whose structure anticipates their spontaneous guesses” (p.109). The point Deacon wishes to make has to do with the idea of taking advantage of what kids do spontaneously, or naturally. We may all be surprised to discover that such a “specially designed language” that is congruent with children’s natural learning tendencies already exists and is embodied in the phenomenon we call *music*!

**Research Problem**

Given 1) the positive and secure position that music holds in our society and culture, 2) the general consensus of the value music offers children, and 3) its enduring foothold in education, it would seem that the current paradigm in music education would provide a solid, nurturing, and unambiguous foundation for a developmental theory of the emerging stages of young children’s music-making behavior. However, this is not the case. Since a profusion of research in early development began during the second half of the twentieth century, with many studies addressing various aspects of the growth and development of young children, there remains a significant gap in regard to our understanding of young children’s relationship with music, which includes their natural tendencies to be cooperative music makers in socially-rich school settings. I have identified four extant, interrelated scenarios that describe the problem:
1) There are long-standing, deeply imbedded, normative views regarding the primary function of music in human society. These views are encapsulated in the terms *cultural expression* and *artistic expression*.

2) The relationship that young children have with music is perceived to be informed by these same two functions. Investigations into functions of music-making behavior that are more relevant to and more developmentally appropriate for young children are scant.

3) There are unrecognized musical needs of young children and overlooked musical capabilities and perceptions that appear to be inherent in children.

4) The true nature of young children’s relationship with music, the stages of their musical development, and their natural propensities for engaging in social music-making activities have not been thoroughly researched.

Current literature is replete with examples that reflect varying aspects of these views, usually inadvertently and implicitly. Examples can be found even in prestigious organizations attempting to support quality music education programs. For example, as a preeminent national organization that advocates for quality standards in music education, the Music Educators National Conference (MENC) makes recommendations for early childhood music education that urge 1) the *best possible* musical models and activities be provided; 2) *exemplary* musical sounds, activities, and materials be used; 3)
activities of *trite or questionable quality* are absent from children’s music learning time; 4) children develop *accurate* singing (MENC, 2012). (Underlines added). Yet, when young children become engaged in authentic music-making, it is evident that such descriptors (*see underlined terms*) are inadequate for measuring or critiquing the actual value, quality, or “success” of the children’s own perception of their music-making experiences.

Therefore, the problem identified by this study is centered on the fact that the current paradigm in early childhood music education does not provide what is needed to formulate an appropriate developmental theory of young children’s emergent music-making behavior, which can be presumed to be related to their efforts to fulfill their own musical and general developmental needs. The current paradigm in early childhood music education has not had the advantage of such a developmental theory because currently it does not exist.

**Theoretical Framework**

Collectively, the theories of Piaget, Vygotsky and Montessori have helped formulate some of the most influential learning theories of the twentieth century. Each of these three individuals has made seminal, unparalleled contributions to the theoretical frameworks that currently guide early childhood development and education worldwide. It is then both logical and essential that important aspects of their works are reviewed and placed contiguously to help inform a developmental theory of the stages of young children’s music-making behavior.
It is important to note that the specific principles and conclusions of these three thinkers applicable to this investigation do not come from their writings and research directly on or about music. Considering Piaget and Vygotsky, neither theorist investigated music in the lives of children to a significant degree nor can either one claim credit as a pioneer of early childhood music education. Yet, various core theories from both individuals are critical to this study.

Montessori’s contribution has a touch of irony. Unlike her two peers, she did acknowledge music in the lives of young children yet with views that were, for reasons probably very meaningful to her, highly circumscribed. For example, in “Dr. Montessori’s Own Handbook” (Montessori, 1914/1964), a chart is depicted showing the “Proposed winter schedule of hours in the Children’s Houses” (p.119). Both the “marching” and “songs” activities were shown to be integrated with gymnastics. Montessori writes:

“When the march is introduced, it is well to accompany it with the singing of little songs, because this furnishes a breathing exercise very helpful in strengthening the lungs” (p.144).

Other music activities are also expressed in terms of extra-musical objectives. Some modern Montessori supporters have stated that her views on art and music were antiquated. Thus, we confront a degree of irony: while Montessori’s views of music, by themselves, may not help inform a new paradigm in early music education, there is no equivocation surrounding the importance of her general theories on the broader
aspects of early childhood development. It is these latter, wide-ranging insights of Montessori’s that support this study.

The theoretical framework for this study would have far less meaning in regard to early childhood development and music education without the theoretical foundations engendered by Piaget, Vygotsky, and Montessori. Chapters Three, Four and Five will address each of the three theorists, respectively, offering in-depth analyses of their theories as they pertain to this study.

See Appendix A for an overview of core ideas that appear to be possible links to early childhood music education; a medley of ideas that are at once logical, serviceable, and visionary in the context of this study.

**Purpose of Study**

This study is designed to systematically observe and outline the actions and responses (behavior) of young children, ages 2 – 7 years old, as they engage in music-making activities. Specifically, this investigation will pursue the formulation of a developmental theory of the stages of their music-making behavior so as to gain a greater understanding of early development from within a musical framework. The emergent theory will be presented with an intention to enrich the current paradigm in early childhood music education by postulating new knowledge that supports young children’s predispositions to engage in music-making behavior.
In summary, the purpose of this dissertation is to formulate a developmental theory of young children’s music-making behavior. The specific intentions for formulating this developmental theory are,

- to identify the emerging stages of young children’s music-making behavior that occur in a social context when guided by an adult “music leader.”

- to understand the music-making behavior of young children through the lenses of salient developmental theories as posited by Piaget, Vygotsky, and Montessori.

- to gain greater insight into the depth and breadth of young children’s inherent capacities for experiencing the world.

- to inform a new paradigm in music education that is predicated on what is defined in the context of this study as the “true nature” of young children’s relationship with music.

- to help enrich current pedagogy and curricular strategies in music and interdisciplinary education currently recognized and practiced by most educators working with young children, two through seven years of age.
Research Questions

There are three overarching questions guiding this study. They are,

1) What evidence is there to show that, when following an adult music leader, young children can engage in music-making behavior and produce identifiable musical structures that move beyond random sounds or "noise"?

2) What evidence is there to show that children's music-making behavior develops according to developmental stages? How might these stages be described?

3) How do these stages relate to or correspond with the child development theories of Piaget, Vygotsky, and Montessori?
CHAPTER 2

Methods

Introduction

Purposeful sampling

Organization of subjects

Identification mapping

Location of subjects

Procurement of subjects and site permission

Parent/Guardian permission

Protection of subjects

Procedure during study

Data analysis

Observation protocol
METHODS

Introduction

The investigation informing this dissertation would not be possible, and, in fact, would not have happened, without the preceding twenty-two years of my work with young children as a music specialist. These experiences afforded myriad opportunities to observe numerous groups of children, sometimes over two to three year periods, who were routinely invited to engage in musical activities in their preschool or primary grade classrooms. In essence, the naturalistic inquiry began during this period ultimately providing a foundation for conceptualizing and designing the present study. After countless shared episodes of music-making - over weeks and months and even years – it became increasingly evident that there were recurring patterns in the children’s actions and responses during the musical engagements. From this, came the realization that a developmental theory addressing their music-making behavior was absent from the canon of literature on early development.

Patton (2002) recognizes the importance of an initial exploratory phase of observation, such as that described above, and encourages a subsequent phase which he refers to as “confirmatory fieldwork.” This latter stage is defined by “…confirming the importance and meaning of possible patterns, and checking out the viability of

This antecedent, “exploratory” phase of observation which lasted more than ten years is documented in a set of planning notebooks that contain hundreds of pages of hand-written notes, some of which describe the behaviors of the children as they engaged in music-making behavior..
emergent findings” (p.239). This perspective in conjunction with an analytical protocol will inform the underlying strategy for the method of data gathering and analysis to be followed in this study.

What eventually surfaced during the years of foundational work appeared to be specific, potentially inherent, behavioral patterns among children between ages 2-7 years old. Almost invariably, these behaviors – based both on physical and perceptual capacities - were accompanied by a disposition for group cooperation. Functioning as a reciprocating mechanism, this sociocultural linchpin allegedly helped individuals to educe skills and perceptions necessary for successful music-making when engaged as a member of a group, including the willingness to follow an adult Music Leader.

Least notable about virtually all performances were levels of accuracy relating to vocalized pitches, i.e., the “singing” of correct notes or tones. More interesting were the varying levels of rhythmic proficiencies within individuals which ranged from seemingly random playing to impressive rhythmical sensitivity. Sometimes these oscillations were within the performance of a single song while other times they manifested from one session to the next. However, with no equivocation, the most striking and consistent

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3 I did not teach the hundreds of children I worked with the music-making behaviors they displayed for me. Also, considering their ages, it can be said for most of the children that it is unlikely that parents or other teachers taught them these behaviors. Thus, there is a strong argument toward identifying the behavior as “inherent.”

4 To recognize a varying range in a child’s rhythmic proficiency is not implying a comparison between individuals. Rather, it is recognizing a phenomenon characteristic of this age range wherein individual children often display a varying range of accuracy and consistency sometimes within the same song.
aspect of young children’s music-making behavior centered on their ability to follow simple musical structures (song forms as delineated by the Music Leader), as individuals and as a group, with impressive degrees of accuracy; sometimes even with little or no prior exposure to a particular song. Most curiously, it is this latter component that has received little, if any, attention in the general literature on early childhood development and early childhood music education in particular.

This study makes the premise that young children’s patterns of music-making behaviors must be observed with greater scrutiny and then analyzed in regard to formulating a developmental theory of their music-making behavior. It should be noted that the social nature of this behavior, in conjunction with the educational purpose of the study, suggests that observations should occur within the structured environment of a school classroom.

**Purposeful Sampling**

According to Patton (2002), *purposeful sampling* is used when certain subjects are considered to be “information rich” and represent “useful manifestations of the phenomenon of interest” (p.40). Purposeful sampling, then, appears to offer the most appropriate strategy for procuring subjects for this study. Indeed, the behavior to be observed is relevant to the study only when displayed by children in Piaget’s “preoperational” stage. Therefore, in order to observe the behavior of interest, subjects must range in age from approximately twenty-four months (2 years old) up through the
This age range, consistent with customary preschools/child development centers and primary grade levels, will be divided into four developmental categories. All participants will be identified as belonging to one of the following developmental categories:

1) Approximately from 2.0 – 3.0 years old = “Toddlers”

2) Approximately from 3.0 – 5.0 years old = “Preschoolers”

3) Approximately from 5.0 – 6.0 years old = “Kindergarteners”

4) Approximately from 6.0 through 7 years old = “Primary” (1st and 2nd grade.)

Organization of Subjects

This study will look at approximately 100 children while they are in attendance at the school they regularly attend. There are three different school sites participating in the study referred to respectively as Site 1, Site 2, and Site 3. Regardless of the site, all participants will have membership in one of the four developmental/grade levels indicated above and will be observed while engaged with his/her regular classmates of

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5 This age range encompasses children who, on the younger side, would participate in a “Toddler” program at a child development center up through children in grade two which is in the “primary” grade level of elementary school. The age assignments of the groups are approximate due to flexible assignment and promotion policies of the schools: none of the children were initially assigned to a group or promoted to a new group based solely on their date of birth.
comparable age. Each group of children will be videotaped while accompanied by the regular teacher and/or staff personnel who would normally be with the children on a typical day.

Identification Mapping

The primary focus of each observation is the collective behavior of the children in a sub-group as they engage in music-making behavior as defined by the study. The children’s behavior will unfold mainly in response to my behavior functioning in the role of Music Leader as I lead respective groups in short renditions of various songs. Random or spontaneous music-making behavior (acts that are not in direct response to me as Music Leader) will also be observed whether by a group acting together or individuals acting alone. Therefore, in addition to observations of groups, individual children will at times be observed for analysis.

The approximately one hundred children will be divided into sub-groups with as few as five children or as many as approximately fifteen. Groups will be identified in the transcription in part by the developmental level and/or a cryptic acronym, sometimes followed by a sub-group letter, and then a session number. For example, the first session for each group will be identified as follows:
<table>
<thead>
<tr>
<th>Toddlers</th>
<th>Preschool</th>
<th>Kindergarten</th>
<th>Primary</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOD (A) - 1</td>
<td>PS (A) - 1</td>
<td>K (A) - 1</td>
<td>AVE – 1</td>
</tr>
<tr>
<td>TOD (B) - 1</td>
<td>PS (B) – 1</td>
<td>K (B) - 1</td>
<td>JAN - 1</td>
</tr>
<tr>
<td>TOD (C) - 1</td>
<td>PS (C) – 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PS (D) - 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIC -1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Activity “names” of individuals will always appear in context of their group so it would not matter if there is a duplication of “names” if children are in different groups. These activity names will be created by a combination of an invented abbreviation and/or acronym of the child’s first and last name. As a hypothetical example, if one child’s name was Susan Brown she might be identified as SUB or SBN.

**Location of Subjects**

Claremont Graduate University (CGU), located in Claremont, CA, is considered to be the geographical hub of the study. The city of Los Angeles is approximately 35 miles west of Claremont and there are many densely populated municipalities in-between these two cities. Considering Claremont and Los Angeles as the east-west end points of the geographical region for this investigation, and considering eleven major municipalities that are located directly in-between these end points, there are approximately 1100 “preschools” or “child care centers” licensed by the county of Los Angeles.
Angeles\textsuperscript{6} that are accessible for this study, i.e., within 30-40 minutes driving time from the hub. There is also an undetermined number of public and private elementary schools found in the same region. Specifically, the students participating in the study are in attendance at their regular school (preschool or elementary) located either in the city of Claremont, California, Los Angeles, California, or Altadena, California.

**Procurement of Subjects and Site Permissions**

A preliminary phase of this study will be to approach child care centers located within the geographical area of the investigation so as to identify potential sites that have students whose ages conform to one or more of the necessary age-groups defined by the criteria of the purposeful sample. Follow-up inquires will be made to directors and principles of randomly selected schools and centers that are identified as serving such students. Such inquires may be made by phone, email, or in-person visits. School directors who express interest and support for the study will then be given 1) a full written description and rationale for the study, 2) a copy of the correspondence between the primary investigator and the Institutional Review Board (IRB) at Claremont Graduate University, and 3) a letter that contains a Statement of Agreement that will require the signature of the director or principal. The successful completion of these steps at three specific sites will provide an adequate number of appropriate subjects so that sufficient observations can take place for the study. Concurrent copies of the

\textsuperscript{6} Los Angeles County Department of Public Social Services.
project description and consent decrees will be distributed to the teachers and/or other
direct-care staff members who normally work directly with the participants and who
may be present during the activities documented for the study. In addition to written
descriptions of the study, the investigator will offer an in-person, oral presentation for
staff and parents if requested.

**Parent/Guardian Permission**

Once a site director has received a full disclosure and orientation about the
study and has signed a Statement of Agreement to allow the study to proceed at his or
her site, there will then be a consent decree distributed to the parents of the children
who would be potential subjects in the study. This document provides a full written
description and rationale for the study and a letter that contains a Statement of
Parent/Guardian Permission of a Minor, the latter form requiring a signature of the
parent or guardian.

Parents and guardians will be informed that they have complete authority over
and above the permission granted by the site director/principal. If a parent or guardian
of a child at the school where the study is to take place does not wish his/her child to
participate in the study, this can be indicated on the form and the child will not
participate. In such a case, that child will receive no negative consequences and will be
removed from the study activity and supervised during the activity by regular, familiar
teachers and/or staff members in normal academic and/or recess activities with other
children such as would typify a normal day at the center or school.
Protection of Subjects

Administrative protection of all subjects, who in this study will be minors, will be secured due to adherence by the investigator to all review procedures and protocol as proscribed by the Institutional Review Board at Claremont Graduate University.

Post-activity protection of all subjects will be secured through 1) anonymity vis-à-vis the assignment of a pseudonym to each subject, 2) no visible evidence or other disclosure of the actual school site where the study takes place, and 3) the destruction of all videotape materials once analyses have been made.

Even after permission has been given by the site director and the parent(s) or guardian, if a particular child communicates a personal decision to abstain from participation in the study activity, that child will be supervised during the activity by regular, familiar teachers and/or staff members in normal academic and/or recess activities along with other children such as would typify a normal day at the center or school.

Procedure During the Study

A minimum of five and a maximum of fifteen children were brought into an appropriate room at the school by a known teacher or other familiar staff person. As primary investigator (PI), I had entered the designated room ahead of the children and was sitting in a chair holding a guitar. A video camera was mounted on a tripod off to the side, aimed toward the area where the children would be sitting. I would start the
camera just prior to the children’s arrival or once they were sitting down ready to begin the music activity.

The camera did not have any unusual features that called attention to it. Picture-taking and/or videotaping of children by teachers and parents are common occurrences and is most likely something that all the children had seen many times. As expected, the camera did not cause even a thread of distraction away from me, functioning in the role of Music Leader, or the general music-making activities and, therefore, was completely unobtrusive to the study.

One or more regular teachers or staff personnel who the children knew remained in the room throughout the activity. The teachers sat with, next to, or behind the children in a manner that they might normally do during other “rug time” activities; they participated along with the children in response to my actions as Music-Leader according to their own discretion. All teachers were notified in advance that they were not to intervene with any child outside of what would be normal and natural for a “shared” music-making experience. Teachers were advised that the children’s participation was completely voluntary and would be based solely on their own decision to do so. However, advising teachers to abstain from “teaching” the children what to do musically did not apply to non-musical circumstances if a child might have an immediate need or make a personal request of the teacher.

I was introduced to the children as “Paul,” “Mister Paul,” or “Teacher Paul.” I routinely had a guitar strapped around my shoulders and a colored duffle bag nearby on
the floor. Inside the duffle bag was an assortment of familiar percussion instruments adapted for young children, e.g., drums, maracas, claves, and tambourines. Sometimes the bag was closed at first so the children could not see the instruments inside and other times the instruments were already out of the bag and laid out on the floor or a table where the children could see them.

Typically, I would begin by strumming the guitar, and singing a song familiar to the children. The song may be suggested in advance by a teacher, staff member or possibly by a child in the group who might respond to a prompt by me such as, “Who wants to suggest a song we can sing together?” The group-singing helped to firmly establish the interaction as a “music activity” and also allow me to gain familiarity with the children and vice versa. At a certain point, I would typically direct the children’s attention to the bag of instruments, or the display of instruments. Through a fun and entertaining procedure, the instruments were introduced one-by-one to the children. For example, holding up a drum, I would ask a series of questions: “Do you know what this is? What do we use this for? Can a drum make a special sound for music? How do we make the sound of a drum? Does anybody know to do it? Who wants to show me?”

This procedure varied only in terms of the language used and/or conceptual nuances presented to the children depending on the developmental/grade level of the particular group. However, the basic objective – to make music – remained the same for all groups. The variations in language and format were used in order to present
developmentally appropriate language and practices and did not compromise the data
gathering or interfere with the goals of the study.

A variety of instruments were introduced. At some point during every session,
each child was invited to come and select an instrument, take it back to where they
were sitting, and use it for making music. Sometimes I facilitated a rotational, turn-
taking format by spontaneously calling on several volunteers to stand in front of the
others to perform. This would continue until all students who wanted a turn to perform
their instrument by standing next to me had a chance to do so. Some students chose
not to participate by standing in front of the others, but were happy to play when sitting
in the midst of the group on the rug.

Sometimes a song was introduced that the children had never heard before.
(These were my original songs that the children could not possibly have known.)
However, even with songs they knew, they were able to experience it in a “unique” way,
by following me on the guitar and contributing vocal and/or instrumental sounds
according to my verbal and musical cues.

Data Analysis

“Purpose guides analysis” (Patton, 2002). This axiom will serve well to guide the
data analysis of this investigation. Patton also reminds us that “there are no formulas for
determining significance...no absolute rules” (p.433) except to make the best possible
effort to “communicate what the data reveal given the purpose of the study” (p.433).
As stated in Section 1 of this proposal, the purpose of this study is to formulate a developmental theory of young children’s music-making behavior. I will propose a formula that, when followed, produces “real” music: it is the creation of recognizable musical sounds, rhythms, and structures that result when intergenerational groups of people respond together under the guidance of a music leader. The goal then becomes to map occurrences of identifiable actions and responses that would account for children’s ability to contribute to this formula. The children being investigated will reside within the developmental stages that occur during Piaget’s “preoperational” stage, approximately from two years old through seven years old. If children show themselves to be ready, willing, and able to practice this “real” music-making behavior, what, if anything, does that tell us about how they make sense of the world and construct meaning that guides their interactions with the world?

Out of a need to move through the data analysis in a way that is most congruent to this study, there are several core ideas denoted by Patton (2002) regarding qualitative analysis that will be used to guide the analysis.

1) “The fluid and emergent nature of naturalistic inquiry makes the distinction between data gathering and analysis far less absolute” (p.436). The investigator’s interaction with the subjects is in the capacity of a teacher who “scaffolds” the children through activities that educe the behavior of interest. The actions and responses of the children which are to be analyzed are dependent upon the successful creation of a musical Zone of
Proximal Development by the investigator. Thus, the successes of the data gathering and data analysis are interdependent.

2) Confirmatory collection and analysis. Considered to be part of inductive analysis, the process of “confirming” data can assist the progression toward “creative synthesis.” (Patton, p.41, p.436). In analyzing the videotapes of the children as they engage in the study’s activities, the priority will be to confirm the evidence of specific behaviors that were identified during the antecedent discovery phase.

3) Sensitizing concepts (p.456). The children may appear to instinctively follow the musical form (or, structure) of simple musical compositions. Therefore, “musical organization” becomes a sensitizing concept that is introduced in order to guide the data analysis.

4) Analytical framework approaches. Patton (2002) tells us that “distinguishing important processes becomes the analytical framework for organizing qualitative description” and “qualitative data may be organized to describe important processes.” Included among these processes are “socialization processes” and “communication processes” (p.439). Processes are significant factors to be considered in the formulation of a developmental theory of young children’s music-making behavior. Essentially, it is the process of making music that informs the study, not the musical products that appear as a result of the process. Thus, these three interrelated yet discrete processes (socialization, communication, music-making) will serve to provide a framework for data analysis.
Observation Protocol

The data was gathered by videotaping the music-making behavior of the children who participated in the study. The following is an overview of the observation protocol used for analyzing the data as captured on the videotapes. Indicated are the four main sections of the protocol, the subsections if any, and example questions from the subsections.

SECTION I SOUND, RHYTHM, FORM, MUSICAL COHESION

Protocol for analyzing whether certain behaviors create the physical evidence of music.

For the purposes of this study, music-making behavior is defined as an intentional act to produce and organize sound in such a way that it contains two basic, recognizable musical structures, rhythm and musical form. What, then, do we need to observe in order to determine whether young children have the capacity to manifest a physical evidence of “music”?

A. SOUND

The activities were designed to allow opportunities for the participants to make sounds that originated from three sources, Voice, Body Percussion (also referred to as Body Drum), and musical instruments.

E.g., Do children perform instrumental sounds together?
B. R H Y T H M

Activities were designed to allow opportunities for the participants to organize the sounds they produce by performing rhythm, i.e., specific repeating physical patterns of alternating sound and silence.

E.g., Do children perform a continuing “beat”?

C. F O R M

Activities were designed to allow opportunities for the children to organize their sounds into patterns larger than rhythm patterns that recur over a longer period of time. These larger patterns describe the form, or structure, of a song.

E.g., Does individual start when cued by Music Leader?

D. MUSICAL COHESION

The activities were designed to allow opportunities for the children to follow the Music Leader in starting and stopping their sounds. Theoretically, when several or many sound-makers choose to connect to and follow a Music Leader, there should emerge an unmistakable sense of “musical cohesion.”

E.g., Does individual or group follow Music Leader while performing music?

SECTION II PEDAGOGY

Protocol for analyzing the pedagogical context of the children’s music-making opportunities.
When in school, young children will interact with teachers and peers in ways that are normal and natural in relation to that environment. Are typical school-engendered, pedagogical procedures that frame child-to-child and child-to-adult interactions, conducive for mitigating authentic music-making behavior within that environment and among that group of people?

A. Behavior of Music Leader is directly geared toward guiding group to engage in music-making experience and parallels “teacher behavior” that participants may or may not respond to.

E.g., *Music Leader gives MUSIC directive, verbal.*

B. Behavior of young children is in direct response to pedagogy as presented by the PI.

E.g., *Theme/“school” vocal response by group.*

**SECTION III SOCIOCULTURAL**

Protocol for analyzing the sociocultural context during the music-making sessions.

The origins of music are believed to be linked to our highly complex social behavior. School environments are inherently social; when in school young children are constantly engaged with peers and adults. Is their music-making behavior embedded in social behavior? Are normal and natural social interactions (child-adult, child-child) present during music-making experiences in school?

E.g., *Group NOT focused attn. on ML, but making music.*
SECTION IV MOVEMENT, AFFECT, ANOMALISTIC, IDIOSYNCRATIC BEHAVIOR, MUSIC AS A GAME

A. MOVEMENT

The music-making activities for this study were not designed to prompt dance-like movement. Movement required for making music is based primarily on the physical effort necessary to produce a sound and perform a rhythm.

E.g., Individual or Group displays rhythmical movement while sitting in place.

B. AFFECT

When an unfamiliar adult, functioning in the role of Music Leader, facilitates music-making activities with the children, is it possible to predict if or how the children will respond emotionally?

E.g., Individual smiles, laughs, and/or displays general positive affect.
C. ANOMALISTIC, IDIOSYNCRATIC BEHAVIOR/OCCURRANCES

There are occurrences during the music-making activities that seem anomalous or idiosyncratic yet demonstrate or represent a potentially significant aspect of young children’s music-making behavior.

E.g., Anomalous situation or event; idiosyncratic behavior.

D. MUSIC AS A GAME OR STORY

In the interest of this study, it is postulated that music is perceived and possibly experienced by young children more as a game or as a naturally occurring accompaniment to a “story.” Are there regular occurrences of the concept of music being presented in a game-like format or in context of a “story”?

E.g., Music expressed as, or manifests as, a game or story.
Piaget
One could neither adapt to the environment nor organize one’s processes if there were no basic structures available at the outset.

Piaget in Ginsburg and Opper, 1988, p.23.

The focus of this study did not necessitate a full review of the prodigious volumes of literature by Piaget. There are, however, several authoritative texts that are acknowledged by scholars to be accurate and reliable analyses of his core theories. Among these are Gallagher and Reid “The Learning Theory of Piaget and Inhelder” (1981) and Ginsburg and Opper “Piaget’s Theory of Intellectual Development” (1988). In neither of these comprehensive treatises does the word “music” or the phrase “music-making” appear as entries in the subject index nor is there any substantive discourse regarding these subjects in relation to young children. Rest assured these authors have not made glaring transgressions in their presentations of Piaget. In truth, Piaget did not address music or music-making in any major investigation relating to early learning and development.

Ironically, implications derived from this study suggest that young children’s music-making behavior is unequivocally aligned with many of Piaget’s core theories. This is especially true of Piaget’s genetic epistemology which is centered on the concept of “structure,”7 a primary element in music. Complementing Piaget’s stages (“broad periods in development”)8 that follow developmental changes, his theories on children’s

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7 The principle of Piaget’s equilibration is also interrelated to concepts of environmental structures that the child internalizes and reorganizes (Gallagher & Reid, 1981, p.30).
natural structure-building drives (e.g., “intellectual activities that form psychological structures”) serve as developmental constants across all stages. As this study shows, Piaget’s emphasis on structuralism finds strong analogues in the music-making behavior of young children, ages 2 – 8 years old.

During Piaget’s early work at the Binet Laboratory, he became intrigued with the patterns he saw in children’s wrong answers on the standardized intelligence tests. How interesting that, due to his discernment of specific patterns in children’s thinking, Piaget was able to move beyond the preconceived notions of his time that were used to define children. This same openness is essential in understanding young children’s music-making behavior, which according to the present data, also contains specific behavioral patterns that appear to reflect an awareness of and a desire to create auditory structures. Unless we are flexible enough to step away from the normative (adult-centric) modes of perceiving music, we will not be able to empathize with the perception young children have of their own music-making behavior and the developmental benefits it may hold for them. If we focus only on the musical product, i.e., the outcome of the behavior rather than the behavior itself, it is unlikely we will discover what may be a striking level of competence in young children’s musical perceptions. Interestingly, young children’s music-making suggests a poignant corollary to Gelson’s observation regarding early development, that behavioral limitations can easily mask early knowledge (2006, p.150). With music-making, it is more accurate to

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say that physical limitations that inhibit performance proficiency (which young children are not personally concerned with) are masking early perceptual capacities.\textsuperscript{10}

By applying Piaget’s constructivist theories to this present topic, a more realistic picture of the true nature of young children’s relationship with music begins to emerge. Conceivably, music-making behavior operationalizes constructivist development, wherein children internalize meaningful musical “structures” – which they help create as music-makers! Inferring from Piagetian theory, these musical structures will help the child construct meaning in the world on par with other structures encountered in the environment, both physical and psychological. Moreover, due to the inimitable nature of music, one could argue for a unique experience contained in building musical structures: they arise from a multidimensional context that includes sociocultural, affective, and psycho-motor factors as well as language-based, storytelling characteristics of songs. It seems plausible, then, that through their music-making behavior, powerful, developmental “vitamins” are added to the alleged assimilative and accommodative outcomes that Piaget attributes to such interactive experiences.

Piaget felt that the real problem of intelligence was to discover the methods of thinking used by children – modes that differentiate from those used by adults. Of course, he is not referring to learned, socially-imposed modes of thinking but rather naturalistic forms of thinking that are inherent in all children. This connects to Piaget’s

\textsuperscript{10} The “masking” I am referring to pertains to adult perceptions of young children and is compounded by the alleged biases in adults’ musical perceptions referred to earlier.
understanding that every living organism possesses biologically-endowed intelligence that is immediately available to each member of the species to mitigate problem solving in respect to their environment, presumably to enhance survival.

Piaget goes on to develop the importance of “structure” in several specific ways. For example, he observed that human infants have the ability to perform primary and secondary circular reactions, both of which involve repeated actions; first exclusively with their own bodies (e.g., hand sucking) and then with external objects. Piaget believed these patterns lead to beneficial, if not essential, developmental outcomes. The importance of these ideas in relation to this study lies in how they hypothesize the way an infant’s fundamental intelligence is initially activated through the creation of behavioral patterns, or what Piaget called schemes. Although he acknowledged this notion in respect to auditory structures, Piaget did not choose to rigorously pursue this line of investigation. If he had, he would have surely come to the realization that music is nothing if not a plethora of environmentally available structures easily accessed by the young child through auditory perception. Once processed cognitively, an auditory structure is not so different from other mental structures. Most music, especially songs, would not exist were it not for repetitive patterns. Fortuitously, this makes them especially developmentally friendly for children. Upon hearing a song, a young child may

\[\text{11 According to Piaget, a scheme is an organized pattern of behavior that even newborns are able to demonstrate (Ginsburg and Opper, 1988).}\]
automatically experience “secondary circular reactions”\textsuperscript{12} as she identifies recurring patterns. Young children’s music-making behaviors are more active and physical than receptive listening suggesting that these cognitively processed auditory “schemes” are meaningful, probably as much as the overtly physical examples Piaget used with younger children such as swinging an arm or kicking a foot.

From this, Piaget would have immediately understood the dynamic relationship a young child can potentially develop with a song simply by listening. Imagine, then, the vitalized process that emerges once a child reaches two-years-old and becomes more physically adept to participate in social music-making, actually becoming a co-creator of musical patterns, organization and structure. Research in neuroscience since Piaget has shown that the cognitive capacities of young children allow for the recognition (construction) of auditory patterns from human voices and music. Data gathered in the present study support these findings. It appears that when children respond to age-appropriate musical material, even for the first time, they are able to internalize the musical structure. This inference is based on data gathered during activities which showed a certain level of competency in the children’s ability to function immediately as co-creators of musical structures when following an adult music leader.\textsuperscript{13}

\begin{footnotesize}
\textsuperscript{12} The secondary circular reactions describe the infant’s new-found ability to develop schemes to reproduce interesting events which were initially discovered by chance in the external environment (Ginsburg and Opper, 1988, p. 43).

\textsuperscript{13} Learning by imitating and/or following an adult leader appears to engage natural mechanisms. The children I have observed did not need to be taught how to do this nor did they need to be taught how to apply this mechanism to music-making.
\end{footnotesize}
As this report suggests, Piaget’s literature is replete with references to “structure,” both physical and psychological. Therefore, at the risk of appearing to oversimplify one of the most complex thinkers of the 20th century, it can be said that Piaget’s theories of human intelligence are inextricably linked with perceptions of how human behavior is predisposed to create organization, patterns, and structures- be they physical or psychological, internal or external, intentional or unintentional. Now there is support for adding musical structures to this list.

It is tempting to use the data gleaned from this study to justify a potentially controversial hypothesis, i.e., that young children do not experience music as “art,” “artistic expression” or as a “performing art.” The basis for this argument arises from what some may believe to be a lack of ability in young children to exercise aesthetic judgment, a criterion that many adults defend as being essential to a concept of “art.” If for the moment we refrain from completely disassociating “art” and “music” in regard to young children, it would at least be more accurate to describe children’s relationship with music-making as a developmental art rather than a performing art (which is how it is typically understood by adults). Their immersion in “development” is well understood and the idea of “art” can be justified if we wish to acknowledge what appears to be their keen sensitivity to concepts of structure. Traditionally, there is no “art” in any medium without some recognizable sense of form, organization, or structure.\footnote{Allegedly, modernist composer John Cage was moved to test the boundaries of this convention by “composing” his infamous piece “4’33’” which had the orchestra sit silently for 4 minutes and 33 seconds. Members of the audience had the “freedom” to experience the presumed “soundless, formless”} Or it just may be
that a child perceives “art” in ways that fly under adults’ perceptual radar. In both cases, either the complete absence of “artistic/aesthetic perception” or a proprietary view of the same, we can draw support from Piaget’s conclusion that children have a qualitatively unique view and experience of the world that differs from adults’ views in significant ways. Piaget made important inroads into understanding children’s perceptions in this way and, as this study posits, should not preclude their perception of music.

Gallagher and Reid (1981) summarize Piaget’ notion of structure as “regularities in behavior across individual occurrences” (p. 53). By using number concepts to demonstrate, they explain how children interact with three characteristics of structures: wholeness (the ability to organize elements into a system), transformation (the ability to regroup elements without changing the essential character of the elements), and self-regulation (the ability to determine one’s interaction with the first two, i.e., organization and transformation).

If an interpretation of “structures” can manifest through a higher-level, intellectual concept such as numbers, it would seem logical that it can also manifest through a more primal, sensorimotor phenomenon such as sound – especially when musical composition in any way they wished. What did Cage prove? Indeed, it was “soundless” but, ironically, the very title of the work shows a continued dependence on organization given that the work began at a designated point in time and ended exactly four minutes and thirty-three seconds later – a very precise musical “structure.”
organized into music.\textsuperscript{15} This point is underscored by the fact that Piaget believed psychological structures are also characterized by the same three characteristics: “Human [mental] abilities are always organized into systems, and these systems can be transformed through self-regulation” (p.53.) (Underlines added). Based on data gathered for this study, regularities, organization, transformation, and self-regulation also describe the aspects or components that manifest when young children engage in music-making behavior.

It is important to note that Piaget believes the hereditary reflexes of infants are limited and must be stimulated by environmental experiences in order to develop “assimilation structures.”\textsuperscript{16} So how do children ages 2-7 move beyond the limitations of their neonatal reflexes, develop assimilation structures, gain early competences, and begin to develop their own “special system of thinking”\textsuperscript{17} that will mitigate future learning? Much research over the past fifty years has looked at early experience in an attempt to identify foundational experiences:

\textsuperscript{15} Given the inherent mathematical substructure of music, the connection between the mathematical examples given by Gallagher & Reid and music is more than metaphorical and, in some aspects, quite literal.

\textsuperscript{16} Gallagher and Reid (1981, p.26 ) explain Piaget’s notion of assimilation structures as the level of understanding that the child brings to the learning experience.

\textsuperscript{17} Gallagher and Reid (1981, p.1), speaking for Piagetians, say that what children are able to observe about the world is more dependent on what they already know – that is, on their own special system of thinking - than it is on what actually exists.
From birth to two and a half months, mothers touch and hold babies ... movements and utterances are simplified, repetitive, and regular (Dissanayake, 2000, p.392). The general encounter is soothing, gently playful and “proto-conversational” (Bateson, 1975).

Together, mother and baby practice and perfect their attunement by engaging in mutually improvised (jointly constructed) dyadic interactions in which each partner tracks the durations of movements...or vocal phrases and pauses (sounds and silences) of the other (Beebe, Jaffe, and Lachmann, 1992:72).

Studies with neonates and six-week old infants indicate that temporal organization composed of short cycles of attention and inattention underlies the earliest social interactions (Beebe, Stern, and Jaffe, 1979; Trevarthen, 1984).

Infants can respond to variations in frequency, intensity, duration, and temporal or spatial patterning of sounds (Papoušek and Papoušek, 1981:171). By at least two months they respond to rhythmically presented facial and body movements...(Beebe et al., 1982). Analyses of these interactions show that each partner [mother, child] is ... able to enter the temporal world and feeling state of the other (Beebe et al., 1985).
According to Dissanayake (2000) early social interactions provide a number of functional psychological and sociocultural benefits for infants that go far beyond the physical protection and care that are typically cited as the function of attachment. These include:

... [Introducing] the expressive (or prosodic) features of language...

(Fernald, 1992; Locke, 1996),

... Giv[ing] exposure to the prototypical and meaningful sounds and patterns of spoken language...

(Fernald, 1992)

Quite clearly, early interactions with adults are adaptively beneficial for infants (Hundeide, 1991). For example, vocal rhythmic matching ability at four months predicts attachment and cognition at one year (Beebe, Lachmann, and Jaffe, 1997).

It is striking how certain physical elements, behaviors, and inferential outcomes expressed in these earlier studies directly correlate to the analytical protocol constructed for the present study and support the hypothesis that certain early experiences may in fact nurture music-making predispositions in young children. Specifically, the evidence suggests that, through early experiences with caregivers, young children begin to spontaneously develop a
psychological infrastructure that is essential for future development and learning. With the experiences being both physical and social in nature (not necessarily but possibly involved with music), the young child’s reflexes are, according to Piaget, “rapidly transformed into structures” (Ginsburg & Opper, 1988, p. 24). These experiences are then responsible for formulating an underlying framework of physical and cognitive structures that are subsequently either utilized (assimilated) or modified (accommodated). The citations shown above suggest that organizations of sound and movement comprise core experiences that become part of a child’s cognitive infrastructure and allegedly help organize the child’s thought processes.

The path of development and maturation will of course eventually bring the child to a place where he or she WILL understand music as a performing art. The developmental threshold probably coincides with Piaget’s stage of “concrete operations” beginning at approximately 8 years old. But in the spirit (and science) of Piaget, it is important to recognize the complete kit of natural tools that preoperational children (ages 2-7 years old) possess which support their early learning and development. It appears that more tools are present than previously recognized that pertain to music-making behavior.

18 “Assimilation and accommodation are complementary...one assimilates an environmental event into a structure, and one accommodates a structure to the demands of the environment. Eventually, the organism tends toward equilibrium, aiming at a balance between existing structures and the requirements of the world” (Ginsburg and Opper, 1988, p. 25).
Let us pull a brief metaphor from our backyard: we observe a caterpillar munching away on a leaf. We know the caterpillar will someday become a butterfly; but to the caterpillar, that picture is only a story, not reality. The aesthetic splendor of the butterfly is the caterpillar’s destiny but *in the meantime (if we allow ourselves to imagine a musical caterpillar!),* the caterpillar has its own song to sing! So, too, do children have a relationship with music that is unique to whom *they* are, and valuable to *them* while still in the “caterpillar” stage. We adults, in our great anxiety to herald the arrival of Beethoven the Butterfly, just might be remiss by not connecting Piagetian theory to our musical little “caterpillars.” While it is natural for us to share music-making experiences with children based on the music we know (acculturation), we must be mindful that children’s optimal development comes when they are supported in such a way that they will initially experience *our* music in *their* way.

Internalizing structures encountered in the environment is what Piaget describes as *operational thinking* and is the proverbial “starting point” for acquiring knowledge. This study, along with other research, shows that children as young as two years old can learn specific songs to the degree that they remember them, recognize them, mentally track them, and “perform” them.\(^{19}\) It is especially interesting to note that the younger participants in this study (ages 2-4 years) who may not have been able to enunciate all the words in a song correctly, nor understand the meanings of some the words, nor

\(^{19}\) While it may seem like an issue of semantics, young children bring a very literal meaning to the idea of “playing” music. This is because their mindset is not geared toward “performing” so much as it is playing the “game” of music.
had the skill to sing the correct tones (pitches) of the melody, could nonetheless perform the song quite accurately in terms of the structure or what is referred to in musical terminology as the *form*. This was true of the “classic” songs that they were familiar with prior to the study (e.g., Twinkle, Twinkle Little Star) but, more importantly, also songs that were introduced to them for the first time. Within minutes of being invited to participate in songs they had never heard before, the very youngest children of the study, two and three years old, were following along using their voices and instruments – not with proficiency but with an apparent understanding. Admittedly, this study was not set up to determine how accurately they were learning and echoing the words or melodies of the songs. However, what the data shows is that they used remarkable abilities to learn and allegedly internalize the structures of the musical pieces almost instantaneously.

The environment affords young organisms indispensable opportunities to “practice” basic functions necessary for assuring survival. Music, however, is not about subsistence, it is about *flourishing*; stepping into magical, virtual, symbolic worlds of meaning and feeling. It seems completely logical that nature would not stop short after providing the young child with capacities that it needs to begin learning how to subsist and not also offer nascent but meaningful opportunities to begin sensing wholeness and connectedness (aesthetic perception) as human beings. In addition to experiencing *fun*, *laughter* and even feelings of *love*, it seems very plausible that episodes of “flourishing” might also come in the form of rudimentary experiences of aesthetic perceptions when
encountering music.\textsuperscript{20} Just as a mother’s lullaby might serve subtle developmental purposes for newborns,\textsuperscript{21} so too might music-making experiences for slightly older children between ages 2 to 7 years - experiences that involve a broader swatch of the community (peers and other adults) and more complex ideas - also serve important developmental purposes.

As stated earlier, the extraordinary body of work produced by Piaget offers a seemingly limitless pool of scientific data to draw from when investigating most aspects of early development. The remainder of this section on Piaget will present several additional ideas in bullet-point form.

Although not a literal overlay, there are clear parallels between children’s music-making behavior and Piaget’s model of cognitive development that he called the Spiral of Knowing. The diagram of the spiral shows two outer layers which represent interactions with the environment. The requisite social environment for an authentic music-making experience for young children conforms to those outer layers. The inner spiral of the cone represents “internal construction in the form of reflective abstraction\textsuperscript{22} with its successive projections and reorganizations...” (Ginsburg and Opper, 1988, p.232). Surprisingly soon into the music-making, the children’s

\textsuperscript{20} See Chapter 9 which references Humphrey’s Theory of Natural Aesthetic, a view that completely embraces the possibility of young children’s aesthetic perceptions.

\textsuperscript{21} It is possible when a mother’s intuition moves her to sing lullabies, she may not only soothe her baby emotionally but also provide what may be some of her infant’s earliest cognitive development.

\textsuperscript{22} Reflexive abstraction is the process through which one derives information from one’s own actions and from the coordination of actions (Gallaher and Reid, 1981, p.235).
accompaniment, vocal or instrumental, becomes intermittently concurrent and synchronized with the Music Leader. However, their immaturity causes inconsistency in their performance which, for the sake of the research, is not a liability! This is based on the fact that they may stop and start according to their own inclination, in effect creating a structure within a structure. There are, of course, maturational differences between 2-year-olds and 7-year olds, appearing mainly as greater consistency and accuracy in their physical execution as they gradually move toward adult norms. Close observation reveals that, while their individual contributions are made with varying degrees of musical cohesion, they are not inherently random. In fact, just the reverse is true. Accounting for individual variations, the net effect as they follow the adult Music Leader unfolds into relatively high levels of musical cohesion. Young children continually demonstrate their capabilities to become attuned to the unfolding musical organization and to internalize the “parent” structure throughout their idiosyncratic performances, further demonstrating they are not playing robotically or submissively in response to demands made by the Music Leader. (Appropriate invitations and encouragement to join in by the adult Music Leader are hardly authoritarian, resembling more of a soft, supportive “coaching” approach.) The children literally flow in and out of the “parent” structure, with no sense of being “lost” even though there are intermittent occurrences.

Further studies are needed. Currently, there is no basis to assume that the internal, psychological, developmental impact of the music-making experience is any greater for older children or adult because they are more consistent and accurate in their external execution of music structures than it is for younger children who, by an outside observer, are perceived to be less consistent and accurate in the same behavior.
of starting and stopping independently. Still, the prevailing musical cohesion affirms that
the general awareness of the group is not coincidental; the children seem to experience
*reflective abstraction* derived from the auditorily-perceived musical form that is
unfolding around them through alternating episodes of “sound/no sound.” The activity
is temporal and linear and they appear to “project” and “reorganize” their contributions
freely. Based on their persistence and recidivism, the experience appears to be
meaningful, pleasant, and at times even exciting.

Earlier in this section, it was suggested that music, and especially songs, is by its
very nature developmentally “friendly” to children due to the prominence of patterns
(structural repetitions). Similarly, there are characteristics of music, and especially
songs, that allow it to function as a natural bridge between two stages of development
as identified by Piaget, namely the preoperational and concrete operational stages.
According to Ginsburg and Opper (1988), Piaget expressed the primary difference
between these two stages in terms of reversibility. Piaget believes the preoperational
child is able to internalize structures but her thought process lacks *reversibility.* He
demonstrated this through many interactions with children involving concepts including
conservation, classification and categorization. Had Piaget explored children’s music-
making behavior, his investigations may have drawn attention to the fact that music is a
structural phenomenon that, by its very nature, precludes reversibility. Of course many
types of rhythm patterns or musical phrases can be articulated “backwards.” However,
such phrases are only seen as “reversed” through analysis. In performance they are
simply experienced as discrete musical expressions. While engaged in music-making
behavior, the older child in the concrete operations stage will build musical structures temporally and linearly without the function of reversibility just as the younger preoperational child does, thereby showing how music-making behavior serves as an experiential “bridge” between the two developmental stages.

Piaget’s contribution in defining the qualitative uniqueness of children cannot be overstated. He points out again and again the differences between adults and children in regard to distinctive mental structures and concomitant views and experiences of reality. These differences are demonstrated in such basic concepts as conservation, classification, and number, extending into the use of language and thinking. It only seems logical, then, that children may also have a qualitatively unique relationship with music and that their music-making behavior is addressing their unique needs and is not simply a quantitatively inferior representation of adult musical needs. The scope of the present study does not extend to the point of clearly defining this difference. It seems, however, that by positing the possibility that children do not regard music as artistic or cultural expression, yet do embrace it as a basic behavior, we are at least adhering to fundamental Piagetian thinking.

We take from Piaget in no uncertain terms that children must be understood on their own terms. Would it not leave a hole in the middle of Piaget’s thesis if we are neglectful in applying this standard to the child’s relationship with music? This study suggests the possibility that children have maintained a tacit, unexpressed relationship with music throughout the course of human history. Building on incremental steps, especially in the wake of contemporary research by Piaget and others, we are gaining
new information that encourage taking a fresh look at this relationship. On the one hand, the abstract realm of quantum physics is offering us startling, unprecedented answers to fundamental concepts. On the other hand, there are very real, not-so-abstract children living and playing all around us. As Piaget seemed to realize, far from being the “empty vessels” as defined by earlier thinking, young children, too, are contributors of unprecedented answers – if we have the eyes to see and, more relevant to this investigation, the ears to listen.
CHAPTER 4

Vygotsky
Like Piaget, it appears that Vygotsky did not conduct studies for the purpose of exploring young children’s music-making behavior as it relates to early development. Also like Piaget, he certainly could have simply by redirecting his work accordingly. This statement is made in light of the present study that identifies significant ideas and insights embedded in Vygotsky’s corpus of literature that are immediately relevant to a new perspective of young children’s music-making behavior. However, lacking direct input by Vygotsky, this only becomes meaningful through interpretation. For example, Vygotsky’s theory on “word meaning” can be reinterpreted through children's music-making behavior thereby creating a nexus between this specialized behavior and general cognitive development.

I. An important Vygotskian principle refers to the genetic, or developmental, method. According to Blanck (in Moll, 1990), Vygotsky drew this idea from the Marxist notion that the essence of any phenomenon can be captured only through studying its origin and development (p. 46). This line of thinking affords an overlap with Piaget who holds a similar belief but is more specific in his phenomenon of interest. Piaget believes that a full understanding of human knowledge can be gained only through the study of its formation and evolution in childhood (Ginsburg and Opper, 1988, p. 5). While not a primary focus of this study, the idea of looking at the evolutionary roots of music-making behavior is compelling. We can begin a brief foray into how this notion connects to the present topic by simply adjusting the language: A full understanding of children’s
predisposition to engage in music-making behavior can only come from a study of how the origins and development of music might connect to early childhood development.

As it stands today, the true origins of music and music-making remain elusive. There are, of course, insights gleaned from extant instruments of early civilizations such as Sumeria. Also, etchings and hieroglyphs of music-makers on vases or walls from ancient Egypt and ancient Greece are helpful for gaining some sense of music-making in antiquity. However, these examples are still temporally removed from music’s origins. The authoritative “start dates” of these civilizations, 5300 BC, 3150 BC and 1900 BC respectively, occur well after 36,000 – 50,000 years ago believed to be the putative epoch of the oldest found musical instrument, a bone flute (Kunej and Turk, 2000). Continuing backward in time, percussion instruments (e.g., drums and rattles) as well as musical or proto-musical vocalizing would most likely have predated the invention of flutes (Levitin, 2006, p.250). The seminal, comprehensive The Origins of Music (Wallis, Merker, & Brown, 2000), having attempted to reinvigorate and legitimatize the field of evolutionary biomusicology, makes clear that there is no global consensus on the origins of music. The editors of the book agree that even today we are still in an early stage in the exploration of the origins of music.

24 Still in existence today are instruments such as the lyre from ancient Sumeria, present day Iraq, estimated to be constructed in 2650 BC (Retrieved August 9, 2012, www.williamsound.com/gold_lyre_intro.html).

25 Kunej & Turk (2000) have no doubt that the beginning of music extends back into the Paleolithic period “tens of thousands of years into the past.” They believe an archaeological find from the Geissenklösterle cave in southern Germany has provided a flute, made from a wing bone of large bird, that may present an example of what may be the first intentionally produced musical instruments, dating back to 36,000 years ago. Mithen (2006) cites the same finding and concurs on the date. Though more controversial, Kunej & Turk (2000) and Levitin (2006) cite a bone flute from the femur of a now extinct Slovenian cave bear excavated in 1995 that radio-carbon dating puts at almost 50,000 years old.
In the face of this admission, the collaborative effort of twenty-eight international scholars – all leading researchers in related fields – were able to infuse the 500-page *The Origins of Music* with a range of views that, collectively, present an insightful, bio-evolutionary perspective of the richly complex and allegedly social origins of human music-making. It is significant to this study that certain inferential conclusions expressed in these theories place young children in a direct, biologically-endowed, socially-nurtured relationship with music. Such information is highly relevant in that it supports an unconventional notion: while historically the practice of music has been dominated by adults, with children naturally relegated to the roles of recipients and learners, evidence emerging from studies on the origins of music generally casts children as an active body of musical practitioners in their own right. Refuting Darwin’s characterization of music as “mysterious” due to his inability to perceive in it any application to “daily habits of life” (Darwin, 1885), Dissanayake (2000) states:

*I suggest that the enjoyment and capacity of producing musical notes are faculties of indispensable use in the daily habits of life of countless women, especially mothers, and their infants, and that it is in the evolution of affiliative interactions between mothers and infants – not male competition or adult*

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26 It cannot be assumed that theories of socially-derived music origins will automatically support the current study. For example, studies centered on the musical complicity in sexual or mate attraction obviously have social relevance. Yet, children are still far from reaching their sexual maturity during the period that coincides with Piaget’s preoperational stage (2-7 years old), the range of this investigation. Therefore, any theories that focus on mate-selection in regard to early musical imperatives although “socially derived” would immediately preclude young children who, by deduction, would have no “need” of music.
courtships – that we can discover the origins of the competencies and sensitivities that gave rise to human music (p.389).

Dissanayake’s expanded definition of music emphasizes “sequential behaviors” and “patterned movements” and is congruent with the views of this study. Her assumptions also align with Trehub (2000) who reports,

Although music may seem irrelevant to the lives of infants, it is not. A number of similarities in musical pattern perception between adults with extensive exposure to music and infants with minimal exposure suggest a biological basis for several aspects of music processing...[The] pitch contour of a melody seems to be central to its identity. Rhythm also makes important contributions to the identity of a pattern. We know that infants can perceive ...relevant acoustic distinctions...[exhibiting] preferences for different musical materials (pp.427, 430, 439).

Evidently, perspectives emerging from evolutionary, bio-musicological studies help foster the perception that children are not solely dependent on adults for nurturing their relationship with music but, instead, have a musical birthright that is functional immediately – though certainly not as artistic expression, the function of music that adults are most familiar with. And, while the youngest infants do not have the necessary physiological development to function as music-makers, the present study demonstrates that by two years old they have indeed arrived at that point. Nonetheless, looking into the eyes of a young child and seeing a person who is endowed with certain
musical predispositions in itself means nothing. This scientific discovery will remain on
the shelf as an intellectual artifact unless it is operationalized by educators, early
childhood practitioners and parents.

To summarize this section, then, we can use Vygotsky’s genetic method to
support the hypothesis that the socially mitigated interactions that young children use
to authenticate their music-making behavior, may link to both biologically and socially
informed antecedents in early human cultures. Due to strongly rooted adult biases
toward music, we may need this more native perspective to help us to understand the
true nature of a young child’s relationship with music. Arguably, the early music-making
needs of children are not based on notions of “performing art” or “artistic expression”
but rather more incipient, rudimentary, socially-based “affiliative interactions,”
“ritualized packages of sequential behaviors,” and “multi-modal [activities] of
temporally patterned movements” (Dissanayake, 2000, p. 390). While this study does
not attempt to substantiate these assumptions, it does show how the principle of
Vygotsky’s genetic method, when applied in this context, may help move us toward a
more meaningful validation of music-making behavior in early development.

II. In his seminal text, Thought and Language (1934/1986), Vygotsky states, “The
child’s intellectual growth is contingent on his mastering the social means of thought,
that is, language.” (p. 94) (Emphasis added.) Encouraged by the present study, we can
propose an imaginary occurrence wherein Vygotsky concludes this same statement by
saying “...that is, music.” Framed as a question, is it possible that music, like language,
also contains social thought to the extent that “mastering” it – or, in regards to young children, simply participating in making it - will promote intellectual growth?

A discussion springing from this hypothesis must center on whether any legitimacy can be given to a functional correlation between music, social thought, and intellectual growth. Taking a cue from Vygotsky, it seems necessary to step into this exploration by using language as a model. Although music is often referred to colloquially as a “universal language,” linguistic pundits might be quick to point out that music is not a real language because it does not function in certain critical ways like a language should function. A likely claim would be that music cannot express many of the important nuanced messages necessary for complex human social communication. With no intention to discredit the logic of this argument, it nonetheless seems to emanate from the view that the sole purpose of language is for communication, primarily a social function. However, Vygotsky and other scholars also see language as facilitating the construction of meaning, which Vygotsky refers to as “the intellectual [intra-psychological] function of speech” (1934/1986, p.7). Is it possible, then, that music-making behavior can also produce certain non-social, intra-psychological outcomes?

In pursuing a greater understanding of the interrelationship between thought and language, Vygotsky (1934/1986) was critical of what he called the old psychology (referring to the late 19th and early 20th centuries) because of its failure to see beyond the two obvious, but in his view erroneous, tendencies toward the “fusion of thought and speech on the one hand [and the] disjunction or segregation” of the same on the
other hand (1934/1986, p. 2). In other words, Vygotsky believed it was misleading to lump thought and speech together, effectively obliterating the distinction, or conversely, to keep them conceptually isolated, never acknowledging their unity. This dialectic moved Vygotsky to lobby the field of psychology to replace the method he described as *analysis-into-elements* with a more enlightened *analysis-into-units* method. Vygotsky saw this as a solution to the “thought and language” conundrum. By understanding thought and language unitarily, said Vygotsky, it would not lead psychology down a “dead end” with nothing left but “to search out the mechanical interaction of the two elements in the hope of reconstructing…the vanished properties of the whole” (1934/1986, p. 4). Vygotsky believed that by recognizing *word meaning* as a unifying concept between thought and language, the living union of sound and meaning would be upheld, thereby mitigating an understanding of this abstruse relation. Vygotsky (1934/1986) states:

*Few investigations of this internal aspect of speech have been undertaken so far.*

*Word meaning has been lost in the ocean of all other aspects of consciousness...In the word we recognized only its external side. Yet it is in the internal aspect, in word meaning, that thought and speech unite into verbal thought.* (pp. 5-6).

In these words, Vygotsky sets the stage for us to co-opt this hypothesis for application to the music-making behavior of young children. It is not difficult to
extrapolate key points regarding language and map them into a music-specific context, especially in the light of ubiquitous general agreements such as 1) no known historical human culture lacked music, 2) no extant human culture lacks music, 3) all human beings are capable of creating and responding to music and, 4) music is a “highly multifunctional adaptation serving a large diversity of functional roles in all cultures” (Wallin, Merker, & Brown, 2000, p.11). Additionally, neurological studies demonstrate the brain’s specificity for music (Peretz, 1993; Peretz and Morais, 1993). It is interesting to note that in these last five examples, the word “language” could easily be inserted in each instance where “music” appears (in boldface) and still be factual!

It seems reasonable to assert that, paralleling Vygotsky’s notion of verbal thought, “musical thought” would also be best understood through a unitary analysis where “music phrase” replaces “word” as the primary vehicle of meaning when applied to children’s music-making behavior. By replacing Vygotsky’s concept of “word” with “music phrase,” we see first of all that a “music-phrase” to a young music-maker who is actively creating it is different from when it is received as an auditory stimulus from an external source. If it is assumed that a music phrase possesses the nature of a generalization as does “word,” then it will not simply refer to a particular musical object but rather to a class of musical objects. Generalization, according to Vygotsky, actualizes thought and “reflects reality in quite another way than sensation and perception reflect.

27 A musical phrase is not a pure element but rather a combination of elements (a “unit”) consisting of an amalgamation sound and rhythm as well as other possible elements.
it” (1934/1986, p.6). Thus, Vygotsky might agree that, when seen through this
generalized reflection of reality, a child creating a music phrase is engaged in “musical
thought” and the construction of meaning. Simply stated, by taking the liberty to
interpret “music phrase” as a generalization, we can assume that its construction can
operationalize thought and meaning. Through this interpretation of Vygotsky’s analysis
of word-meaning, we can recognize “music phrase” as the internal aspect of music
which, when constructed by the young music-maker, becomes a catalytic event
allegedly uniting musical thought and musical meaning.

An assumption we can extrapolate from this is that the child’s music-making
behavior - not the product or outcome of the behavior – can reveal the “internal aspect”
of music in children. It is the integrative process in the cognitive domain, in which young
children become immersed when making music; essentially constructing musical
phrases where the musical meaning arises from the juxtaposition of sound and
structure. (Music is structured through both rhythm and form.)

Another statement by Vygotsky (1934/1986) can be used to present the unitary,
or dualistic, process of music-making, albeit indirectly, by again using the concept of
language as a template:
Meaning is an inalienable part of word as such, and thus it belongs in the realm of language as much as in the realm of thought. A word without meaning is an empty sound, no longer a part of human speech (p.6).

This statement is particularly useful for helping us construct pertinent questions relating to the present topic:

1. Where does musical meaning lie?
2. Like “word,” is music without meaning also an ‘empty sound’?
3. Can music, like language, also share cognitive space with thought and foster intellectual growth?
4. If music has meaning then, like language, does it also belong as much in the realm of thought as in the realm of communication—especially for young children who are in the midst of critical development?

Because Vygotsky did not address music, it is necessary to explore outside his body of work in order to find analogous thinking in the field of music. Again, there appears to be relations within current literature of evolutionary bio-musicology. For example, Brown (2000) supports the proposition posited here by presenting what can be seen as a theoretical bridge from Vygotsky's original hypothesis regarding thought and language over into the realm of music. The basis for the bridge is a belief Brown shares with other researchers, i.e., that language and music share a common human behavioral ancestor. Brown calls this ancestor “musilanguage” which he describes as “a system containing both rudimentary referential and sound emotion properties such that
it might be a reasonable precursor for the evolution of both music and language” (p.279). While it is not possible or necessary to parse out Brown’s entire theory, some core ideas are germane to this discussion.

Brown (2000) submits that there are two different modes of perceiving, producing, and responding to musical sound patterns. The first he calls the “acoustic mode” which addresses emotive meaning in sound production and perception including musical sound patterns. The other is the “vehicle mode” which involves referential meaning in the context of musical performance and contents of musical works. Elaborating on his concept of the “vehicle mode,” Brown states,

*It is a representational mode of music operation that results from the influence of human linguistic capacity on music cognition (p. 271).*

Brown further indicates that it is this linguistic association that allows for “verbal song” - songs with words or words with music - to fall within the “vehicle mode” construct.

We can begin to see how this connects to the foundational aspects of young children’s relationship with music. Young children respond first and foremost to the sense-based sounds and rhythms of music and the way these elements are structured to elicit emotive responses (acoustic mode). They are further attracted by the language content in songs that carries the symbolic and referential meaning of age-appropriate images which quickly become attached to specific music (vehicle mode). There are many examples to be found among the children. In the song “Itsy Bitsy Spider,” children as
young as two years old become intrigued with a little spider climbing up the water spout. But what if those words were placed in another musical context, such as one with “dark,” melancholy minor chords, quickly shifting rhythms and/or unusually large or erratic intervallic “skips” in the melody? Most likely the cute little spider would quickly lose his young audience. This and many similar examples give credence to the unique relationship young children have with words when they are attached to music.

Evidence of their self-identity as music-makers is seen by closely observing a group of young children as they engage in making music. It becomes obvious that their enthusiasm and enjoyment of manipulating the core elements - sound, rhythm, and form - are not dampened because their performance proficiency - tonal and rhythmic consistency and accuracy - is substandard to an adult’s performance. Although exposed to adult models all the time, children either do not perceive or are not concerned with many nuanced qualities that inform these adult standards. In the same way they are not deterred from talking because their language skills are undeveloped, so, too, they are not deterred from making music. Their self-perceptions of their musical “glass” is half full, presumably because they are able to first perceive and then satisfactorily, according to their own needs, construct musical sounds, rhythms, and structures.

Drawing from Deacon’s (1996) counterintuitive view on the advantage children have in learning language due to natural limitations, it seems reasonable to apply his logic to children and music. Is it possible that certain natural limitations allow young children favorable access to music-making experiences (in both the acoustic mode and
the vehicle mode) that they might otherwise eschew if their music-making perceptions were too far ahead or behind their physical development? In accord with Deacon’s hypothesis regarding language, young children seem to have a natural acceptance of their own musical “limitations” (which, of course, they do not experience as limitations). There is what appears to be a partnership, if you will, between the biological and psychological realms that guide young children in their efforts to be music-makers, seemingly in support of a greater developmental agenda that is not just psychological but also social. There are analogs outside of music. For example, if young children were not limited in their ability to create their own stories, there would be an unimaginable breach in adults' efforts to convey significant cultural signs and symbols to young children through storytelling, a suppression of creative personal approaches to storytelling by adults, and a loss of important social bonding between adults and children.

Based on direct observations during the field research conducted for this study, it is evident that young children thoroughly enjoy and seemingly value the act of structuring the musical sounds they are able to make, usually with voices, body, and age-appropriate instruments and are not concerned with what they can’t do. Because their abilities are congruent with their level of perception, their music-making is a “perfect storm” of development. Perhaps the successful synchronization of physical and cognitive skills that enable a group of children to perceive and construct musical forms
together - in effect meeting personal challenges and resolving benign “aesthetic” incongruities in a social context - is what helps them to “mark” the behavior as meaningful.

Adhering to the notion of an evolutionary “point of convergence” for music and language, Brown introduces the ideas “combinatorial syntax” and “intonational phrasing.” He explains:

*In both language and music, the phrase is the basic unit of structure and function. It is what makes speaking and singing different from grunting and screaming. In both, a limited repertoire of discrete units is chosen out of an infinite number of possible acoustic elements, such that phrases are generated through combinatorial arrangements of these unitary elements. Thus, the use of discrete building blocks and the generation of higher-order structures through combinatorial rules is a major point of similarity between music and language (p. 273).*

Descriptions like this seem foreign to music aficionados because Brown is not describing the artistically sublime offerings of master musicians but rather the deeply-

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28 Even though the construction of musical forms occurs simply by vocalizing, this action seems to be most palpable and therefore most effective when the children are using age-appropriate percussion instruments as they follow the adult Music Leader.

29 Brown suggests “phrase” as the smallest unit of meaning in language similarly to the way Vygotsky uses “word.” This discrepancy is not significant in that it is reasonable to argue that a single word that conveys meaning is, essentially, the smallest phrase possible as when someone utters the command, “Stop!”
rooted, “bio-evolutionary” musical processes that pertain to everyone, including young children and adults who are not musically trained. The link to Vygotskian doctrine is strongly avowed as Brown (2000) explains how “the properties of combinatorial syntax and intonational phrasing set the stage for the overall structural features of both music and language” (p.273) and the concomitant cognitive organization:

Both systems function on two separate levels...that...emerge out of a common set of principles....One plane is the phonological level and the other is the meaning level....The meaning level is where these acoustic elements are interpreted for higher-order signification in a context-dependent and cultural fashion (p.273).  

Is the meaning that is inherent in the musical phrase, i.e., the simplest structure of musical ideas, comparable to Vygotsky's description of the meaning inherent in “word”? The data suggests there is a logical basis to assume it is. This is especially true for young music-makers who, despite maturational limitations, seem to select certain salient elements and filter out other nuanced elements that are more attractive to

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30 It is striking that although Brown is not at all concerned with Vygotsky, Montessori, or early childhood development in general, there is a similarity in the way he expresses certain concepts – sometimes even with similar language – to both Vygotsky and Montessori. Thus, we have an evolutionary bio-musicologist finding common ground with two 20th century developmental psychologists 70-80 years later!

31 This is not a discussion of simply juxtaposing words and music as when lyrics are tied to musical notes in songs. This is a related but different concept that children are also capable of participating in. Here we are creating an analogy based on the meaningful structures of language – beginning with words – and the meaningful structures of music beginning with musical phrases. Both of these structures become meaningful mental events even though we can assume that the so-called “phrase meaning” of music is less complex and less literal than the “word meaning” in language.
adults yet not essential for basic music-making. It may be that the simple, yet musically rich sounds (elements) of familiar percussion instruments empower children by giving them the ability to be in control when creating musical organization. Passing no self-judgment on the product of their music-making behavior, young children allegedly become engaged, naturally and willingly, in formulating and internalizing musical structures. Allegedly this begins at the phrase level, a musical element identified not just by sound but by its basic organizational function. It is the young music-makers (as much as, if not more than, a real or hypothetical audience) who are allegedly processing socially created patterns of sounds into the realm of thought, i.e., “acoustic elements...interpreted for higher-order signification” (Brown, 2000, p.273). It seems that Vygotsky can be confident in knowing that the musical sounds created by the children are, in fact, not empty and ultimately become part of a repertoire of social self-expression that simultaneously reap generous intra-psychological developmental benefits.

Again, it is interesting to note how the transmission of Vygotskian concepts to music-making in early development is clearly linked to core Piagetian principles, namely the internalization of environmental structures, which in this case are musical structures. There are clearly assimilative and accommodative features inherent in children’s music-making behavior which, according to Piagetian theory, are essential factors in development.
III. The Zone of Proximal Development is a major Vygotskian concept that finds a unique and strongly relevant expression in young children’s music-making behavior.

A casual observer sees a group of young children being musically engaged as they accompany an adult Music Leader using age-appropriate percussion instruments to make sounds and rhythms. Normative thinking “knows” a priori that these children are much too young to produce “serious” music. In fact, real music is not even the point according to this thinking; children love to pretend many things and pretending to play music falls right in line with that imperative. The onlooker probably doesn't think too much about the deeper implications. Admittedly, on the surface (the external aspect), young children's music-making behavior is very cute and the children certainly look like they are having fun. Normative thinking might categorize this activity as an excellent recreational device to be used in-between doing the “real” work of learning. And, of course, the bonus of music-play is that it offers the children “early exposure” to the arts. A concerned observer might even go so far as to believe that for some of the “lucky ones” there will be a pay-off at some point in the future if the current experience encourages those children to eventually “get serious” with music.

So, what are the deeper implications? Lacking guidance from Vygotskian perspectives, our hypothetical observer does not consider the “internal aspect” of musical meaning that is very real, right now, in the present moment of these children's lives; musical meaning the child does not experience as a listener/consumer but rather as an active creator; musical meaning made possible through current levels of skills and
perceptions. Initially, this observer is probably focused on what Vygotsky referred to as the children’s *actual* level of development. What is completely invisible to this observer is the children's *potential* level of development; invisible, that is, unless the observer is able to recognize that the children have been invited into a musical Zone of Proximal Development.

Vygotsky sits among a group of early-to-mid 20th century thinkers (including Piaget and Montessori) who are considered early harbingers of play advocacy. Now, in the 21st century, most child development professionals understand the importance of children’s play, summarized simply but powerfully when Vygotsky wrote, “The influence of play on a child’s development is enormous” (1978, p. 96).

Some play advocates justifiably distinguish between “structured” play and “free” play. In regard to the latter, through research and practice, many speak with conviction about the absolute necessity that children be given opportunities to “be themselves” away from constant adult direction (though not without supervision) and just play “freely,” alone or with playmates.

It seems this notion of freedom in play has analogs in arts education, including early childhood music education where it becomes translated into the idea of “free expression.” Arguably, this view has helped early childhood educators sustain over many years the idea of a classroom “music center,” an area in the preschool classroom, either permanent or rotational with other activities, which makes available an assortment of appropriate musical instruments for children to use at their own discretion. (Typically the instruments are age-appropriate percussion instruments such
as drums, maracas, and tambourines.) The purpose of the music center is for children to freely explore and, presumably, tap into their natural sense of music. Without a doubt, countless children in myriad classrooms have not only enjoyed their time spent in such music centers but have also benefited developmentally by doing so. As we will see, however, the full potency of using these instruments is realized only with adult guidance and leadership.

There are several details worth discussing in regard to music centers, children's music-making behavior and Vygotsky's Zone of Proximal Development (ZPD). Firstly, as a general statement it can be said that there is no better example of the force and relevance of the ZPD theory then that which can be found in young children’s music-making behavior as presented in the research activities for this study which used many instruments but did not emphasize “free exploration.” Secondly, an inverse claim says that the idea of a free choice/free exploration classroom music center can never be considered a Zone of Proximal Development. In fact, such a classroom music center accurately describes the condition that contrasts a ZPD in that it provides children with opportunities to display what Vygotsky calls their actual developmental level or, the point which shows “a child’s mental functions that have been established as a result of certain already completed developmental cycles” (Vygotsky, 1978, p. 85). (Emphasis in original.) In this study, of course, we are not focusing on children’s general mental functions (although they obviously have some bearing) but specifically those mental functions associated with their relationship with music and which affect their music-making behavior.
In Mind In Society (1978), Vygotsky criticizes the thinking that contends “only those things that children can do on their own are indicative of mental abilities” (p.85). Translating this for our purpose here, it seems obvious that allowing a child to “freely explore” with musical instruments is making an assumption that their explorations are at the fullest extent of their current music-making abilities. While independent exploration allows the emergence of music-related functions that have already matured, i.e., the “end products of development” (p.86), such activities forgo what Vygotsky (1978) describes as

...those functions that have not yet matured but are in the process of maturation, functions that will mature tomorrow but are currently in an embryonic state...functions [that] could be termed the ‘buds’ or ‘flowers’ of development rather than the ‘fruits’ of development (p.86).

It is evident why an adult Music Leader functions as the catalyst who creates a musical ZPD for the children. To paraphrase that which Vygotsky adamantly expounds in more general ways, adult guidance and leadership in music-making is not subjecting young children to unnatural or inappropriate experiences if children are ready to be in the “zone.” By contrast, urging young children through what might be an adult-level physical obstacle course for the sake of promoting accelerated physical development is not a ZPD.32 A true ZPD occurs when children, along with adults or older peers, are

32 It would of course be possible for an adult-facilitated, age-appropriate exercise regimentation to provide a ZPD for children’s physical development.
guided into activities that are designed to allow them to solve problems successfully and learn in ways that *they* can recognize and understand. It is only then that their performance capacities are raised to a level of potential development.

A full exposition on *play*, even if delimited to Vygotsky’s literature, is beyond the scope of this review. There are, however, some thoughts on play offered by Vygotsky that connect to another aspect of a musical ZPD as set forth in this study. Vygotsky stated that “there is no such thing as play without rules” and “The simplest game with rules immediately turns into an imaginary situation …” (1978, p. 95).

An important question arising from this investigation, particularly for early childhood education, is whether a child's early, natural perception of music isn't more like a game than a “performing art.” Based on cultural norms, it is clear that the idea of “art” carries with it certain connotations and it is also true that young children are not considered to be makers of authentic “art.” They are, however, considered to be makers of authentic *play* and, by virtue of data drawn from this study, also authentic music-makers. When something is “authentic” it means we can understand it in terms of its own nature. If naturalistic observations of children are valid, then music-making is clearly a part of children’s nature; it is not latent but hovering just beneath the surface of children’s need for active expression, ready to be released in a musical ZPD.

33 Using the word “art” here is not intended as a specific reference to visual art, e.g., drawing or painting, but rather as a general reference to all the art disciplines which ultimately become judged according to adult standards and perceptions.
Translating Vygotsky’s thoughts on play to the present subject inspires an equation for validating children’s music-making behavior: Play is part of children’s nature; play has rules. Music is part of children’s nature; music has “rules.” Rules are essentially algorithms, step by step procedures for creating organization or structure. In music, the “rules” of a particular song are determined by its lyrics, melody, rhythm, and form, i.e., its identifiable auditory “design” that young children are able to recognize.

Paradoxically, music also has game “pieces” in the form of instruments. Maracas move way beyond the iconic “baby rattles” in their potential to offer significant developmental leaps for young children through authentic music-making experiences. Even in board games, the game pieces help to define and enhance the experience. After the roll of the dice, does anyone want to use their finger to count to the number of squares to move? How much fun is that compared to having to move YOUR marker to that same square? We cannot condescend about using game pieces when brilliant adult minds have been playing chess with Knights, Kings, and Queens, etc. for centuries – some carved out of pure ivory or embellished with gold making them worth thousands of dollars; hardly child’s play! When, by free selection, a young child is able to claim a pair of maracas – or a drum or tambourine – as “my instrument” for the duration of a music-making session, the experience becomes very personalized and marks the event in a special way. Although adults know that the human voice is one of the most powerful sources of music throughout the world, young children do not. Many are still timid when using their voices for talking let alone singing. For certain children, the small
percussion instrument becomes the “game piece” for successfully playing the game of music with peers and adults; it becomes a key for releasing latent music-making skills.

The idea that children, ages 2-7 years, are receptive to the “rules” for playing music is supported in this study through observations of their ability to learn, follow, and contribute to new musical material virtually instantaneously by following an adult Music Leader. Evidence that young children actually internalize these rules/structures is inferred from these same observations given how, within minutes, they are performing with voices and instruments simultaneously with the Music Leader or, in some instances, preemptively but in any case with a relative degree of proficiency that is often quite impressive.

Although there is no control group for this study, certain assertions can be made: Given the nature of the musical structures presented to participants – with repetitive patterns and multiple occasions of precise stopping and starting – it is highly unlikely that the participants in this study or similar children would be able to create the music they did as a collective body outside of a musical ZPD. With no sense of a “contest” or quantitative measuring, the children proved themselves to be ready, willing and very able to simply play the “game” of music by following the Music Leader in the musical

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34 There is always a “sliding scale” of ability in a musical ZPD. Two year olds can do very little in terms of making authentic music without a Music Leader. By the time they reach 7 years old, they have the physical and musical maturity to do more on their own if they can muster the social maturity to follow a peer who would be contemporaneously ”voted in” to function as a Music Leader. Yet, given the level of social maturity, it appears that children in the 2-7 old year age range still prefer to follow an adult Music Leader who is then able to take them beyond their current abilities for creating authentic music collectively.
ZPD: they started and stopped their instruments and voices multiple times within each particular song, and in different ways from one song to another; they followed along with their instruments with relative accuracy, executing rhythm patterns derived from language phrases they had just learned. (I hope Lev was watching. I know he would be very pleased.)

A musical ZPD is not a contrived application of Vygotsky's theory hanging tenuously on the fringes of a grand idea. In effect, it speaks to the very heart of Vygotsky's pedagogy which harkens back to the Marxist philosophy so important in the formulation of his thinking. What Marx expressed with political intentions (Vygotsky, 1978), Vygotsky saw as a scientific resource and turned it into his sociocultural theory of higher mental processes. Basically, Vygotsky saw Marx's thinking as a way to explain how the transformation of elementary psychological processes, natural to human beings, evolve into complex ones as a result of changes in thought and language arising from the absorption of culture. Succinctly put, "the mechanism of individual developmental change is rooted in society and culture (Vygotsky, 1978, p. 7)."

Music making would seem to conform to what Vygotsky was describing. It is evident that a musical ZPD provides a unique manifestation of sociocultural development. First of all, music in all its forms is a cultural tool. Secondly, songs composed for children are not only specialized cultural tools for children but, as suggested here, a specialized tool of developmental as well. A third consideration of development occurs when children are given the chance to employ simple "tools" or
“manipulatives” of music-making such as drums, maracas, claves, tambourines and other authentic musical instruments. A fourth consideration occurs when language appears in songs and the children use instruments to follow the language patterns; a fifth consideration pertains to the fact that the words of a song are usually designed to tell a story, literally or figuratively. Many of these components may occur in isolation in context of other activities but it is only in a musical ZPD that they coalesce, occurring simultaneously in a way that makes complete musical sense to everyone in the ZPD, including the children and adult(s). That is why the adult Music Leader is functioning both as a teacher and a cultural participant. Although the adult has the responsibility to guide the group so that the structures of the songs unfold in natural, musical ways, that responsibility does not preclude the Leader’s ability to have an aesthetic, sociocultural experience along with the children.

In the same way that Vygotsky sees the total scope of education as the quintessential sociocultural experience (Moll, 1990), so, too, can a musical ZPD be seen as the quintessential model of this particular Vygotskian developmental theory. This dynamic, multidimensional music-making experience for a group of young children – an experience that would be quite impossible were the children to be left on their own – when seen through a Vygotskian lens of a ZPD, becomes very pragmatic for any classroom with a collection of instruments, with any teacher, and any group of children. This is only made possible when music-making, a naturalistic behavioral phenomenon is
presented through a fundamental, naturalistic, sociocultural pedagogy in the musical Zone of Proximal Development.

It was stated above that in this author's opinion the Zone of Proximal Development is a major Vygotskian concept that finds a unique and strongly relevant expression in young children’s music-making behavior. This cannot be overstated. In effect, it is impossible for young children to even come close to arousing the true measure of their inherent capacities to be authentic music-makers except in the Zone. What would happen if an adult were to walk a group of children to a cleared area in the middle of a large park and left them there to build themselves a playground containing all the apparatus that they love so much? Nothing! Even if all the tools and materials were provided for them, there would be no forthcoming playground. Yet, when children are led to a playground that has been built by adults and let free to go play, they know exactly what to do! No one criticizes adults for building playgrounds for children. Providing structures for children is not considered to be an inappropriate act that takes away the children's “freedom of expression.” At the risk of oversimplification, this aptly describes the necessity of the social, collaborative nature of the adult/child relationship in early development that Vygotsky was so adamant about. And it also accurately depicts the adult role in children's music-making behavior. By themselves, young children are not able to provide the musical structures that define authentic music-making. Yet, once an adult provides the structure, they know exactly what to do and how to respond with voices and instruments!
Theoretically, when each member of a group of young children is holding a small percussion instrument, the possibility for unconstrained noise would seem to be high. Much to their credit, it is quite remarkable the way they are able to step beyond their current level of immaturity and into their potential level of future maturity by appreciating and respecting the true purpose of those instruments, i.e., to make music. A child may need help or supervision in the sandbox, on a slide, or on a swing for the obvious reasons but they do not need instruction in understanding what these things do. Nor does a child need instruction for using a ball. He will throw it, roll it, bounce it. All these apparatus provide children with opportunities to manifest pure, natural, instinctual behaviors. And the same is true with using instruments to make music. Young children have demonstrated that they understand music and, by two years old (maybe younger) have the physiological development that allows them to be music-makers, sometimes even better with instruments than with their voices. The sounds they can make on their own – especially in groups of 8, 10, or 15 and especially if sustained over 30 or more minutes - do not metamorphose into real music unless an adult is there to guide the structural unfolding of the sounds, rhythms, and forms. With absolutely no ambiguity or equivocation, it is a musical Zone of Proximal Development that provides an unparalleled opportunity for young children to use inherent skills – both physical and cognitive – to engage in a profound, imaginative part of their world as equals with all other human beings who engage in music-making behavior.

35 The music-making behavior of young children is as real and authentic to them as it is for anyone else.
CHAPTER 5

Montessori
Maria Montessori’s ambition to become a doctor is probably an early reflection of her strong humanistic orientation in the world. This disposition seemed to fuel her even more as she took on the task of educating children off the streets of San Lorenzo, Italy. Between her intellect, compassion and energy, Montessori is clearly a person who asserted herself through a balance of head, heart, and hand. Compared to her male counterparts reviewed for this study, Montessori is refreshingly maternal in the most ecumenical and essential sense of the word. Her theories are not just informed by hard science although, as a medical doctor, educator and intellectual, she draws easily from a range of disciplines such as biology, psychology and sociology. The inspiration her views evoke emanate in part from her candor in expressing unequivocal awe and respect for the miracle of life, not only scientifically but metaphysically as well.  

Her unique way of coalescing scientific knowledge with metaphysical/humanistic views is no better expressed than in a passage from her book, *The Absorbent Mind* (1967/1989). After expounding expertly on the nature of genes and chromosomes, Montessori writes,

> *It is plain that this scientific vision of the truth has not been reached solely by the help of the microscope, but because man’s mind is creative. It does not just retain impressions like so many photographs, but they act as stimuli to its imaginative powers. It is by imagination, or, thanks to an intelligence which can “see behind*

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Montessori never expressed her “spirituality” in religious or even quasi-religious terms yet her views are truly “metaphysical” in nature. In *The Absorbent Mind* (1967/1989), she uses the term “psychic,” “mystic” and “mystical” to help express her reverence for the biological and psychological aspects of human life, especially as they manifest in children. She writes, “If the work of man...is related to his spirit, to his creative intelligence, then his spirit and his intelligence must be the fulcrum of his existence...” (p.61).
the sense of things,” that man can make conjectures as to what is happening,
and it is from these powers of the human mind that all science and all discovery
derive the impulse that sends it on (p. 37).

In these words, Montessori is not attempting to placate a pro-imagination con-
stituency nor does she speak from a position of an occultist. It seems Montessori’s sci-
ence of child development is uncompromisingly child-centered and thus encompasses
the realms of the imagination. (Has there ever been a child not completely grounded in
the world of imagination?) And, while always giving importance to the child’s view, her
understanding of imagination goes even farther which will be discussed in detail below.
Reviewing her literature leaves no doubts about the preponderance of time she spent
with children, acknowledging both nature and nurture, and overseeing classroom activi-
ties that sparked their growth and development. Still, as is true with even the greatest
thinkers, practice does not always follow theory.

When reviewing Montessori against an investigation of young children’s music-
making behavior, a picture emerges that is at times confusing. This is due to apparent
contradictions and discrepancies in the way she perceives, or more accurately doesn’t
perceive, children’s natural relationship with music. Such statements not only express
the opinion of this author but others as well who, like me, are not harshly critical of
Montessori. For example, in the Introduction of a 1964 edition of The Montessori Meth-
od, Hunt writes,

In revisiting Montessori’s pedagogy, there may also be dangers of underempha-
sis, first, on the role and importance of interpersonal relationships, and, second,
on the importance of the affective and aesthetic aspects of life concerned with art and music (p. xxxiii).

Subsequently, in the introduction of a later, separate publication of The Montessori Method, Mayer (1912/1965) elaborates a similar concern stating, *Montessori’s views of art and music are pretty hopelessly those of the 19th century ... she was obviously too sure in her separation of musical sounds from ‘disordered and ugly noises’... a Montessori school ought not to be stuck with its founder’s outdated aesthetics and communication theories (p.vii).*

Despite such remarks, if we look at two of her primary texts, *The Montessori Method* (1912/1964) and *Dr. Montessori’s Own Handbook* (1914/1965), there is no doubt that Montessori has a place for music in her Children’s House. While the quantity of text devoted to describing her philosophy and method of music education might seem meager compared to other subjects, the value she gives music is evident, as are the apparent limitations. With the intention here to look at Montessori’s theories of development as they relate to children’s music-making behavior, it is necessary to look briefly at some of these alleged contradictions. To do so will help us understand why, when researching Montessori’s relevance to this investigation, it is necessary to sidestep her specific views of music education and look instead at certain hypotheses not initially directed toward music, whose bearing is understood only through careful scrutiny and an informed interpretation.
For example, although Montessori states the importance of awakening a sense of rhythm in children, in her section on “Music Education” in *Handbook* (1914/1965), she does not include any activities for achieving that objective. In fact, the main activities she describes depict children working alone, hitting toned bells one at a time so as to identify, match and/or remember their sounds in relation to a comparable set. This is not off the mark for implementing her Education of the Senses – in this case the sense of hearing – but doesn’t seem well suited for awakening a child’s sense of rhythm. Montessori then proceeds to introduce another matching activity that uses a “muted” keyboard and requires *visual* perception to help develop skills for reading music notation.37

Throughout the Handbook’s section on Music Education, Montessori never introduces any activities that engage children directly in rhythmical development or musical structures. However, in giving rhythmic activity a general significance for children (though apparently not within a context of making music), Montessori focuses on rhythmical movement as it occurs during episodes of psychomotor activity. Walking/marching activities are described as a part of her Motor (Muscular) Education wherein the stated objectives are for children to “master their balance” and gain “security and composure in their natural gait,” (1914/1965, p.64) objectives not directly related to making music. To these exercises Montessori encourages music to be added as an optional enrichment particularly as a variation to make the exercise “more complicated”

37 By any evaluation, this is an exercise with a future-oriented goal in mind: few children under seven years old will be able to use music-reading skills as a tool to engage themselves holistically in the joy of age appropriate musical expression. In short, no young child actually *needs* music-reading skills in order to engage in musical expression.
(1914/1965, p.64) (not more musical!). For this, Montessori suggests that the teacher “may” play the piano and/or have the children sing as they walk or march. To her credit, Montessori believes children can come to feel rhythm in this context and, eventually, understand the music they are moving to (1914/1965).

If we travel back in time to revisit Montessori in action with children in the classroom, we might very well see moments of joyful music-making. She may have had her own way to be musically spontaneous, sharing the music she loved, and drawing the children into it in some way. Based on inferences made from her writings that reveal her deep understanding of children, it is hard to believe otherwise. Yet, as a theorist, this is not her legacy. The quoted comments above coupled with a review of her literature attest to Montessori’s highly circumscribed perspective of children as music-makers. The “hidden tendencies” and “certain profound forms of sensitivity” (1967/1989, p.127) that she believes children possess, and which she writes about so passionately, simply did not reveal themselves to her in regard to children’s music-making behavior.

These criticisms may appear to give good cause to exclude Dr. Montessori from a thesis on young children’s music-making behavior. But, paradoxically, this is not the case. We would be amiss to judge Montessori’s “book” on music strictly “by the cover.” Although her theories that support this study are swirling around in a large pool of ideas, it is well worth the effort to separate the milk from the water, so to speak, so that we can savor a cup of her genius. By examining the deeper currents of Montessori’s thinking, it becomes evident that her hypotheses do, in fact, offer profound insights into the psychological core of children’s music-making behavior.
Donaldson (1978) writes about an unlearned capacity that young children have for comprehending human motives and intentions; she believes they possess the capacity to employ a basic “human sense” as they interpret experience and make efforts to understand the world (p.17). This idea seems to complement Montessori in the way she references the child’s power to teach himself, to initiate his own work of inner formation, and to give priority to his “inner teacher” (1967/1989, 6). Together, these notions are acknowledging children’s abilities, however novice, to create order and meaning out of both external, sensory stimuli and internal, psychological processes. By considering these ideas as we probe into Montessori’s theory of “basic order,” we can actually arrive at a point of confluence, where the music-making behavior of young children takes on a new significance in early development. The data obtained from the field research conducted for this study helps this to make sense.

Theories like human sense, inner development, and basic order especially in relation to young children are tied together by the connotation of an underlying naturalistic process. Though at times appearing to be random or haphazard, it is assumed that this process always moves toward order. Montessori’s view of “basic order” embraces all nature but she adamantly points out that it is not all nature that provides human order; only the nature of the human mind. She believes that as humans engage with their natural environment, the mind perceives limitless objects, patterns and structures and is joyously stimulated in a uniquely human center, the imagination. But imagination (the

faculty that allows us to conceive that which is beyond the constraints of the five senses) is not, Montessori contends, a “solo act” left to daydream frivolously for its own entertainment. Man’s intelligence is based on imagination as it works in partnership with an ability to assemble and rearrange our mental content or, essentially, exercise the power of abstraction.\textsuperscript{39} What Montessori calls the “mathematical mind” links with the imagination so as to identify and abstract discrete qualities from the ceaseless stream of environmental phenomena, thus enabling each individual to 1) imagine possibilities and 2) create meaning in life.

Order suggests arrangement and organization, which in turn connote form and structure. The physical world expresses this in myriad, wondrous ways. But for human beings there is a psychological counterpart: where there is form and structure there is the potential for subjective meaning. Meaning, Montessori implies, is not simply a result of having sensory stimuli shoveled into our brains through the five senses. Meaning is only possible through the power of imagination (1967/1989) working in collaboration with the mind’s capacity for cognitive abstraction, i.e., identifying and abstracting discrete qualities. So, does nature confer these functions only as “rewards” for growing up? Or do children naturally participate in these processes? Montessori suggests that adults, throughout time and across cultures, are moved to tell children stories to purposely simulate their imaginations. Children’s natural skills for extrapolating their own

\textsuperscript{39} Montessori’s description of the mind’s power to abstract discrete qualities from sensory stimuli, which we can refer to as “cognitive abstraction,” should not be confused with the more abstract and systematic thinking attributed by Piaget and others to older children in the formal operations period beginning roughly around the age of eleven or twelve (Siegler and Alibali, 2005, p.45).
meaning from imaginative stories, combined with their instinct to play and create games, seems to support the assumption that these cognitive functions - imagination and cognitive abstraction - are, indeed, functional and useful for young children.

Montessori (1967/1989) finds a model of human-constructed “order” in language that is both elemental and profound. Our uniquely human approach to language – with its physical and psychological structures – has evolved to become a powerful communication system throughout all human groups; a system that, arguably, has also become the one most essential for humans to bridge the internal, psychological world to the external, social world. Particularly relevant to this study, is the fact that young children also navigate both the social and psychological worlds in their own way by having access to structure-building capacities as early as pre-language and early language stages (Truhub, 2000).40

Montessori respectfully reflects on the inventors of the alphabet who employed both of the powers of the mind – imagination and abstraction – in order to extract particular sounds from the vast range of human vocal possibilities, and then organize or assemble them into a communication system.41 In the creation of the alphabet, a limited number of discrete sounds (qualities) were identified and re-assembled as letters which,

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40 Auditory structures are found in tonal sequences. Truhub (2000) reports that infants are able to group or chunk components of tone sequences on the basis of similar pitch, timbre or loudness (p.430). Deacon (1997) agrees that children’s knowledge of grammar and syntax is learned through usage, based on trial and error (p.107). Wood (1988, 1998) states that young children are able to display a systematic use of language based on implicit knowledge of phonological structure.

41 In essence, this alphabet model reflects a core tenet of Montessori’s theory of cognitive function exemplifying how the will of the imagination, functioning to envision possibilities, conjoins with the will of the mathematical mind.
in turn, (again with impressive amounts of imagination) evolved into myriad auditory “objects” (symbols) known as words. Thus, by abstracting sounds from the range of human vocalizations, the human mind engendered a system that has literally moved the world in immeasurable ways and whose purpose includes the construction and communication of subjective meaning.

Montessori expresses child-like appreciation for the actual, palpable, linguistic construct known as the alphabet and understands that the ultimate goal is for the mind to systematize the sounds. We can only imagine how thrilling this was when it occurred for the first time long ago and how equally thrilling it is now as each child discovers this for himself. However, Montessori fully accepts that language is but one accomplishment of the cognitive collaboration of imagination and abstraction. There is much more. Her theory of basic order really takes wings when, through metaphor, the ABC’s are used to introduce us to an expanded picture of human development, i.e., her theory of an “alphabet of qualities.” Here, system-building moves beyond communication and into an expansive world of social order, commonly referred to as culture.42

The essence of this view is simple: Montessori sees the minds of sentient beings needing to identify discrete qualities within all phenomena that the environment has to offer, thus creating a culturally relevant “alphabet of qualities.” Montessori summarizes the process as it occurs in a child:

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42 This is not intended to imply Montessori believed the development of language and culture occurred sequentially. It is understood that they evolved simultaneously.
• The young child encounters environmental stimuli such as objects, structures, and/or patterns.

• As a particular object stimulates the imagination, a sequence of “stable” or “precise” qualities is perceived and then abstracted by the “mathematical mind.”

• These psychological objects – conceived here as cultural “letters” – begin to formulate the young child’s cultural alphabet.

• The cultural “alphabet” is potent and creative; it further stimulates the imagination and expands the child’s scope of life by allowing him to “read” and understand more of his world. It also begins to mold the personality.

   With her background in biology, Montessori sees that the way an “alphabet of qualities” functions in the external world is analogous to the way genes work to form and shape the hereditary features in the embryo (1967/1989, p.188).

   The child’s way is activity – physically and mentally. But he is not just moving around, seeing clouds, hearing birds or uttering sounds for their own sake. Sensory stimulus is not the endgame. The actual goal, according to Montessori, is about imagining the possibilities, making sense of the world, acting in the world, and then imagining more possibilities! This creative process is ubiquitous, inevitable, unrelenting – and very child friendly!

   Montessori’s belief in an “alphabet of qualities” was a key motivator as she designed apparatus for facilitating what she calls sensorial education. She believes her devices replicate a very natural pattern of development as described above. This study does not contest Montessori’s conclusion; her apparatus appear to be very successful
depending on one’s philosophy of early education. The view assumed by this report is simply that she overlooked one apparatus that she did not have to invent (which may be why it was overlooked!). Inferentially, it appears that Montessori did not realize that songs, too, are essentially “apparatus” for implementing sensorial education; that each and every age-appropriate song that a child experiences is an auditorily-based structure, a conceptual “object” found in the social environment that invites the child to be active in developing his culturally informed “alphabet of qualities.”

Just as Piaget’s insights recognize the qualitatively unique experience of young children, Montessori’s insights enable us to wrap this notion around young children’s natural relationship with music and help us to make assumptions regarding their predisposition toward music-making behavior. When actively engaged as a music maker, the child becomes directly involved in the formulation of a culturally-relevant “alphabet of qualities” that, allegedly, link to and reinforce other activities that do the same (e.g., language development, social play, learning, etc.).

It has been suggested in this study that children do not experience music as artistic expression. This is absolutely true if we hold to the adult-oriented view that “art” is superfluous; that in order for an object to possess inherent aesthetic value it must be free of functionality beyond its own intrinsic beauty. This view would seem to have strong validity for those who have matured beyond the early developmental stages.\footnote{Piaget’s developmental stages suggest we are referring to people who have at least progressed into the \textit{formal concrete} stage, approximately 12 years old, or even older.} However, for individuals in the throes of early development, nothing is superfluous;
nothing is free of functionality beyond its own intrinsic beauty. One could say that for young children the beauty is in the function! Montessori gives credence to this notion within her theory of “alphabet of qualities,” wherein every object, every experience is functional if for no other reason than to contribute to a child’s “cultural alphabet,” which, far from superfluous, is essential to the child’s growth and development.

This certainly includes music and especially songs. Presumably, the very presence of music must be quite provocative to young children, with even the most unembellished musical presentations proving to stimulate their imaginations. There are many physical structures for the young child to experience visually and there is language to experience auditorily. Then along comes music with new, interesting auditory structures that, as research shows, are quite comprehensible to young children (Trehub and Trainor, 1993). Lo and behold, sometimes the music is attached to language! But even when music is connected to language, as occurs in songs, music is not business-as-usual in terms of human expression. Within a music experience, the young child hears, sees and feels novel, exciting things happening such as movement, rhythm, energy, emotion, sounds of instruments, and attractive auditory structures. It is impossible to believe that the imagination of the young child does not immediately begin dancing (sometimes along with the body!) as it absorbs the organized, multilayered sensory stimuli of music.

44 Many of us remember ourselves or other children we know holding onto some very tattered and weathered toys and dolls for many years beyond early childhood!

45 Every “simple” song is not necessary a “child’s” song. Many adult songs that we may call “folk” songs and countless others from indigenous peoples can be considered “simple” in regard to their structure. Simplicity should not be confused with profundity in terms of musical expression.
Like language, music is not just about the occurrence of sound but also the way the sound is organized and moves across time. (Montessori does not expound on this resemblance between language and music.) Specifically, this refers to rhythm and form, the micro and macro organizing agents of music, that allow sound to emerge from the telephone booth with red super-cape flapping in the wind, presenting itself to the world as Music! (Sorry, I don’t mean to disappoint the readers who thought I was going to say SuperSound!) It is the organization of sound through rhythm and form that bring us to understand how music engages with the dichotomous cognitive process involving imagination and abstraction and suddenly coalesces with Montessori’s ingenious theory.

Like oral language, a song is a temporal, auditory, structure-based phenomenon. Due to the images evoked by the words of a song, adults will often be drawn to a song because of the lyrics. For young children, the words are important, too, but in unique ways. Initially, the musical aspects of the words may be as important, or even more important, than the literal meaning. This is because in songs, the tonal and rhythmic characteristics of words function discretely yet collaboratively with other sounds and rhythms that are occurring simultaneously. The words in a song are but one of several distinct musical components, all working together. (Commonly, when volunteering to sing in front of their peers or adults, young children show no intimidation if they don’t know the words

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An even stronger parallel between language and music is made clear once we consider the inherent rhythm of language. Montessori emphasizes the element of sound in language but it is obvious vocal sounds are not simply long, continuous, sustained sounds. Quite the contrary, language sounds are continuously “broken up” through breaths, pauses, and varying lengths of syllables, thus creating rhythm.
of a song. They will spontaneously make up their own words to fit the rhythm and structure of the song.)

The purpose of this study did not provide for a word-by-word analysis of the degree of understanding that the participants extracted from the language of the songs. Most likely there was a range of levels of understanding within each group of children. But the song’s story, the overarching literary message of the collective words, is secondary to the child’s experience of the rhythmic patterns and musical forms that the words help create. Of course, certain key words will stimulate the child’s imagination. There is a corresponding experience with literature wherein young children love certain stories because of being drawn to specific “qualities,” such as characters, even though they do not understand all aspects of the story. However, it appears that it is the organizational aspects of the music that speak directly to young children. For example, most two, three, and four-year-old children in the US presumably know the classic children’s song, “Itsy Bitsy Spider.” However, many simply refer to it as “the Spider Song” because they do not really understand “itsy bitsy” nor do many understand the literal relationship between the spider, the waterspout, the rain and the sun as revealed in the words. The point is that it doesn’t matter because, musically, the details of the “story, i.e., the words collectively, are not as important as the structure of the song that the words help create. Essentially, all the words, those that are known or unknown to the child, function together as “blocks” that are held together by rhythmical continuity (movement of the sound) that, in turn, construct the form of the song. Analysis of the data gathered in
this study show that it is the form, or structure, of the song that the children learn fastest and most thoroughly and which helps to provide them with a full, whole, authentic, and aesthetic experience of music.

By mapping the qualities of music, and especially songs, onto the cognitive processes that Montessori posits in her theories, the predisposition of young children’s music-making behavior can be seen in the light of what is at the very core of their early drives as young human beings: to imagine possibilities, construct meaning of the world and begin to develop a self-identity.

The form of a song is, of course, not a solid, physical entity. It is much more abstract because it is auditory and temporal. This means the sonic structure is perceived cognitively over time. A song “breathes”; the components start and stop thereby creating phrases. These phrases are analogous to words and may very well provide the basis of musical meaning. As the children’s imaginations are drawn into the song experience through highly attractive sensory inputs (sounds of instruments, sounds of voices, rhythms, phrases, cascading soft/loud dynamics, etc.) the mathematical mind is having a blissful field day as it begins abstracting those elements – all of which contribute to the children’s cultural “alphabet of qualities.”

One can presume that much of what I’ve just described occurs simply by listening to music. Consider, then, that regardless of how dynamic a listening experience is, it can never substitute for music-making behavior. Montessori would be the first to support this statement due to her unambiguous conclusion in regard to children’s need to
move and be active, especially by using their hands.\textsuperscript{47} By inference, all cognitive processes as described by Montessori are embellished and enriched when the children move beyond the role of consumers of music (listeners) and become active creators, i.e., music makers. The findings in this study support the assumption that music-making behavior with sound-making manipulatives, i.e., musical instruments, is both highly attractive and natural to young children.

If we can thank Piaget for certain seminal insights that inform a new paradigm, and thank Vygotsky for describing a sociocultural framework to support this new paradigm, then we must thank Montessori for contributing, albeit indirectly, to the theoretical blueprint for designing such a paradigm in early childhood music education. The current paradigm is based on a tradition resolved to “teach” children music because of its potential to help them develop their skills that primarily focus on “artistic expression.” Given that the system does not give young children credit for being makers of authentic “art,” it becomes understood that the current paradigm in education is essentially future-oriented. Current thinking sees young children’s music-making similarly to “playing house” in the way that it allows children to pretend to do something that someday, at a hypothetical future time, they will do for “real.” Music-making is fun for children and is somewhat like a game but it is also real. The game-like character of music-making does not mean it is a “practice” session for the time when it becomes meaningful. It is mean-

\textsuperscript{47} In “The Absorbent Mind” (1967/1989), Montessori devotes whole chapters to each of these subjects: Chapter 13, “The importance of movement in general development”; Chapter 14, “The intelligence of the hand.”
ingful now, in the present tense. A parallel can made to young children who participate in sports activities: it may be a “little league” but, for the children the game is real: they play to the best of their abilities and try to win. The physical, psychological, and social benefits are meaningful to the young players.

We concede to the fact that there are professional musical “products” that we prefer to hear over those made through amateur or novice efforts. However, when we consider music-making as a human behavior, there are no little leagues and big leagues, only a human league! When children make music they are not practicing at being human; they are already there! The process of making music is every bit as authentic for children as it is for adults.

As we shift our attention to young children’s predisposition to engage in music-making behavior, a new paradigm for early music education is possible. Young children’s music-making is about performance only in the most generic sense of the word. A performance stage is not an appropriate platform for young children to fulfill music-making needs. A Zone of Proximal Development in the classroom is the environment where their development occurs most naturally and authentically; the place where educated, experienced caregivers understand about the unique stages of development and what

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48 The musical products of children and non-professional adults are typically lacking the aesthetic “polish” we, as adults, look for to satisfy our musical needs. The statistically small group of people who are professional performing artists are a necessary and highly valued group in society but are well beyond their early development and therefore not the focus of this study.
their needs are at each stage. If we consider music as form of artistic expression there are strong arguments (relative to conventional social values) why children do not “need” art. However, once it is clear that children are predisposed to making music behavior and are readily drawn to do so when given an opportunity, it is not a question of whether we, as gatekeepers, should decide if they “need” such opportunities. Once we realize music-making experiences are at least as powerful as is language for developing an “alphabet of qualities,” a shift in pedagogical strategies is bound to follow. Montessori, as much as any other theorist, provides the guidance for that shift. If her theories are adapted to the findings in this study, then, far from being superfluous, music-making can be seen as one of the most powerful developmental experiences in early childhood.
CHAPTER 6

The Evolution of A Theory
During the years between 1985 and 1989, I taught my first early childhood music program for The Saturday Conservatory on the campus of California State University, Los Angeles. One memory is particularly significant because of Rudy, who at that time was either three or four years old.

Rudy was sitting on the floor off to the far right of the center where I sat on a chair facing the group. In line with Rudy were seven or eight other children of approximately the same age. We had been following our regular Saturday morning routine: after each child had selected one of the available percussion instruments such as a drum, tambourine, or pair of maracas, I was singing and playing songs on the guitar as they accompanied me with their sounds and rhythms. We were making music together. Strict discipline was a nonentity and the children were generally willing to comply with my musical directions, mainly in terms of starting and stopping to begin and end songs. At this moment, they were not playing.

To lead into the next song, I used one of my common techniques and began telling a story. I still had not cued the children to begin playing. As I was talking, I began to accompany myself very lightly on the guitar. To this day I remember the simple rhythmic “riff” I was strumming; it was one of my favorite little jazz rhythms consisting of only two beats repeated over and over. A two-beat pattern is certainly not complex but

49 Founded and directed by Mickey Fruchter, the mission of the Saturday Conservatory was focused on offering additional instruction and performance opportunities for school-age children throughout Los Angeles who were already in the instrumental or choral programs at their respective schools. Because the whole family would usually accompany their student to the campus on Saturday morning, Mickey invited me to create and facilitate a music program for the younger siblings who were “stuck” waiting for an older brother or sister. The program became very popular.
what’s important here is the word *jazz*. Even simple jazz patterns can be rhythmically complex; in musical jargon, jazz rhythms are “syncopated.” This means they may have rhythmical accents occurring in places that could figuratively be called “between” the beats. This little two-beat riff was just such a rhythm. It was certainly not part of the lesson plan and was not a rhythm pattern I would have considered teaching to three and four-year-old children.

As I was talking and strumming, I suddenly heard the resonant click of a pair of claves (pronounced *CLAH*-veyz; basically two rhythm sticks). I was not disturbed that someone was playing before I gave the cue but, in fact, quite taken by the fact that the sound of the claves was following the syncopated rhythm of the guitar *exactly*, over and over. My head followed the sound and, sure enough, Rudy was using the claves he had chosen to “jam” along with me. I remember that as I looked over at him it did not seem as if he was paying attention to me given that he was not looking in my direction. Rhythmically, however, he was right in-sync with me as he held the claves tightly and moved his hands and arms along with my rhythm; a rhythm which he obviously heard clearly and was momentarily “inspired” to respond to.

I have told my Rudy story many times over the years. As stated earlier, I would not have considered teaching that rhythm to Rudy; its syncopated structure did not make it age-appropriate. But obviously, I didn’t need to teach it to Rudy because he was already performing it. Yet, at no other time did Rudy perform come to my attention in such a way would make me think he was musically gifted. From this, I could not help but ask some obvious questions: How many of the other children in the group were also
“hearing” that rhythm? How many of the others could have performed that rhythm along with Rudy had they, like he, either “got inspired” or simply restless and did not want to wait for me to give the cue to play? What other rhythms was Rudy capable of hearing and performing? Is what he did normal or extraordinary? Beyond this group of children, how many other three and four year olds can hear and perform similar kinds of simple, yet “complex” rhythms? How many receive the opportunity to try or are acknowledged for their music-making skills?50

The validity of the last question demands that I put myself under the microscope. For purely scientific reasons, it should be asked, “How is it that I heard and paid attention to Rudy’s unexpected music-making behavior?” After all, I was in the middle of giving a class, following a lesson plan, and thinking about what I was saying so as to keep the class moving along. Also, this music class for preschool children was simply about making music together, not developing higher level concepts or techniques. Yet, because Rudy happened to play “solo” for a moment, he grabbed my musical attention; he was displaying music-making behavior in a way I had not expected. How is it that I was able to recognize this fleeting musical moment in Rudy’s young life that could have easily drifted by unnoticed? Besides Rudy and myriad other young music-makers like him, there is another story in the center of this developmental theory; my story.

In the early 1960’s, I was a young saxophone player still in junior high school and just starting to experience the unique joys of making music. First and foremost, it was

50 Rudy’s dad, sitting in the back where parents waited, also heard Rudy and was flashing a smile from ear to ear. We both made sure Rudy knew we enjoyed his music-making that day.
fun! There were good times playing in the school band but the best times were getting together with guitar-playing and drum-beating friends so we could teach ourselves to play Rock n’ Roll. Rock n’ Roll was, of course, the new popular music that resounded from radios in virtually all households with teenagers, as well as from the new portable radios that teenagers now carried around! I feel fortunate to have been able to participate in a unique watershed of American musical history.

A significant chunk of Rock n’ Roll’s DNA comes from musical genres that evolved in African-American culture, including Boogie Woogie, Blues, and Rhythm and Blues. These influences secured for Rock n’ Roll a compelling, infectious rhythmic foundation that has long since proven itself to have a global appeal. Early critics of rock n’ roll considered the repetitive, pulsating “beat” of the music to have little merit. My personal experience informed a different view. Initially, my fellow teenagers at the “sock hops” were predictable in their appreciation of the danceable rhythms. As the years passed and Rock n’ Roll morphed into “Rock” music, a deeper resonance in the music emerged for me especially by performing more for multigenerational gatherings. On occasions like wedding receptions, attendees would range in age from four and five years old (or younger) to elderly family members in their seventies and eighties (or older!). Invariably, I saw people across the full span of these ages responding joyfully and festively – dancing, singing, clapping, smiling - to music with a beat. I came to realize that there was something essentially very human contained in the strongly rhythmic character of this music.
While it seems I was instinctively drawn to the rhythmic nature of music, I cannot claim that I immediately dedicated myself to that one element. The saxophone, after all, is known for producing rich, sonorous melodies which I enjoyed doing. However, a significant leap toward a heightened awareness of rhythm and its role in musical organization came once I began to study and perform jazz.

It is important to point out that “jazz” is actually an umbrella term for a handful of discrete, though related, styles of music. A musicologist might describe the genesis of jazz as having occurred when certain musical elements derived from European styles “collided” on American soil with certain elements derived from African origins. An ethnomusicological perspective would trace its evolution from the call and response work songs of the African slaves in the South during the 18th and 19th centuries up through the bistros, bars, and dancehalls of New Orleans, New York City, and Chicago in the early 20th century and finally to the specialized clubs and music venues found throughout the world today. Some early forms of jazz were connected to dance styles. However, by the late 1940’s an unprecedented style of jazz appeared that was intended only for listening. Decades before the bicentennial celebration of the United States, jazz had already achieved recognition as a truly American musical art form.

The evolution of jazz contains many stories that ride along next to the music. The story I am telling is not centered on social, political, or even artistic concerns but rather on a conceptual framework. It is this framework that ultimately spoke to me and helped to engender the present study. Given that jazz is strongly rooted in dance rhythms (and/or is simply inherently rhythmic) and evolved into a recognized musical art form, it
follows then that, unlike Rock n’ Roll where the rhythmic character began and remained focused on social dancing, jazz rhythms, as elements of “art,” could be taken seriously.\footnote{For quite some time, the rhythms of Rock n’ Roll, Rock, and related dance-oriented genres have also been studied “seriously” by musicians and musicologists.}

This perception allowed many musicians, including myself, to nurture the belief that rhythmic music was not frivolous but was, in fact, as important as any other music. It may be that this unconsciously planted a seed for a developmental theory regarding children but I was still a long way from perceiving rhythm as the basis for early childhood music pedagogy. There were still more lights needing to be turned on before I had real illumination in this regard.

One of these lights also lay within jazz and had to do with the practice of improvisation. Improvising has always been a salient component of jazz and occurs when either a single musician or the collective ensemble creates sounds and rhythms, and thus musical forms, \textit{spontaneously}. It is important to note that the aspect of improvisation that connects to young children’s music-making behavior is not contained within a particular style of music but rather the act itself; the behavioral, perceptual/conceptual experience that people have as they improvise music. The underlying neuropsychological human mechanism of this behavior is the capacity for organizing sound and the concomitant construction of meaningful, communicative forms and structures.\footnote{It is hardly a stretch to correlate this music-related juxtaposition of behavior and conceptualization to what happens every day when we employ sound and structure as we practice oral language when talking to each other.}
Like most music, a jazz performance will never depend on any one musical element in isolation. As meaning emanates from the sounds coming from a voice or an instrument, so, too, does meaning emanate from the rhythmical content and the unfolding structure. As listeners, we usually experience musical structures somewhat unconsciously because other elements, especially melodies, will grab our attention. For those who engage in musical improvisation, such as when playing jazz, the experience of musical structure can occur spontaneously especially when collaborating with other music-makers. From this, we can infer that one of the most powerful experiences that music-making behavior offers us is not based solely on predicting and knowing what will happen but also on our capacity to process the stream of sounds and construct musical meaning spontaneously. The nature of this experience struck me as being so profound that at some point it seemed logical to ask, “At what stage of life does a human being develop the ability to do this, i.e., to recognize and find meaning in musical patterns, forms and structures virtually spontaneously?”

An embryonic version of this question guided my efforts when I approached the California Arts Council (CAC) in 1987 with a proposal to conduct an artist-in-residence program. The concept for the program, entitled “Music As A Creative Language,” had been formulating in my mind over a period of years beginning when I was an undergraduate student at California State University, Los Angeles. Particularly instrumental were the collaborations I had with music professor, Dr. Lu Elrod, in her Music Education

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Levitin (2006) explains “expectation” and “predictability” as psycho-cognitive functions in regard to music processing. Thus, they are not to be precluded from an understanding of our experience of music.
classes and Psychology of Music seminars. Also while at Cal State LA, I drew inspiration from workshops in Orff Schulwerk, an internationally known, multi-modal pedagogy developed by German composer, Carl Orff that recognized the value of using percussion instruments, improvisation, and language forms (e.g., poems and stories) in musically creative ways with children.

Once with the CAC, I continued for eleven years exploring music-making behavior with students in grades K-6th. Although I was functioning as a practitioner and not a researcher, I observed how children in these elementary grade levels (approximate age range of 5-12 years old) who had little or no prior musical experience or instruction understood, recognized, and easily performed basic concepts of rhythm and musical form. Percussion instruments proved to be the key. It was very gratifying to see that children who were growing up in an age that gave them fascinating electronic video games to play could still appreciate “ancient” music technology like drums and maracas! More importantly, the simplicity of these instruments do not compromise their musical validity and authenticity. While not capable of producing the same melodious, sonorous tones such as instruments like the violin, piano or flute, percussion instruments offer, instead, immediate access to musical empowerment that more complex instruments cannot. They are authentic musical instruments that enable young children to demonstrate the true measure of their music-making prowess creating rhythms and structures.

An early discovery I made using percussion instruments was that children were highly

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sensitized to two rhythm concepts, 1) a pulse or steady beat, and 2) rhythms based on verbal phrases or language patterns. (Rudy’s performance remains anomalous until appropriate research can determine if his rhythmic skills are more distributed than currently believed.)

The longevity of this program gave me ample time to distinguish between what I was teaching children about music and what was evident that I was not teaching them. In what could be considered a variation of Piaget’s famous “wrong answers” anecdote,\(^{55}\) I became more and more intrigued with what they seemed to know before they engaged with me; the musical skills and perceptions they seemed to be bringing to the table or, more specifically, to the “bandstand.” So consistent were the responses of countless children, I was compelled to ponder whether the roots of this music-making behavior might already be in place even before the children arrived in elementary school. The opportunity to pursue this query knocked in 1998 when Barbara Schutte, founder and executive director of Child Development Consortium, Los Angeles (CDCLA)\(^{56}\) offered me an opportunity to development and facilitate an early childhood music education program at seven child development centers under her administration that would involve children from six weeks to five years old.

In truth, I began the program at CDCLA with no real sense of how successfully I could adapt the concepts and activities that I had presented to older children - the

\(^{55}\) It is well documented how, early in his career when designing and analyzing intelligence tests for children, Piaget became intrigued with the patterns of wrong answers that the children provided.

\(^{56}\) After Barbara Schutte’s passing in 2001, her daughter Lisa Wilkin took over the leadership of CDCLA and remains the current executive director.
youngest of whom had been five years old - to this new demographic, where now the *oldest* children would be five years old. To my astonishment, the adaptation, though not seamless, was quite remarkable. Without anticipating the opportunity to conduct formal research would someday be mine, I began keeping an informal, anecdotal record of activities and observed behaviors among children at five developmental levels: infants, toddlers, younger preschool, older preschool, and kindergarten. Again, the use of percussion instruments proved to offer successful experiences for even the youngest of the children at CDCLA and the two rhythm concepts as indicated above continued to have an almost universal appeal and functionality.

Volumes of details could be written about what I experienced with the children at each level of their development. One thing was clear across the full range of this demographic, there was evidence of a predisposition toward music-making behavior. Although I gave considerable scrutiny to all the children, language factors that I had exploited with the school age children during the years with CAC seemed to be functional among this younger demographic beginning around two years of age. This introduced a significant common element between children between two to seven years of age and ultimately helped to inform the design for the present study.

I had learned early in my investigation that young children’s music-making behavior was meagerly addressed in current music education research and curricula. I subsequently learned the same was true for the literature on general early development. Once I began formal studies as a doctoral student and started to explore the ideas of prominent developmental theorists, yet another curious discovery was made: while few
of these thinkers addressed music-making in the lives of young children directly, certain ideas they posited were completely relevant to developmental concepts associated with music-making behavior. Essentially, much was in place minus the consideration of music! While addressing language and literacy, mathematics and classification, cognition, psychology, and various sociocultural dynamics of development, there simply was little effort to investigate whether the true nature of a young child’s relationship with music is based as much on being a music-maker as it is on being a music learner or music consumer. The irony may lie in the role of the adult, suggesting that young children’s authentic music-making behavior moves from latency to expression only if they are invited into an adult-facilitated musical Zone of Proximal Development.

For many years, Dr. Webster Cotton, professor emeritus at the California State University, Los Angeles, always asked his Social Foundations of Education students, “What does it mean to be human?” Wallin, Merker, and Brown (2000) seem to be suggesting one possible answer:

*Music and musical behavior can no longer be ignored in a consideration of human evolution. It is a universal and multifunctional cultural behavior, and no account of human evolution is complete without an understanding of how music and dance rituals evolved (p.4).*
CHAPTER 7

Introduction to Analysis

and

Overview of Observation Protocol
Introduction to Analysis

The primary conceptual challenge of this analysis is centered on the universal human behavior of making music (Wallin, Merker & Brown, 2000, p.4). As stated, this study makes the assumption that the universality of this behavior does not preclude young children and recognizes their ability to engage in music-making behavior. It is understood that to make music, all people really need is their voices to make vocal sounds and/or their bodies to produce percussive sounds (clapping, slapping, etc.). However, it is also known that for at least the last forty thousand years (Mithen, 2006) and probably much longer, human inventiveness has produced musical instruments to expand the repertoire of sounds so as to enrich the music-making experience. This study recognizes young children’s attraction to sounds produced by simple instruments and how their ability to use them in context appropriately can play a significant role in their music-making behavior as well as general cognitive development. Although children’s music, i.e., the resultant musical products produced by the behavior, is perceptibly different from that created by adults, it is assumed their music-making behavior – both vocally and instrumentally - employs the same fundamental perceptions and capacities as do adults, albeit in qualitatively unique ways. Therefore, in order to identify and analyze young children’s music-making behavior in the early stages of development, it is necessary to define the process of making music.57

57 There are various theories regarding the evolutionary roots of music and varying philosophical perspectives purporting to explain what exactly is “music.” It is presumed this study is aligned with at least of the posited theories describing music. However, the main concern of this study, as stated, is not
Given the pedagogical sub-theme of this investigation, it seemed appropriate to begin by allying with current views derived from music education. However, looking across the entire American educational system, from preschool through higher education, we see that music invariably falls under the banner of “arts education” and is categorized as one of the “performing arts.” The present study, on the other hand, makes the assumption that the normative definition of “art” does not account for the nature of the relationship young children have with music as music-makers.

To disassociate young children from the notion of “artistic expression” is not intended to be demeaning toward children. Instead, the purpose is to present a view that is child-centered: it is assumed that young children have not reached a level of maturity that enables them to be concerned about concepts that adults recognize as essential for identifying “artistic expression.” Out of respect for young children, we are making a distinction between “artistic expression” and “creative behavior”; by doing so, we see that natural limitations are not a deficit and do not devalue children’s creative behaviors. Ostensibly, children behave creatively by drawing, painting, moving, and making music without passing judgment on style, technique, or subjective message; they appear to make little or no self-conscious comparisons between many aesthetic elements that adults see as critical criteria for “artistic expression.”

It is also true that so much focused on contributing a new theory or definition of what music is but rather the human behavior that produces music, especially when the producers are between the ages of two and seven years old.

See Chapter 9 for discussion of Humphrey’s theory of natural aesthetics which explains aesthetic perception in ways that are child-centered and gives insight to their music-making behavior.
if the norm for children’s music-making was based on broader definitions of the word “art” - such as expressed in Webster’s New World Dictionary (1994) “the human ability to make things...distinguished from the world of nature” (p.77) - then the premise here would need to be stated differently. Thus, the key word is “normative.”

If it dare be posited that young children are authentic music-makers, though in ways that are qualitatively unique compared to adults, the standard view traditionally and currently used in music education is not consistent with this study. What is consistent with this investigation is a need to step outside the notion of “artistic expression” in order to understand music-making as a fundamental human behavior as practiced by children. Therefore, the definition of music-making in the context of this study is expressed in such a way that, on the one hand, it does not lose sight of what is authentic and essential for all music-making and, on the other hand, still embraces young children.

I. Making Sound

This study assumes it is necessary to make sound in order to make music. But sound is also responsible for noise. For the obvious reasons (which do not seem to bother the accused), young children are recognized as being very adept when it comes to making “noise.” Contrarily, little effort has been made to investigate whether the vast majority of average young children - those who do not fall into the anomalous group of
musical prodigies - are able to function as authentic music-makers. We must begin, then, by differentiating between making music and making noise. Obvious examples on both sides provide little insight: we know the trash truck moving slowly down the street early in the morning from house to house is NOISY; we know a Beethoven symphony is MUSICAL. The challenges arise more at the cusp where the music cannot be categorized simply in terms of the conventional perception of music. Does the sound of a trash truck contain any musical value? Does the sound of a musical instrument always produce “music”? The music-making behavior of young children is, like all their behaviors, wrapped in varying degrees of egocentrism. Inevitably, the resultant music is generally less consistent and less accurate and will most likely be experienced by adults (not the children) as somewhat eccentric. Therefore, it becomes necessary to pay attention to how sound crosses the threshold from noise to music or vice versa. Most importantly, we must ask whether young children are capable of recognizing or understanding the difference between music and noise.

Let us imagine a preschool age child in the area of her classroom that is designated as the Music Center. She may have access to an assortment of age-appropriate musical instruments. What might occur? The child may pick up a drum or tambourine; the child might hit the drum or shake the tambourine and produce a sound. Immediately we know she is “exploring sound” but does that mean the child is
“making music”? What if suddenly four or five additional children join in? Now the sounds of several instruments are filling the Music Center (and probably the whole classroom!). But are they “making music”? Where would their sound-producing efforts fall on a calibrated noise-to-music scale? Would a passerby be inclined to stop and enjoy the “music” or move quickly away from the cacophony? Setting aside how others may judge their “music,” the more important question is what do the children think about what they create? They seem to enjoy the activity but how would they respond if they were to listen later to a recording of what they did? Would the children appreciate the musical “product” they created or would their reaction be negative preferring instead to listen to a “professional” (adult-produced) music CD? If the latter case is true, are they providing incriminating evidence against themselves as authentic music-makers?

II. Organizing Sound

This preschool scenario and the poignant questions it evokes point us toward understanding why the noise v. music conundrum must be understood in relation to young children as music-makers. First of all, making a sound with a musical instrument does not guarantee that the result will be “music” or even “musical.” Therefore, only the first part of the operational definition of “music-making” for this study is about making a sound. What is done with the sound is as important as the sound itself and actually more important than the quality or character of the sound. This is why the

“Exploring sound” is of course a valuable activity that is identified with and related to making music but does not necessarily conform to the definition of “making music.”

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notion of a “Junkyard Band” (i.e., a group of adults using pieces of discarded materials - “junk”- to make music) is legitimate. What do “Junkyard” music-makers do that all music-makers do, whether they use a metal washtub, a hollow log, or an instrument valued at tens of thousands of dollars? The answer is that they organize the sounds in ways that are communicative and meaningful.60

In ways very similar to oral language, musical meaning is contingent upon the form, structure, or organization of sound. There is no single occurrence of sound within a musical work that embodies the whole experience of that work. Music becomes recognizable when a series of sounds are “tied” together to create a whole. Elaborating on this idea, it is essential that the organization of musical sounds occurs in two simultaneous ways that are not mutually exclusive but rather inextricably intertwined and forever bound to human music-making behavior. First, there is a “micro-organization” that occurs rapidly, usually over a matter of seconds; this micro-organization is what is referred to as RHYTHM. A discrete rhythm, or more accurately rhythm pattern, can be recognized with as few as two or three discrete musical tones (sometimes occurring on identical pitches) that may be repeated by a music-maker within a matter of seconds. Secondly, there is a simultaneous “macro-organization” usually occurring over minutes (sometimes spanning as many as sixty or more

60 When music is deemed to be a “performing art,” it is considered to be communicative and meaningful. This study posits that, given the abstract nature of music, young children still expressing ego-centric tendencies may not be attuned to the “communicative” aspect of making music yet may still experience the behavior as meaningful.
This macro-organization is what is known as musical structure or FORM. A good way to picture these two simultaneous and inextricably linked occurrences of musical organization is as two interconnected gears: a smaller, faster moving gear that is moving and synchronized with a larger, slower moving gear. As sequences of the shorter rhythmic phrases (patterns) cascade outward through the air to our waiting ears, certain biologically-endowed cognitive skills enable us to unite them into larger musical ideas giving us a sense of a form (or, structure) that identifies the entire composition. Similar to literary structures, a musical composition will typically follow a “beginning-middle-end” organization whether it is as short as a 60-second children’s song such as “Twinkle, Twinkle Little Star” or as long as a symphonic piece performed with an 80-piece orchestra.

In all fairness to music-lovers, I am compelled to acknowledge the other important sound-organizing concepts that allow our brains to announce, “I hear music!” Most prominent among these other elements are melody and harmony. Considering the predominance of melody and harmony in music that incorporates the human voice, more people are probably consciously aware of melody and harmony than rhythm and form. Be that as it may, melody and harmony are superfluous when considering the most basic, fundamental idea of music. For example, when a drum ensemble is

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61. The duration of Mahler’s Third Symphony is estimated to be 90 minutes.

62. People who love to dance and move to music become highly sensitized to rhythm especially the “central beat.” Still, when people say “I love that song!” they will typically explain the reason in terms of the words and melody of the song. Form is virtually invisible although everyone maps it mentally.
performing, it is likely that no melody or harmony will be heard. Yet, subjective preferences aside, these drummers are most definitely making music: as the drummers perform, the two essential organizational factors, rhythm and form, will inevitably be present.

III. Intention

Our definition of music-making is centered around a human effort to produce a sound and a simultaneous human effort to organize the sound or sounds in specific ways. This “human effort” provides the third criterion in this definition because it implies intention. Almost anything can be perceived as being musical if a listener subjectively perceives a musical quality in an auditory signal. Referring back to the trash truck, if the engine is idling with a consistent, pulsating “chugging” sound at low frequencies that is “embellished” with regular, intermittent popping sounds at high frequencies (accents), it could be perceived as “musical.”

This study posits that “music-making” by people does not happen accidently but is, in fact, intentional. So while methods and styles of making music can vary culturally, the idea of “music making” is universal: when people willingly engage in a type of behavior that is intended to produce and organize sound in specific ways, the phenomenological outcome of that behavior is what we call “music.” Thus, essential to

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63 This statement is made knowing it expresses a cultural bias. In cultures that are more highly sensitized to drum music than our own, it is conceivable that the population hears melodies and harmonies among the percussion sounds.
this analysis is a look at whether young children are “human enough” to manifest intentionality when engaged in producing sounds. Just as with paralleling adult efforts, it is the organization and intentionality that offer the preponderance of evidence for determining authenticity in young children’s music-making. Therefore, although beginning with the production of a sound or sounds – either individually or collectively, it is then necessary to look for signs of organization and intentionality in their sound-producing efforts in order to determine if this behavior can be considered music-making behavior.

IV. The Pedagogical and Sociocultural Natures of Children’s Music-making in a School Environment.

Many ethnomusicologists and evolutionary musicologists agree that the roots of music are to be found in our complex social behaviors (Brown, Merker, & Wallin, 2000). Therefore, considering young children as a social group, it is assumed that the potential to observe their music-making behavior will be strongest where natural social interactions occur. Although managed and supervised by adults, school can be considered a normal, natural domain for young children because it provides opportunities for complex social interactions with both peers and adults, situations where children make many important choices and decisions willfully and voluntarily, i.e., as independently as possible. It is assumed, then, that a school environment is an optimal setting for observing children’s music-making behavior because it has the
greatest potential to offer frequent opportunities for children to engage in this behavior. 64

Given a school setting, the research design calls for the children’s music-making to be guided by an adult who in this case is the principal investigator (PI) embedded as participant/observer and functioning as Music Leader. What might happen when the children’s Music Leader is not a familiar teacher but, in fact, a stranger? Knowing that young children behave naturally in school means it is possible they might or might not be comfortable with a new, unfamiliar adult. It is in the interest of this study that their responses to the invitations extended to them by the PI to engage in making music will not be undermined by negative affect. To this end, it seems logical that the PI, who will not actually be teaching the children music-making behavior, should nonetheless look and act in such a way so that the children perceive him as a “teacher” i.e., a benevolent adult whose presence in the school is understood by the children to be geared toward helping, supervising, interacting with, and/or instructing them. Analyzing the data for indications of typical pedagogical protocol means to observe the following:

the behavior of the PI,

the behavior of the children,

64 The home environment certainly has the potential capability to provide an adequate environment in which children can make music. Undoubtedly, there are homes where this occurs. However, professional educators of young children (teachers, caregivers) are more likely to understand the importance of a musical Zone of Proximal Development (appropriate adult leadership) and make efforts to implement it more frequently and consistently.
the interactions between PI and children.

Behaviors that reflect these variables will help determine whether their music-making behavior is as authentic as other school behaviors and also whether children’s responses to the Music Leader are at least as normal and natural as their responses to the regular adult teachers during typical teacher guided activities. Finally, the data will also be analyzed to see if their social, interpersonal behavior is typical and characteristic of school environments where normal and natural child-adult and child-child interactions occur. It must also be kept in mind that making music does not occur in a vacuum; children’s music-making behavior in school should not appear anomalous in relation to other normal social patterns that form the tapestry of each day. Thus, in the context of this study, the pedagogical and sociocultural components of the analysis follow in importance to an intentional effort to produce and organize sound. Immediately following is a detailed explanation of the analysis protocol.
Introduction to Observation Protocol

A study that takes an in-depth look at a particular human behavior is not the same study that looks at what that behavior produces, albeit there is an inextricable relationship between the two. Music, in all its sublime profundity, is the result of specific human behavior. However, studies focusing on music will, understandably, often abstract it from the behavior that produces it. The present study is not able to do that. Here we are investigating the music-making behavior of young children, a population dependent on adult caregiving and still in the process of making pivotal developmental leaps on a daily basis. Factors such as dependency and development must be accounted for when considering young children’s behavior.

The primary question is whether young children, as dependent, developing people, actually make music. The concern is not whether they are pretending, simulating, or imitating adults in their music-making but whether they possess the capability to engage in behavior that contributes to what would be commonly recognized as music. Unique to this study, the analysis cannot focus solely on the quality or character of the resultant product, the “music,” in order to define the authenticity of their music-making behavior. It is necessary to take a holistic perspective that recognizes the essential relationship between music, children, and the environment in which the music-making occurs, i.e., school. What should be evident is that the priority maintained throughout the protocol was to stay true to the nature, experience, and perspective of the children while honoring the essential commonalities that characterize all music-making.
On the music side of this equation, I relied upon my own expertise as a music-maker. As a musician for more than fifty years, I have engaged with groups varying in size from two to over forty individuals for the purpose of making music. With this protracted and varied history, I believe I am able to identify the criteria related to music-making that are essential to the success of any occasion of social, collaborative music making. The tangible units necessary for making music are SOUND, RHYTHM, FORM, and MUSICAL COHESION. Allowing that each participant of the session is physically and mentally able to engage with these concepts on some level, the next consideration must be whether each member of the group is willing and able to exercise volition along certain self-imposed guidelines when producing and manipulating these components. This latter concern will ultimately determine the degree of musical cohesion that the group will achieve.

This study purports to test this aggregated criteria associated with making music against the children’s nature and their natural way of being. Therefore, on the children’s side of the equation, I relied upon my twenty plus years of working as an early childhood music specialist, facilitating music-making experiences with countless groups of children sometimes under the age of twelve months. These experiences dictated to me that a school setting was a natural place for children; an appropriate place where they normally congregate for authentic, “real life” purposes – which include learning - and therefore a place where their music-making efforts can be supported, directly and indirectly. Finally, given the inherent nature of a musical ensemble, which is not altered when members include children, it has been my experience that a Music Leader pro-
vides an essential role. The Music Leader is a person with the desire and ability to guide a group of people of any age who, in turn, collectively, are willing to act together, contemporaneously, to share a common musical experience.

**Note on the Development of the Observation Protocol**

As indicated in Chapter 6, the foundational work for this study began as far back as 1985. Literally, there were no extended periods of time from then until the present in which I was not engaging with young children (and sometimes adults) in collaborative, music-making behavior. Although this protracted period cannot be characterized as formal research, the investigative approach I took either as artist-in-the-classroom or early childhood music specialist very closely adhered to what Patton (2002) calls “exploratory” development. Indeed, this preliminary “exploratory” phase afforded me the opportunity to develop the overarching paradigm from which the observation protocol was mainly derived. Consequently, during the eighteen or so weeks of my field research (February – June, 2011), it was clear to me that I was following Patton’s subsequent model of “confirmatory” research: I observed whether or not the children’s behavior aligned with the pre-established protocol. Ultimately, a percentage of the items informing the protocol emerged during the actual field study.
OVERVIEW OF OBSERVATION PROTOCOL
**SECTION I: Sound, Rhythm, Form, Musical Cohesion**

Protocol for analyzing whether certain behaviors create the physical evidence of music

For the purposes of this study, music-making behavior is defined as an intentional act to produce and organize sound in such a way that it contains two basic, recognizable musical structures, rhythm and musical form. What, then, do we need to observe in order to determine whether young children have the capacity to manifest a physical evidence of “music”?

**A. Sound**

The activities were designed to allow opportunities for the participants to make sounds that originated from three sources, Voice, Body Percussion (also referred to as Body Drum), and musical instruments. The Music Leader guided most occasions of individuals or groups performing these musical sounds. Participants at times performed the sounds although undirected.

<table>
<thead>
<tr>
<th>Coding NO.</th>
<th>Observing for this occurrence:</th>
<th>Related marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Does individual make vocal sound?</strong> (singing, chanting/rhythm voice)</td>
<td>34, 109</td>
</tr>
<tr>
<td>1a</td>
<td><strong>Do children make vocal sounds together?</strong> (singing, chanting/rhythm voice)</td>
<td>37, 109</td>
</tr>
<tr>
<td>1b</td>
<td><strong>Does individual perform vocal sounds that are not words?</strong> (Non-linguistic)</td>
<td></td>
</tr>
<tr>
<td>1c</td>
<td><strong>Does individual chant/sing “nonsense” words, e.g., “La-la,” “Do-dah,”?</strong> (Nonsense words)</td>
<td></td>
</tr>
<tr>
<td>1d</td>
<td><strong>Does individual insert different words in known song?</strong> ( Adds words)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>Does individual perform sounds with “body drum,” e.g., clap, slap legs?</strong> (Body Drum, Individual)</td>
<td>18, 36</td>
</tr>
<tr>
<td>2a</td>
<td><strong>Do children perform sounds with “body drum” together?</strong> (Body Drum, group)</td>
<td>18</td>
</tr>
<tr>
<td>3</td>
<td><strong>Do children perform instrumental sounds together?</strong> (Instruments, group)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td><strong>Does group or individual perform strong sounds?</strong> (Dyn↑)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td><strong>Does group or individual perform light/soft sounds?</strong> (Dyn↓)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td><strong>Does group or individual accelerate the tempo?</strong> (Accel)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td><strong>Does grp. or ind. perform Ritardando (slowing the tempo)?</strong> (Rit.)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td><strong>Does grp. or ind. perform sounds that “swell” (from softer to louder)?</strong> (S&lt;)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td><strong>Does grp. or ind. perform sounds that “diminish” (from louder to softer)?</strong> (S&gt;)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td><strong>Does group or individual perform vocal or instrumental sounds by “echoing” a Music Leader?</strong> (Call and Response)</td>
<td>18,34,37, 109,113</td>
</tr>
<tr>
<td>109</td>
<td><strong>Does group or individual perform words using a non-melodic “rhythm voice”?</strong> (Rhythm Voice)</td>
<td>38</td>
</tr>
</tbody>
</table>

132
B. Rhythm

Activities were designed to allow opportunities for the participants to organize the sounds they produce by performing rhythm, i.e., specific repeating physical patterns of alternating sound and silence.

<table>
<thead>
<tr>
<th>Coding NO.</th>
<th>Observing for this occurrence:</th>
<th>Related marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 Pulse</td>
<td><em>Do children perform a continuing “beat”?</em></td>
<td>110, 121</td>
</tr>
<tr>
<td>12 Word-rhythm</td>
<td><em>Do children perform a rhythm derived from a word-phrase?</em></td>
<td>110</td>
</tr>
<tr>
<td>13 Sustained</td>
<td><em>Do children perform a continuing, sustaining sound with instruments? (A “long sound.”)</em></td>
<td>110</td>
</tr>
<tr>
<td>14 Accent</td>
<td><em>Do children perform a rhythm accent, usually 1 or more short, strong beats?</em></td>
<td>110</td>
</tr>
<tr>
<td>15 Other</td>
<td><em>Do children perform a rhythmic idea other than described in 11 – 14?</em></td>
<td></td>
</tr>
<tr>
<td>121 Entrainment</td>
<td><em>The process of entrainment, whereby one synchronizes one attention to regular patterns of information in the environment.</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>- Oxford Music Dictionary, On-line</em></td>
<td></td>
</tr>
</tbody>
</table>

C. Form

Activities were designed to allow opportunities for the children to organize their sounds into patterns larger than rhythm patterns that recur over a longer period of time. These larger patterns describe the form, or structure, of a song. In order to create such patterns, the children making sounds must START and STOP their sounds at specific times ideally in conjunction with other members of the ensemble and in response to a designated “music leader.”

<table>
<thead>
<tr>
<th>Coding NO.</th>
<th>Observing for this occurrence:</th>
<th>Related marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td><em>Does group or individual perform vocal or instrumental sounds by “echoing” a Music Leader?</em></td>
<td>18,34,37,109,113</td>
</tr>
<tr>
<td>16</td>
<td><em>Does individual start when cued by Music Leader?</em></td>
<td>110</td>
</tr>
<tr>
<td>16a</td>
<td><em>Does group start when cued by Music Leader?</em></td>
<td>110</td>
</tr>
<tr>
<td>17</td>
<td><em>Does individual stop when cued by Music Leader?</em></td>
<td>110</td>
</tr>
<tr>
<td>17a</td>
<td><em>Does group stop when cued by Music Leader?</em></td>
<td>110</td>
</tr>
<tr>
<td>21</td>
<td><em>Does individual or group wait for or with Music Leader?</em></td>
<td>110</td>
</tr>
<tr>
<td>110</td>
<td><em>Giving the Count, a verbal technique the Music Leader uses to “cue” players to either start or stop.</em></td>
<td>110</td>
</tr>
</tbody>
</table>
D. Musical Cohesion

The activities were designed to allow opportunities for the children to follow the Music Leader in starting and stopping their sounds. Theoretically, when several or many sound-makers choose to connect to and follow a Music Leader, there should emerge an unmistakable sense of “musical cohesion.” This should be evident even at a very rudimentary level when it is simply a matter of counting the “hits” rather than the “misses.” Though lacking the accuracy and consistency that the adult ear naturally seeks for aesthetic pleasure in music, the children’s efforts are not devoid of musicality – especially from their perception. A listener who is supportive of the children’s process (and counts the “hits” rather than the “misses”) will perceive that this group of discrete individuals – combining children and adults - are functioning as a collective music-making ensemble. Notwithstanding the “rough edges,” does their collective behavior convey a sense of musical cohesion?

<table>
<thead>
<tr>
<th>Coding NO.</th>
<th>Observing for this occurrence:</th>
<th>Related marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Does individual or group follow Music Leader while performing music? (fol/ML mus)</td>
<td>113</td>
</tr>
<tr>
<td>19</td>
<td>Does individual or group visibly follow Music Leader although not performing music? (fol/ML no mus)</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Does ind. or grp. NOT follow ML, performing music? (Nfol/ML mus)</td>
<td></td>
</tr>
<tr>
<td>20a</td>
<td>Does ind. or grp. NOT follow ML, NOT performing music? (Nfol/ML no mus)</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Does ind. or grp. WAIT for or with Music Leader? (Wait/ML)</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Does ind. or grp. NOT wait for or with Music Leader? (NWait/ML)</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>MUSICAL cohesion is High, Medium, Low.</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>SOCIAL cohesion is High, Medium, Low.</td>
<td></td>
</tr>
<tr>
<td>113</td>
<td>Group follows ML in Performance of a particular music pattern. (Perf Patrn)</td>
<td></td>
</tr>
<tr>
<td>123</td>
<td>Whole groups waits/pauses after song segment ends. (Grand Pause)</td>
<td></td>
</tr>
</tbody>
</table>
SECTION II: Pedagogy

Protocol for analyzing the pedagogical context of the children’s music-making

When in school, young children will interact with teachers and peers in ways that are normal and natural in relation to that environment. Are typical school-engendered, pedagogical procedures that frame child-to-child and child-to-adult interactions, conducive for mitigating authentic music-making behavior within that environment and among that group of people?

A. Behavior of Music Leader is directly geared toward guiding group to engage in music-making experience and parallels “teacher behavior” that participants may or may not respond to.

<table>
<thead>
<tr>
<th>Coding NO.</th>
<th>Observing for this occurrence:</th>
<th>Related marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Music Leader intervenes with individual(s) regarding non-music-making behavior.</td>
<td>(DIS:ML)</td>
</tr>
<tr>
<td>25a</td>
<td>Teacher or other adult intervenes or assists individual(s) regarding non-music-making behavior.</td>
<td>(DIS:T)</td>
</tr>
<tr>
<td>26</td>
<td>Theme or “Teacher” comment or discourse by ML.</td>
<td>(PED:ML) 101, 106, 119</td>
</tr>
<tr>
<td>26a</td>
<td>Theme or “Teacher” gesture by ML.</td>
<td>(PED: ML gs)</td>
</tr>
<tr>
<td>27</td>
<td>Music Leader gives MUSIC directive, verbal.</td>
<td>(ML direct v)</td>
</tr>
<tr>
<td>27a</td>
<td>Music Leader gives MUSIC directive and gesture.</td>
<td>(ML direct gs)</td>
</tr>
<tr>
<td>27b</td>
<td>Music Leader gives MUSIC directive, verbal and gesture.</td>
<td>(ML direct v-gs)</td>
</tr>
<tr>
<td>28</td>
<td>ML gives NO music directive, neither verbal or gesture.</td>
<td>(ML No direct)</td>
</tr>
<tr>
<td>29</td>
<td>Music Leader displays book and/or illustration.</td>
<td>(ML PIX) 118, 125</td>
</tr>
<tr>
<td>30</td>
<td>ML plays instrument, sings, or uses body drum.</td>
<td>(ML/plays)</td>
</tr>
<tr>
<td>31</td>
<td>ML introduces or demonstrates song, instrument, etc.</td>
<td>(ML/demo,intro) 114, 125</td>
</tr>
<tr>
<td>32</td>
<td>Music Leader talks or acts to be funny.</td>
<td>(ML/funny) 114</td>
</tr>
<tr>
<td>46</td>
<td>Music Leader passes out specific instruments.</td>
<td>(ML/PassInst) 114</td>
</tr>
<tr>
<td>47</td>
<td>Music Leader collects instruments.</td>
<td>(ML/Collect Inst)</td>
</tr>
<tr>
<td>49</td>
<td>Music Leader assists individual or group with instrument(s).</td>
<td>(ML help inst) 119</td>
</tr>
<tr>
<td>101</td>
<td>ML comments or gives discourse NOT directly about music.</td>
<td>(PED no mus) 26</td>
</tr>
<tr>
<td>106</td>
<td>Music Leader reviews music concepts, music pedagogy.</td>
<td>(ML rev mus ped)</td>
</tr>
<tr>
<td>114</td>
<td>Music Leader invites individual to select instrument.</td>
<td>(ML/yec inst) 46, 120</td>
</tr>
<tr>
<td>115</td>
<td>Music Leader invites individual to perform.</td>
<td>(ML/yec perf) 46</td>
</tr>
<tr>
<td>118</td>
<td>ML introduces or demonstrates using pantomime, gesture.</td>
<td>(ML/mime) 31</td>
</tr>
<tr>
<td>119</td>
<td>ML uses a pedagogical pattern or routine, not music-making.</td>
<td>(ML/PED no mus) 101</td>
</tr>
<tr>
<td>124</td>
<td>ML focuses on language component, leads language practice.</td>
<td>(ML/lang pract) 26, 101</td>
</tr>
<tr>
<td>125</td>
<td>Music Leader introduces song.</td>
<td>(ML/song intro) 31</td>
</tr>
<tr>
<td>126</td>
<td>Music Leader guides “rehearsal” or repetition of pattern.</td>
<td>(ML/rehrs) 27, 44, 113</td>
</tr>
</tbody>
</table>
B. Behavior of Young Children is in direct response to pedagogy as presented by PI.

### SECTION II PEDAGOGY (cont’d)

<table>
<thead>
<tr>
<th>Coding NO.</th>
<th>Observing for this occurrence:</th>
<th>Related marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>Theme or “Student” comment by individual.</td>
<td>(YC/v)</td>
</tr>
<tr>
<td>33a</td>
<td>Theme or “Student” gesture by individual.</td>
<td>(YC/gs)</td>
</tr>
<tr>
<td>33b</td>
<td>Theme or “Student” gesture and comment by individual.</td>
<td>(YC/v-gs)</td>
</tr>
<tr>
<td>34</td>
<td>Individual performs vocally (sing, chant).</td>
<td>(YC/sings) 1, 109</td>
</tr>
<tr>
<td>35</td>
<td>Individual laughs.</td>
<td>(YC/laughs) 55</td>
</tr>
<tr>
<td>36</td>
<td>Individual plays instrument, body drum.</td>
<td>(YC/plays) 2</td>
</tr>
<tr>
<td>37</td>
<td>Theme/”school” vocal response by group.</td>
<td>(Grp/v)</td>
</tr>
<tr>
<td>37a</td>
<td>Theme/”school” gestural response by group.</td>
<td>(Grp/gs)</td>
</tr>
<tr>
<td>37b</td>
<td>Theme/”school” gestural and vocal response by group.</td>
<td>(Grp/v-gs)</td>
</tr>
<tr>
<td>38</td>
<td>Group sings/chants.</td>
<td>(Grp/sings) 1a, 109</td>
</tr>
<tr>
<td>39</td>
<td>Group laughs.</td>
<td>(Grp/laughs)</td>
</tr>
<tr>
<td>40</td>
<td>Sub-group plays instruments, body drum.</td>
<td>(Sub-grp plays) 2a, 3</td>
</tr>
<tr>
<td>44</td>
<td>Alleged scientific learning.</td>
<td>(Sci-learn)</td>
</tr>
<tr>
<td>48</td>
<td>Individual selects instrument of choice.</td>
<td>(YC select inst) 120</td>
</tr>
<tr>
<td>52 – High</td>
<td>Perceived level of engagement, individual or group.</td>
<td>(Levl of Engmnt – H)</td>
</tr>
<tr>
<td>52 – Low</td>
<td>“ ” “ ” “ ” “ ” “ ”</td>
<td>(Levl of Engmnt – L)</td>
</tr>
<tr>
<td>52 - Mod</td>
<td>“ ” “ ” “ ” “ ” “ ”</td>
<td>(Levl of Engmnt – M)</td>
</tr>
<tr>
<td>120</td>
<td>Young child accepts instrument offered by Music Leader.</td>
<td>(YC/recv inst) 48</td>
</tr>
<tr>
<td>132</td>
<td>Young child declines instrument offered by Music Leader.</td>
<td>(YC/decln inst)</td>
</tr>
</tbody>
</table>

**SECTION III: Sociocultural**

**Protocol for analyzing the sociocultural context during the music-making sessions**

The origins of music are believed to be linked to our highly complex social behavior. School environments are inherently social; when in school young children are constantly engaged with peers and adults. Is their music-making behavior embedded in social behavior? Are normal and natural social interactions (child-adult, child-child) present during music-making experiences in school? Although informed by pedagogy, do music-making activities in school move beyond pedagogy and allow the relationship between adult and child to transcend the teacher/learner dyad and become a shared, music-based human experience?

<table>
<thead>
<tr>
<th>Coding NO.</th>
<th>Observing for this occurrence:</th>
<th>Related marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>Personal response or comment by Music Leader.</td>
<td>(PER:ml)</td>
</tr>
<tr>
<td>42</td>
<td>Personal response or comment by young child.</td>
<td>(PER:yc)</td>
</tr>
<tr>
<td>43</td>
<td>Young child allegedly does or says something to be funny.</td>
<td>(PER:yc funny)</td>
</tr>
</tbody>
</table>
A. Movement
Although most young children seem naturally eager to move to music, the music-making activities for this study were not designed to prompt dance-like movement. Movement required for making music is based primarily on the physical effort necessary to produce a sound either vocally or instrumentally and is therefore much more subtle than typical dance-like responses to music. Still, it is assumed that young children engaged in social music-making will respond physically in some way, either to the music or for other reasons.
sons. How salient will the inclination to move be among the children who are present at the music-making activities?

<table>
<thead>
<tr>
<th>Coding NO.</th>
<th>Observing for this occurrence:</th>
<th>Related marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>53</td>
<td>Ind. or Grp. displays rhythmical movement while sitting in place. (Move/InPlace)</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>Ind. or Grp. displays movement while up, out of their sitting place either standing, dancing, walking, jumping, etc. (Move/Stand)</td>
<td>103</td>
</tr>
<tr>
<td>103</td>
<td>Individual moves to a different position within the group, sitting or standing. (Move, Change position)</td>
<td>54</td>
</tr>
</tbody>
</table>

B. Affect

Young children are predictable in some ways and very unpredictable in many ways. Emotional displays fall squarely in the latter category. When an unfamiliar adult, functioning in the role of Music Leader, facilitates music-making activities with the children, it is impossible to predict if or how the children will respond emotionally. Are displays of affect or emotion observed among the children who are present at the music-making activities? If so, do these displays seem connected to the music-making?

<table>
<thead>
<tr>
<th>Coding NO.</th>
<th>Observing for this occurrence:</th>
<th>Related marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>Individual smiles, laughs, and/or displays general positive affect through facial expression, gestures, and/or “body language.”</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>Individual hugs PI, gives “Hi-5” to PI, and/or waves to PI.</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>Individual strongly displays ENTHUSIASM to ML specifically and/or activity in general.</td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>Individual is frowning and/or has eyes turned downward.</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>Individual directs focus away from PI and/or activity.</td>
<td>132</td>
</tr>
<tr>
<td>60</td>
<td>Individual is observed to be inattentive and/or withdrawn.</td>
<td>133</td>
</tr>
<tr>
<td>61</td>
<td>Individual is observed acting tired and/or “sleepy.”</td>
<td>102, 107, 111, 128</td>
</tr>
<tr>
<td>102</td>
<td>Individual displays negative gesture.</td>
<td>58</td>
</tr>
<tr>
<td>107</td>
<td>Individual displays impatience, restlessness</td>
<td>61</td>
</tr>
<tr>
<td>116</td>
<td>Individual acts out, displays inappropriate behavior</td>
<td>25, 25a, 72</td>
</tr>
<tr>
<td>128</td>
<td>Individual appears distressed.</td>
<td></td>
</tr>
<tr>
<td>130</td>
<td>Individual does not respond; no participation.</td>
<td>72</td>
</tr>
</tbody>
</table>
AFFECT (cont’d)

<table>
<thead>
<tr>
<th>NO.</th>
<th>Observing for this occurrence:</th>
<th>Related marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>131</td>
<td>Individual suddenly stops mid-performance while others continue.</td>
<td>80</td>
</tr>
<tr>
<td>133</td>
<td>Individual demonstrates a need/desire for help and/or support from teacher.</td>
<td>59-61</td>
</tr>
</tbody>
</table>

C. Anomalistic, Idiosyncratic Behavior and Occurrences

While finding behavior patterns among the children is a prime goal of the study, there are occurrences during the music-making activities that seem anomalistic or idiosyncratic yet demonstrate or represent a potentially significant aspect of young children’s music-making behavior. (It is possible that within a much larger sample, certain anomalistic occurrences might appear more regularly.)

<table>
<thead>
<tr>
<th>Coding NO.</th>
<th>Observing for this occurrence:</th>
<th>Related marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>Anomalous situation or event; idiosyncratic behavior.</td>
<td>(Anom) 131</td>
</tr>
</tbody>
</table>

D. Music As a Game or Story

In the interest of this study, it is postulated that music is perceived and possibly experienced by young children more as a game or as a naturally occurring accompaniment to a “story.” Are there regular occurrences of the concept of music being presented in a game-like format or in context of a “story”?

<table>
<thead>
<tr>
<th>Coding NO.</th>
<th>Observing for this occurrence:</th>
<th>Related marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>90</td>
<td>Music expressed as, or manifests as, a game or story.</td>
<td></td>
</tr>
</tbody>
</table>
Presentation of Findings

Toddlers, 2-3 years old
Preschool, 3-5 years old
Kindergarten, 5-6 years old
Primary, 6-7 years old (includes four 8-year-old children)

Commentary on qualitative data
Discussion of findings from quantitative data
The children were walked (or carried, or pulled in a wagon) along a paved walkway from their classroom, past the Kindergarten bungalow, and over to a separate building that housed the library. A conversation with the teacher revealed that children in the Toddler class do not normally use the library. Therefore, coming there for the music sessions was a new experience for most of the children.
The study began in February and most likely all participants had been at the school since the previous Fall, i.e., the beginning of the school year. However, specific information relating to each child’s “start date” at the school was not reviewed nor was individual weekly/daily attendance schedules.\textsuperscript{65} It was determined that these elements would be factored into the analysis only if children’s music-making behavior seemed to be adversely affected to the point that such influences would need to be scrutinized. Given that there was no overt indication of any strong adversity affecting any of the children during their participation in the study, analyses of schedules were considered to be unnecessary.

Low or non-existent levels of distress in the children were particularly notable during each first session when their young ages, the newness of the experience, and lack of familiarity with both myself and the specific room for the activities would be likely to have the greatest impact. A general observation can be made about the overarching mood and attitude of the children as they encountered me at the site for the first time: the children’s behavior and reactions seemed to be informed by a complete sense of safety and security. Based on what is understood to be common behavior among young children, an inference can be made that their general mood during the first sessions were allegedly not different from what they normally display in their regular classroom or even at home. Essentially, they appeared to be in a place that they trusted and with

\textsuperscript{65} Unlike norms for school-age children, it is common in “preschool” education that both weekly and daily schedules vary from child to child within a classroom group.
people they trusted. The calm, even temperament of the teachers as they interacted with the children also seemed to reflect the children’s sense that “everything is okay.” Observing the children’s first-day behaviors offers insights not only into their alleged internalized music-making knowledge and skills but also the complex nature of school-based (i.e., pedagogically motivated) child-to-child and child-to-adult relationships. Close observations reveal how pedagogy and social interactions overlap and coalesce making the line separating learning and development very ambiguous; these young children are apparently immersed in both simultaneously.

As the children arrived at the library with their teachers, they moved into the space of the unfamiliar room completely in character with their age and developmental maturity: they seemed to be unsure of where they were and what to do. (This speaks to the fact that, while maintaining keen surveillance, no adult was overly controlling in terms of directing children’s specific behavior. Given that no child appeared distressed, the teachers’ strategy seemed appropriate.) I had taped-off the carpet to indicate a central space (“the music square”) but, while effective for helping define the space for older children, lines of tape on the carpet were apparently much too subtle for toddlers at this first encounter. Also, I had my chair “front and center” of the taped square which, again, did little to communicate directionality to the toddlers. (Even among the slightly older preschool groups it was evident that there persists a range of proficiency

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66 Throughout all the sessions, there was typically a head teacher and/or an assistant teacher and sometimes one or more teacher aides and/or student teachers. A few visiting parents stayed with their children for part or all of some sessions.

67 Upon arriving at the second session a week later, at least one toddler walked in and immediately sat down along the tape, i.e., the side border of the “music square.”
levels among young children in terms of “defining space” when in new territory.) For example, some children walked in until they arrived at a seemingly random place in the room and then simply stopped, either looking around or staring in one direction. Others walked into the room cautiously and somewhat curiously, responding to the gentle shepherding offered by teachers that guided individuals toward the “center” (a focal point which, initially, as indicated above, seemed to escape their perception).

Although I stood in a central place, the children made no dramatic effort to either gravitate toward me or avoid me. The fact that this describes the initial reaction of almost one hundred percent of the participants again speaks to the sense of safety and trust that they seem to have attached to their school - both as a physical place and as a psychological experience - well before arriving in the library this day. With few exceptions, my neutrality with group of children would quickly shift when I picked up the guitar. Even without being strummed, the guitar proved to be an instant attraction for many children across the developmental levels. Apparently, children learn about guitars very young. In one toddler group, when I asked, “Do you know what this is?” CAM (aged 3 years, 2 months) called out, “A ca-tar!” Similar responses of recognition came from other children in other groups who were also around CAM’s age.

It should be noted that nothing described thus far, including the recognition of the guitar, is about making music but rather about identifying elements in the environment in which the music will be made. Sounds occur naturally and spontaneously within children’s environments but young music makers require certain criteria so that their sounds can be made in specific ways and recognized and appreciated in terms of a mu-
Making a school environment such as this one is theoretically ideal for enabling young children to engage in making music. This is because many aspects of early education programs, e.g., the physical, pedagogical, and social structures, have already created an environment that strives toward a balance of freedom (personal choice) and structure (school culture). For example, having been allowed to “freely” explore the space, the children still held onto and even depended on the teachers’ presence. Apparently, physical and social structures found in schools work in partnership to help children learn new information about the world and develop as they engage with that environment.  

This particular environment seemed to offer an optimal balance of freedom and structure and therefore conducive for enabling authentic music-making. The way it works is like this: once the children have a sense of safety and security, they are then empowered to choose whether or not they will respond to my invitation to make music. Once deciding in the affirmative, they can further decide how and when they will proceed. Clearly, the situation provided multiple opportunities for experiencing self-determination (Deci and Ryan, 1985) in a structured environment.

Observations made in this study support this hypothesis. Like all the sessions, the beginning 5-10 minutes of the first session with Toddler Group B shows the inter-

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68 In this sense, these school-based structures parallel the “outside world” by serving a hierarchy of purposes. Music-making in school enables children to build creative, expressive, imaginative structures within basic, fundamental physical and social structures. See the review of Montessori, Chapter 5.

69 Toddler group B is 5 children: TR, NH, AM, FRN, KV. Two girls, three boys; age range: 2.3 yrs. – 2.11 yrs.; mean age: 2.7 yrs. This Session took place on Thursday, March 10, 2011.
action of pedagogical and sociocultural dynamics as they set the stage for the complex nature of young children’s music-making behavior.

Transcription TOD(B)-1, p.1:

Four of the children walk in by themselves. AM is carried in by the teacher. Those entering under their own power immediately begin to either walk around or stop and stand to look around. KV seems to be heading down the aisle between the bookshelves so PI gently reaches out to guide him back to the center. As he does so, PI speaks to KV, “C’mon over here.”

PI (invitingly to the group): Come in and sit on the floor...

Now, PI walks over to the front wall where his guitar has been leaning and straps it on.

PI (continuing): ... and let me show you... look what I got ... (pause) ... look at this...

When PI invited everyone to “sit on the floor,” FRN was one of the first to settle herself by kneeling down right where she had been standing. After PI guided KV toward the center, he calmly seated himself on the floor. This was just as PI displayed his guitar and said, “Look what I got...” so it appeared KV became interested in the guitar.

As PI was getting his guitar, TA (Teacher’s Assistant) shepherded NH, as PI had done with KV, also directing him toward the center of the room. Interestingly, TA gestured to NH only [subtly] yet sufficiently so that he sat himself down next to
KV. Once the Teacher had put AM down, it appeared that AM would settle next to FRN (she started bending her knees as if to sit down). However, AM suddenly looked over her shoulder and saw the Teacher beginning to sit down a little further to the rear and went quickly over to sit with the Teacher. After TA finished with NH, she moved around to sit in the back behind FRN which then encouraged FRN to move over to sit with TA. Completely on his own and with no fuss, TR sat down next to the teacher.

By the time PI sat down in his chair with the guitar, the three boys were settled on the carpet and the two girls on the laps of the teacher and TA, respectively – all with only minimal directives given to the children by the adults.

The actions thus far occurred within the first two minutes of the children arriving at the library.

Transcription TOD(B)-1, p.2:

PI: Do you know about my guitar? (PI strums the guitar.)

Responding to the sound of the guitar, PI says, “Wow!”

NH echoes PI: Wow.

PI chuckles at the echo by NH: Yeah...wow!

PI strums the guitar again.

NH: Wow.

Hearing NH this time, TA and teacher also laugh softly. NH looks over at TA who is smiling and shaking her head “Yes” in appreciation.
The other children are listening and attentive.

PI (to the group): Do you like that sound?

KV: Yeah.

PI strums again.

NH: Wow.

PI: And when I play my guitar, I can sing a song...! I can go like this...I can say...

PI begins to sing Twinkle Little Star and play the melody along with his voice, playing single notes on the guitar. PI stops after two phrases (“Twin-kle, twin-kle, lit-tle star; how I won-der what you are”).

PI allows a silent pause.

KV calls out what sounds like “Gee!” and then starts to clap. (No one else is clapping.)

PI: Do you know my song? (Responds to KV’s clapping.) Thank you. Thank you very much.

TR begins to clap along with KV.

The teacher vocalizes a soft, high-pitched “Yay!” and also claps.

PI (to group): Can you help me? You can clap your hands...

PI mimes two “soundless” claps and then begins to strum the same rhythm and sing “Twinkle Star.”

NH and KV join in clapping. TR follows them also bouncing his legs up and
down. By the end of the first phrase (“...lit-tle star...”) KV also begins singing along with PI very audibly and accurately on some words. His voice drops out by the third phrase although he continues clapping and looking up at PI with a big smile. His lips continue to move so he seems to be singing and becomes more audible again on the word “sky” at the end of the fourth phrase (“...like a diamond in the sky...”). He then continues to sing stronger again as PI repeats the first two phrases.

As NH begins to clap, he sometimes claps very accurately along with the rhythm of the words; other times his clapping seems more random. He continues through half of the song and then stops. KV’s clapping is energetic for most of the song. He stops once briefly but resumes quickly and continues through the song. He stops his “rhythm clapping” as PI ends the song and then, apparently in appreciation, adds a quick burst of applause.

Less than three minutes have elapsed in the session.

As evidenced from the collected data, no child received direct instruction in how to “make music”; neither were they intentionally made to feel they had to participate in the music-making. Some children who were present were slow to participate, not interested in participating or simply too fascinated with what they were observing to become active. What is striking is that for those motivated to participate, the demeanor of being lost, vulnerable innocents as described above when they first walked in, quickly melts away revealing young people who seem relatively “sophisticated” in their interest,
knowledge and understanding about music and music-making.

As primary investigator, one of my highest priorities is to make it clear to each participant that they are receiving opportunities to make choices. Therefore, the subtext of my discourse – implicitly and explicitly - throughout the activities was “I’m here to make music and you can help me if you want.” For example, recall how after displaying the guitar, I began by asking a question, “Do you know about my guitar?” followed by playing the guitar and asking, “Do you like that sound?” This was followed by announcing to the children, “I can sing a song!” “I can go like this.” and afterwards asking, “Can you help me?” It was only then I gave a more explicit suggestion, “You can clap your hands...” What made my suggestion relevant was that children had already introduced clapping into the activity, doing so on their own before any adult clapped. So essentially the children had introduced what they knew to be appropriate music-making behaviors into the activity.

The developmental level of toddlers is unique in many ways which includes an uncanny ability to weave in and out between strong group cohesion (less self-centered) and ego-centrism (less group-centered). So although functioning as a group in the broadest sense, they frequently digressed into idiosyncratic/ego-centric behavior.

A strong indication of direct social links in the music-making occurred between myself, KV, TR, and the teacher in less than three minutes after the beginning of the session: I casually sang the first two phrases of a song I assumed they might know, “Twinkle Little Star.” KV reacted vocally, called out what sounded like “Gee!” and then started to
clap his hands; TR joined in by clapping along with KV; the teacher, seemingly to support the children’s responses, then also responded vocally and clapped.

I then functioned pedagogically by asking for their help and suggesting they clap. (I pantomimed the movement of two silent claps) and then began to strum a steady rhythm on the guitar singing “Twinkle Little Star” in its entirety. Hearing the song prompted both KV and NH to join in clapping, followed immediately by TR who besides clapping also began bouncing his legs up and down.

Notwithstanding variations due to varying developmental levels, these are all perfectly normal music-making responses by people of any age. KV then moved directly into a realm of higher cognition. A detail of the above transcription reads:

By the end of the first phrase (“...lit-tle star...”), KV also begins singing along with PI very audibly and accurately on some words. His voice drops out by the third phrase although he continues clapping and looking up at PI with a big smile. His lips continue to move so he seems to be singing and becomes more audible again on the word “sky” at the end of the fourth phrase (“...like a diamond in the sky...”). He then continues to sing stronger again as PI repeats the first two phrases.

KV joining in at the end of the first phrase means it only took seconds for him to recognize a familiar song pattern and join in with me as I continued. In other words, my performance did not simply trigger a memory of something KV already knew thereby prompting him to start singing it as he normally would which, presumably, is from the beginning. KV’s cognitive skills allowed him to entrain himself to the word-pattern as he
listened, “track” it mentally, join in with me at the appropriate place, and then keep going following the pattern correctly from the point where he started. However, an audible performance with an intention to communicate to a perceived receiver was not KV’s highest priority: his voice dropped out while his lips kept moving. But it does not seem that he “lost” the pattern because, momentarily, he again becomes audible, still synchronized with my vocalizing.

Although KV had proven to be more vocal than the others, NH was responding rhythmically by using his “body drum,” i.e., adding the percussive sounds of clapping.

Transcription TOD(B)-1, p.2:

As NH begins to clap, he sometimes claps very accurately along with the rhythm of the words; other times his clapping seems more random. He continues through half of the song and then stops.

Some developmental psychologists believe that early behavioral limitations actually mask early knowledge (Gelman, 2006). Although inconsistent and short-lived, it is interesting to note that the “rhythm of the words” were audible and visible in NH’s clapping. This suggests that, like KV, he was also cognitively “tracking” a word-pattern except executing it non-vocally. Naturalistic observation (no fMRI brain scanning!) does not allow us to “see” NH’s actual cognitive functioning. However, his physical responses could be seen repeatedly, clearly corresponding to the word-patterns in the song, patterns which exist solely as mental concepts until expressed audibly, or in NH’s case,

\[\text{NH is the youngest person in the study at 2 years, 3 months.}\]
rhythmically. The music-making behavior – displayed vocally and instrumentally - functioned as a screen that made visible the language patterns that he was processing mentally.

The transcription also indicates that KV also accompanied his vocalizations with clapping. He again was very inwardly directed, choosing to stop and start at various points in the song even as I continued. At the end of the segment, KV shows his versatility in his use of clapping when he stops his “rhythm clapping” as I ended the song (showing sensitivity to the musical form or structure) and then instantly converted the same physical movement (hitting hands together) into “a quick burst of applause.” He evidently already knows there are various cultural purposes for executing this simple movement.

The complex interplay of sound, rhythm, intentionality, pedagogy, sociality, and ego-centrism are also salient when I met Toddler Group A for the first time on Wednesday, March 9, 2011 and presented another presumably familiar song, “If You’re Happy and You Know It.”

Transcription TOD(A)-1, p.4-5:

PI begins to play a rhythm on the guitar and sing “If You're Happy and You Know It”. CAM, ZV, and both teachers immediately clap 2 accented beats in the usual place at the end of the first phrase. (“If you’re happy and you know it clap your hands” clap, clap) Observing the others, CHR simply begins clapping along with the song. LTH observes at first, repositions himself on the carpet, and then begins

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71 Toddler Group A is 5 children: LTH, CHR, ZV, LE, CAM. Two girls, three boys; Age range 2.6 yrs. - 3.2 yrs.; Mean age: 2.10 yrs. This session took place on Wednesday, March 9, 2011.
to clap along with the song. LE eventually executes several claps at the end of the first verse. CAM responds to hearing the familiar words, “...your face will surely show it...” and points to her smile with the forefingers of each hand, as many teachers consistently model for the children when singing this song with children. (CAM will prove to do this consistently throughout the song and will be the only one to do it.)

PI continues into the second verse, singing the variation “... stomp your feet”. CAM, who has been sitting with her legs crossed, unfolds her legs so she can stomp her feet. Rather than just the regular two beats that the song calls for, she begins a continuous marching movement from her sitting position. ZV starts to clap two beats at the appropriate place but catches himself and switches to his feet. His two beats are not precise but he executes them at the appropriate time at the end of each phrase.

Upon hearing PI sing “stomp your feet,” CHR immediately begins a continuous marching movement with his feet just as CAM is doing. However, CHR continues through the whole verse even though CAM stops momentarily. LTH stops clapping at the end of the first verse. As the second verse begins, LTH is looking away from the other children (attracted to something in the library) but eventually looks around, sees what they're doing and joins in by making foot movements. LE is looking down, not at the other children yet she unfolds her legs and begins foot movements in response to the words PI is singing. (With her gaze away from the
others, LE is either listening to PI without watching or maybe using peripheral vision.) LE continues to move her feet for a while but not sync’d to the rhythm of the song. She stops before the music ends. Except for CHR, the foot movements of the other children stop at the end of the verse giving the structure of the song both a visual and physical mark to an observer. (CHR has his “groove on” and continues his foot movements for a while into the next verse.)

PI continues into the third verse where the lyric directs everyone to “Shout hooray!” at the end of each phrase traditionally accompanied by an upward thrust of an arm. CAM performs this consistently through the verse always in sync with the music. ZV is on board for the first two times, but seems to tire by the third time. CHR also performs “hooray” with arm movement in sync with the song but, like ZV, only for the first two times. (Neither one is watching the other so do not appear to be [imitating] each other.) CHR is definitely not out of steam. Although he misses the synchronized “hooray” the third time, his body and arms make small rhythmic movements and he applauds at the end. LE does not vocalize at all and makes very small arm movements for the first 2 “hooray” phrases. LTH gives voice and arm responses after everyone else the first 2 times, but does it with the group the last time. LTH also makes a lot of rhythmical body and leg movements throughout the verse.
This passage speaks directly to the heart of this study. It is obvious the children know this song. But what does that really mean? What do they know? Like all songs, this song is an arrangement of arbitrary, abstract elements that have been affixed, first to each other and then to the cultural environment. The song was birthed long before these children were born but now they have encountered it at home and/or at school and have assimilated it in much the same way they have assimilated flowers, clouds, trees, puppies, Spiderman and other natural and cultural phenomena. While limited in their development to comprehend many things in the world, this song appears to be comprehensible and meaningful to the children – attested to by the fact that it motivates them to become engaged, making conscious, intentional contributions to a musically-oriented social event comprised of both peers and adults. And while on the one hand, the responses they give are simple and elementary, on the other hand a certain “expertise” is required. Certainly, a child hearing this song for the first time would not be able to participate with the same level of proficiency as these “expert” two-year-old children. The words and accompanying movements, occurring at specific times along a continuum of sound, rhythm, and form, have already been internalized by the children.

Children this age may be capable of initiating such a song on their own but generally do not. Yet, they fall right into the “groove” if an adult leads thus providing a musical Zone of Proximal Development (mZPD). By performing the song, I presented a structure which offered the children an opportunity to “play the game,” i.e., plug-in the

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72 Given that a song is human-constructed but not palpable would seem to qualify it under what Michael Cole considers to be culturally conceived “conceptual artifacts” (Cole, 1996).
words and movements in the right place. I did not assist the children in their efforts to do this. *They* chose if, when, and how they would respond – to the best of their ability; and, if choosing to engage, usually displayed an impressive level of proficiency though very inconsistently. Yet, nothing they did or didn’t do detracted from the recognition of the song, and most of what they did conformed musically to the specific structure of *that* song. Even when their responses were not *precisely* in-sync with me (although many were), they were *generally* in-sync with me, certainly well within a margin of aesthetic experience that provides musical satisfaction\(^{73}\) for them and supportive adults.\(^{74}\)

**Instruments**

I was also able to observe items listed in the analysis protocol when the children were given opportunities to use simple percussion instruments. Certain items were more pronounced than others. In the first session with Toddler Group C,\(^ {75}\) I guided these two- and three-year-old children through two song activities using instruments, first bells and then maracas.

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\(^{73}\) Some children showed immediate satisfaction with smiles, laughter, and animated behavior. For others, the expression of their satisfaction, enjoyment or attraction to the music-making activity was not overtly displayed until they returned for a subsequent session when, by observing their demeanor, it was evident they were glad and even excited to be back.

\(^{74}\) I was able to observe myself experiencing musical satisfaction from the music-making with the children. It is understandable that this satisfaction is on a different level than that which I experience when I make music with adults; but it is still in the same ballpark; although informed by my support and empathy for the children, there is still musical satisfaction.

\(^{75}\) Toddler Group C is 5 children: AL, BR, JK, JS, and RFL. Five boys; Age range 2.4 yrs. - 3.3 yrs.; Mean age: 2.9 yrs. This session took place on Wednesday, March 11, 2011.
“This Old Man” With Bells.

I began by displaying the bells and asking, “Do you want to help me?” Two children walked assertively up to me to receive a set of bells. Another child did so only after a little encouragement from the teacher. Two other children did not get up but accepted them when I went over to where they were sitting. JS, one of the latter, who was sitting reticently with his father, not responding during the beginning of the session, surprised me when he accepted the set of bells. (However, once the song started, JS only held the bells and would not shake them on his own even with his father’s prompting.)

Most children who accepted an instrument immediately and enthusiastically began exploring and “practicing” with their bells. This was fine with me as I began to sing and play the traditional children’s folk song, “This Old Man.” It is legitimate to ask, “If the children had already begun making their new sounds without me playing a song, did they really care about doing a song?” The answer to this question cannot be determined going into the song. However, this song was presented purposely because of its structure, i.e., a series of relatively short verses. E.g.,

Verse 1

This old man, he played one

He played Knick-Knack on my thumb

With a Knick-Knack, Patty-whack, give the dog a bone,

This old man came rolling home!
Transcription, TOD (C)-1, p.5:

PI sings the first verse of “This Old Man.” RF and BR have moved to the back of the music-square and continue standing as they shake their bells and move around. JK continues to play his bells as does AL. (However, in the middle of the verse JK moves onto the teacher's lap pushing into AL a little which distracts AL.) JS's dad tries to get him to start playing but apparently JS is still not ready. All the children continue to play as PI sings the verse and all respond by stopping when PI stops abruptly at the end of the [first] verse.

A music-maker cannot make music without making a sound. However, once a sound begins, there is still no “music” if the sound continues indefinitely, never varying or stopping. Musical form is perceived when sounds begin and then end.76 From this axiom, we can infer that because each child independently chose to respond, not only by starting but also stopping, they can on some level recognize and possibly even value the fact that their music-making has structure, or form, and they themselves are empowered with the ability to interact with that structure. So, essentially, we see that even a group of two and three year olds are able to independently think musically and act collectively as a musical unit.

There is another point to make. The set-up for this study did not allow accurate analysis of exactly what each individual child was performing with their instruments. It is

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76 A correlation with visual expression can be drawn: in the same way that “negative space” contributes to the creation of visual forms, so, too, does stopping sound (creating silence) contribute toward creating musical form.
extremely difficult to discern the specific *rhythm* (the micro-organization) that each one was executing with his or her bells. To the ear, it sounds as if all the bells were simply being shaken randomly – which might be the case. This is why it was important to look at the macro-organization, the broader musical structure.

This also posits an answer to the question above as to whether the song that I provide is meaningful to the children. To a casual observer, it appears that while I am performing the song, the children are focused on everything else going on except the song given that very little of their behavior appears to be associated with the song. The truth is revealed however in the above text, “...*and all respond by stopping when PI stops abruptly at the end of the verse.*” This affirms that no matter what else was going on or how unsynchronized their playing *seemed* to be, they were in fact listening and tracking the progression of the song to the degree that there is complete group cohesion as the music progresses to a “resolution” and stops. It is as dramatic as if all the children were connected to an electrical circuit that was suddenly switched off; the structure is suddenly and clearly defined by the unified efforts of all the music-makers stopping in-sync with the music leader. This behavior is not accidental; it occurs over and over again throughout a music-making session.

Due to their young ages, we do not have any expectations in terms of their collective capacities to create musical cohesion. Something becomes clear, however, when one witnesses all the players starting and stopping together simultaneously along with the music leader, not just once but over and over: underneath the “commotion” of sound and activity the children were apparently *listening* to what I was doing and each
was able to connect to and contribute to musically “dramatic” moments, i.e., points in the song when the combination of words and melody developed, fluctuated, ascended, and then resolved – which in this context frequently meant the music simply stopped. At the moment of this collaborative stopping, the music becomes more real than ever. Each child has helped create a single, discrete “tile” in the mosaic of his or hers life’s auditory experiences; not in isolation but socially, along with peers and an adult. The number of times it happened shows it was not accidental. The children’s patterns of performance were consistent throughout several verses of this particular song and across various songs.

It is very evident that the instruments, expanding the musical capacities beyond their own bodies, are powerful tools for adding dramatic emphasis to the children’s music-making behavior and, allegedly, reinforcing important developmental experiences. Whereas the children clearly enjoy using their voices and “body drum” – the “instruments” provided by nature – it is evident that the percussion instruments provide what a black outline provides for a visual image, an enhancement of the definition of the image, which, when applied to a musical structure (such as a song), becomes an “image” in sound.

“Brother John” With Maracas.

After “This Old Man,” I collected the bells (with full cooperation of the children), passed out maracas and “jammed” a quick version of “The ABC Song” allowing the children to enjoy the different sound and feel of the maracas and, more importantly, to practice being music-makers (starting and stopping along with the song). They frequent-
ly did this quite well. Then, without any warning, I began to whisper, “tiptoe” (miming the movement from my sitting position), and introduce what might be a familiar song, “Brother John” (the English translation of the French folk song, “Frere Jacques”). It did not matter whether the children knew the song or not because I introduced it more like a story/game than as a song. Using age-appropriate “storytelling” language, I told the children about Brother John, a person who “likes to sleep all the time.” I developed the plot with the idea that Brother John’s friends want him to wake up. Despite the fact that the children were holding onto their maracas, and were therefore subject to spring to life as sound-makers at any given moment, they remained quiet and attentive to my “storytelling” tone.

Transcription TOD(C)-1, pp.7-8:

Note: Occurring within approximately 12 minutes after the start of the session.

PI (suddenly, strums a quick chord): You know what? Sh-h! (Whispers) I’m going to tiptoe.

PI begins pretend tiptoeing as he sits in his chair. The children are suddenly quiet, watching PI.

PI (almost whispering): You know what? I’m looking for my friend.

PI tells the group about Brother John, his friend who “likes to sleep.” PI says he has to ask a question.

PI begins to sing the first part of “Brother John” very quietly, playing the melody on guitar along with his voice. All the children are quiet and attentive.

PI finishes singing the “question” (“Are you sleep-ing...Bro-ther John...”) and
stops abruptly. With a louder voice he tells the group, “Oh-oh! Hey, he's still sleeping... He's got to wake up...! Are you ready? We've got to wake him up... Here we go...!"

PI launches into the “chorus” of the song, “Morn-ing bells are ring-ing...” etc. with a louder voice and stronger rhythm on the guitar. JK (again) is the first to respond; he joins in shaking his maraca followed in quick succession by RF, BR, and AL. JS is happy to sit in his father's lap holding his maraca.

PI sings through the chorus two times; all the children continue along with PI. JK stops shaking his maraca momentarily as he performs a rocking motion while sitting on top of TA's crossed legs, but then resumes.

PI stops abruptly at the end of the second chorus. The four children playing maracas all stop in response to PI's “cut-off.”

The children discovered that to perform the song as a “game” meant that I will sometimes ask their maracas to “wait.” It was easy for them to recognize when their maracas should wait because I sang and played softly, “Are you sleeping?, Are you sleeping?, Brother John, Brother John!” It was also easy for them to know when I was inviting them to play because I suddenly sang and played my guitar louder, “Morning bells are ringing, Morning bells are ringing, Ding, ding Dong! Ding, ding Dong!” The regular structure of the song was altered by extending this second part (“Morning bells are ringing...”) so that once children joined in with their maracas they were able to continue
playing longer than what the traditional structure offers. (Usually the phrase is sung only one time.)

Here we see two and three year old children, who have met me for the first time less than thirty minutes ago, performing recognizable music. They may have known the material (as is most certainly the case with “Twinkle Little Star”) or not. Either way, they are showing a willingness to follow an unfamiliar adult through a new format and still manage to convey a conspicuous degree of musical cohesion. While the resultant music is not by any means polished and sophisticated, nevertheless the musical collaboration is far from presenting itself simply as a chaotic jumble of sound. The session started out with sounds made by either voice or “body drum” and then progressed to include sounds made with instruments. Collectively, these young “toy-loving” people were respectful enough to the true purpose of the occasion, i.e., making music, and did not relegate the instruments to a role of incidental, casual “play objects,” i.e., toys, but instead appeared to value and respect them for the intended purpose – to make music.
PRESCHOOL participants by identifying code and age:

Site 1 – Grp A: DK 3.8; DL 4.2; CLS 4.6; SLY 4.8; JD 4.9; QN 4.10; RB 4.11; DN 5.0; CLP 5.4
Site 1 – Grp B: BK 3.4; MTN 3.5; GL 3.7; MSH 4.3; JRD 4.6; RY 4.7; MI 4.9; CHL 4.9
Site 1 – Grp C: JS 3.3; ALS 3.5; AB 3.5; LM 3.6; BOC 4.0; RD 4.3; TY 4.4; NN 4.10
Site 1 – Grp D: SA 3.8; EV 3.9; AN 3.9; VR 3.9; MS 3.11; LB 4.3; MK 4.4; GR 4.10
Site 3 – JH 3.7; JC 4.3; ZO 4.4; LN 4.4; JM 4.5; MO 4.6; VT 4.6; QN 4.7; FL 4.7; ER 4.8; MC 4.8; KM 4.10; AD 4.11; DN 5.1; ME 5.2; [AY 8.2, older sibling guest in Session 1only.]

Site 1: Age range, 3.3 – 5.4  Mean: 4.3
Site 3: Age range, 3.7 – 5.2  Mean: 4.6
Total Age range: 3.3 – 5.4  Mean: 4.6  Median: 4.4  Mode: 4.3

Site 1, Site 3

The ages of children enrolled in the preschool classes at Sites 1 and 3 range from three to five years old. This age range comprised the largest population of the study. At Site 1, there were thirty-five preschool age children, almost equal to all the other Site 1 groups combined. (The primary, K, and toddler groups at Site 1 equaled 42 children). The group of fifteen children participating at Site 3 was comprised only of preschool age children. The combined number of preschool participants from Site 1 and Site 3 was 50.

Considering the preschool children at Sites 1 and 3, the gender profile was equitable with twenty-six boys and twenty-four girls. The racial profile was not as equitable given that sixty-two percent of the children were White, all of whom were at Site 1. At that site there were two minority children one Asian-American child and one Hispanic child. At Site 3, ten children were Hispanic and five children were African-American.
As will be evidenced in the examples below, the design and progression of the activities were exactly the same for the preschool children as they were for the “toddlers” who are anywhere from one to three years younger. Yet, there is clearly a different “tone” to the session that has little to do with the music-making. The development of the children’s oral language skills and cognitive processing capabilities are very evident. Many preschoolers have become proactive in their communication in that they say unsolicited, random and provocative things – that may or may not be related to the music-making that they are currently involved in.

Given the short “probation” period bestowed on me during the beginning of each first session, hesitant scrutiny quickly turns to complete acceptance, especially for children who are more gregarious. (Such outgoing personalities can be distinguished even among the younger toddlers but the numbers begin to proliferate among the preschoolers.) Thus, a significantly greater number of children were approaching me much sooner, especially to ask questions but also to share observations and/or make pronouncements, e.g., “My brother has a guitar like that!”

Prior to the start of the study, the thirty-five preschool children at Site 1 were divided by the teacher into three groups of nine children each and one group with eight children. The fifteen children at Site 3 attended the sessions as one group.

All Site 1 preschool groups met with me in the same “library” room as the younger toddler groups. Unlike the toddler groups, some preschool children were likely to have had previous visits to the school library. Not unlike some of the toddler’s behav-

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ior, some entered the library and immediately walked across the room and down the
aisles created by the tall bookcases, continuing until called by name by a teacher or until
a gentle touch beckoned them back toward the “center,” a locus that was initially invis-
ible to many of the children. Some stayed close to or held the hand of the teacher or
parent usually because that is how they arrived or because they were being more cau-
tious in an unfamiliar space. Others remained very aloof from adults and peers, obvious-
ly comfortable with handling the situation on their own. The unfamiliar guy (me) stand-
ing around and uttering what was intended as friendly, welcoming statements, was cas-
ually observed by some children but certainly not all. Some seemed to perceive me with
disinterest. (“Is that a funny looking bookcase with glasses and a beard?”)

At Site 3, the music activity took place in the children’s classroom on a large,
round carpet in an open space used for “circle time” and other group activities. Whereas
the library room at Site 1 was very unique (it is not common for preschool children to
have access to an on-site school library), and whereas the Site 3 classroom was very typ-
ical and even a little congested with preschool-type paraphernalia, both venues were
completely adequate for the music-making activities and, in a sense, became neutral-
ized in terms of what they contributed to the study. There is no question that the com-
fort and safety of their surroundings are basic prerequisites for enabling them to focus
on me throughout the activities. Also, for many on the first day, the assortment of music
equipment which I brought with me – especially the guitar – helped them to shift from
seeing me as a stranger to seeing me as a “music person,” i.e., someone who “delivers”
music, which seemed to evoke positive affect.
At Site 1, the children were led along a small walkway from their classroom to the library especially for the music session. The Site 3 children stayed in their own classroom where I needed to set up as children watched. The study took place in the “second semester” of the school year and most likely all participants had been at the school since the beginning of the school year. As with the Toddler group, specific information relating to children’s “start dates” or weekly/daily attendance schedules were not reviewed pending a need arising from perceived distress that might be attributed to scheduling logistics. Given that there was no discernible sense of such distress with any of the children during their participation in the study, analyses of schedules were considered to be unnecessary.

The teachers at both sites were expected to speak with their students so as to give an appropriate explanation regarding the purpose of my visit and the nature of the activities. Apparently this had taken place. It appeared that all the children at Site 3 were immediately welcoming and interested in me. This may have been due to the advantage they had in seeing me arrive with a collection of interesting things including a guitar case with its very distinctive size and shape. As mentioned in the section on Toddlers, many young children seem able to identify a guitar and understand its purpose.

77 It is common in preschool education that both weekly and daily schedules vary from child to child within a group comprising a classroom.

78 A script was not provided and it was left to the teachers to explain about the study to their children in an age-appropriate way. Per IRB requirements, it was to be made clear that no one was required to participate and could abstain if desired.
For virtually all the participants, a guitar seemed to fall into a category of “good things.” At Site 1, I was already set up and waiting for the children’s arrival. Initially, they seemed more interested in the library room than me, at least during the first few minutes on the first day. As with the younger toddlers, visible signs of distress in the preschool children at the time of the initial encounter with me were virtually nonexistent. (The only notable exception was LM who arrived crying but soon stopped.) Again, Site 3 children had the particular advantage of accommodating me as a guest in their regular classroom, a universal “comfort zone” for most children. Though outside their classroom, Site 1 children clearly conveyed that they were in a place of safety and trust.

Site 1 had 13 preschoolers under four years old. (JS, the youngest child in the Site 1 Preschool program was 3.3 years which was the same age as RFL, the oldest child still in the younger Toddler program.) Preschooler CLP at 5.4 years was older than the youngest children in the generally older Kindergarten group. (Kindergarteners IZ and CAS were both younger than preschooler CLP.) These statistics underscore the striking range of development and maturation - and the concomitant behavior – found within a preschool group, ranging from children whose demeanor was still almost “babyish” to others who are impressively “sophisticated” (relative to the age). For example, LM (3.6 years) “had begun to cry as the group was entering...” whereas RN (4.3 years) “enters the room and immediately plants himself in a kneeling position near the front of the [taped-off area called the] ‘music square.’” Of course, chronological age is never the sole factor in the behavior of a young child. JS, introduced above as one of the youngest in
the Site 1 preschool group, “enters in a half-run and immediate heads for the front of the room...,” with no visible signs of any trepidation. The maturity factor among the younger preschoolers could also be observed in terms of how some initially respond to the space and perceive directionality. As Preschool Group B arrived for their first session and began to settle on the carpet, children were facing in all different directions. Even after I had begun to speak, BK and GL (ages 3.4 and 3.7, respectively) were still facing away from me, looking back at me over their shoulders. (Teachers did not intervene and they eventually turned to face me.)

As with the younger toddlers, the preschool children’s behavior and reactions generally seemed to be informed by a sense of safety and security which, again, seemed to emanate from the fact that they were in a place they trusted, with people they trusted. When necessary, as determined by issues of safety or adherence to rules, teachers issued calm verbal reminders and/or subtle gestures that proved sufficient for guiding the children. Sometimes reassurance came directly from the music as was the case with LM. The transcription reads, “His sobbing abruptly subsides as the guitar begins.” (Transcription PS(C)-1, p.1).

After less than three minutes after the beginning of the session, I strummed the guitar and the pedagogically-constructed, sociocultural experience shifts into second gear.

Transcription, PS(C)-1, p.1:

*Essentially, the commotion and confusion of a group of children who have just*
arrived in an unfamiliar place for an unfamiliar activity, suddenly assumes a very familiar and stable sense of group organization: [After strumming the guitar] PI, in the role of music leader, becomes a focal point, drawing the attention of all children in the room. If, moments earlier, the collective focus of the children might have been graphically represented by sporadic dots and irregular lines, [it] now has transformed into a well-defined triangle with PI at the vertex. Most interestingly, this has occurred with virtually no specific directions from the present adults...

The Site 3 children were able to focus quickly possibly because the music activity was in significant contrast to the preceding table activity in another part of the room. Then, too, directions from the classroom teacher made the transition mandatory although the children were not treated as though they had to do anything specific other than be there. The “opt out” explanation I gave seemed to be a moot point given the general level of interest by all and exuberant enthusiasm by many.80

The preschool children’s “first day” behaviors show some music-related actions almost identical to the younger toddlers. Therefore, it can be assumed that they have access to similar kinds of internalized music-making knowledge and skills as their younger peers. As preschoolers, however, they have become even more deeply rooted in the

80 Children who were present but chose not to participate were nonetheless observed showing a keen interest in what their peers and I were doing.
complex nature of school-based (i.e., pedagogically engendered) child-to-child and child-to-adult relationships. While not completely absent among the younger Toddlers, the preschoolers show an even greater habituation to the school environment particularly in terms of social patterns. This is reflected in the way most, if not all the children, show their own sense of belonging and, quite wonderfully, also a recognition and respect for their peers’ right to be there. A developmental distinction between preschoolers and toddlers is also observed in the way that higher levels of oral language skills are employed for social interactions (both benevolent and contentious) – although still regularly accompanied by communicatively important gestures and facial expressions. Overall, there is a noticeable, qualitative distinction in the way preschool children now pay attention to one another.

Clearly noticeable was a progressive difference in the introductory remarks or “lead-in” to the activities I was able to present to the preschoolers. For example, when introducing “Brother John” (“Frere Jacque”) with the Toddlers, I simply began singing the refrain, “Morn-ing bells are ringing ...” so as to let them hear a vocal rendition of what we were about to do together.\(^8\) However, with the preschool groups, the first thing I did to introduce the song was simply play the melody on the guitar - a much more “abstract” delivery. Following this, I then would talk to them about the music, e.g.,

\(^8\) See Transcriptions TOD (a) – 1, p. 9.
“Do you know that music?”, or tell them the story about Brother John, and only then actually sing the song to them.

The conspicuous use of language that accompanied the preschool children’s music-making suggests that the significance of the music behavior may not be fully understood if measured in isolation. It is believed that this investigation is best served by viewing their music-making behavior holistically, as one feature of a complex pattern of behavior enabled in part by emergent perceptual capacities and fostered by pedagogically-devised relationships and social skills. Indeed, it would be very unnatural to facilitate music-making with young children under a mandate to isolate only the skills that produce the physical presence of music. To what purpose would this serve average children who are not prodigious and are not seeking extraordinary music-performance opportunities? For the preschoolers in this study, independent thinking, decision-making, and verbal exchanges are all beginning to evolve together during social encounters including occasions of music-making. An example is in the following transcription.

Transcription PS(B)-1, p.3:

PI: And I can play [Itsy Bitsy Spider] on my guitar, too...like this...

PI sings and plays rhythm on guitar. [Teacher] joins in singing right away as do RY and MTN. MSH is “singing” along with the sleeve of his shirt stuffed in his mouth.

PI (as song ends): Wow, you guys know a lot of songs.

Unsolicited, RY begins to sing the song again by himself. The words he enunciates
are not exactly the regular words of the song but follow the phrasing of the song. He stops himself after four phrases. Both teachers sitting in back of the group, smile with enjoyment.

PI (to RY): You have a nice voice. Do you like to sing?
RY: Yes.

JRD: I have two instruments. I have a drum and a flute.
PI: I like drums too.
MTN: I have a drum, too.

BRK, who is sitting in front of MTN, turns around and hugs him, then moves back to her sitting space.

[Code name and age of children: BK 3.4; MTN 3.5; MSH 4.3; JRD 4.6; RY 4.7]

Thinking and language use are not always applied directly to the music.

Transcription PS(A)-1:

PI sings through the refrain two times and stops. Save for one or two extra beats by CLP on her maracas and DL on his frog, all the children stop [with PI].
PI: Did he wake up yet?
Many voices: No.
PI: Hm-m, what can we do?
SLY (adjusting her finger): I need to fix my ring...

[SLY 4.8]
Comparing Behavioral Elements Between Toddlers and Preschoolers

I reviewed the children’s videotaped behavior from each session to observe whether occurrences of the elements as identified in the protocol were present and, if so, what the frequencies of their occurrences were. It should be noted that the progression of musical ideas, concepts, and activities presented to the preschool children followed very closely to the way they were presented to the younger children in the toddler group. In certain specific aspects, the presentations were virtually identical.

Ages (Years.Months): Toddlers, 2.3 – 3.3  Preschoolers, 3.3 – 5.4

Observed occurrences of making sound

All Toddlers (6 sessions): 25.3*

All Preschool (8 sessions): 42.5*

Percentage of increase: 68

Observed occurrences of making rhythm

All Toddlers (6 sessions): 12.0*

All Preschool (8 sessions): 20.9*

Percentage of increase: 74

Observed occurrences of collective musical form and cohesion

All Toddlers (6 sessions): 50.35*

All Preschool (8 sessions): 62.5*

Percentage of increase: 24
* Note: These numbers reflect the averages of the aggregated occurrences for all the Toddler groups together and all the Preschool groups together from Sessions 1 and 2. Averaging the figures was necessary for quantitative accuracy because the absolute number of occurrences is higher for the preschool groups than for the toddler groups due to a greater number of preschool children: There was a total of 8 preschool groups participating over the first two sessions as opposed to 6 toddler groups over the same number of sessions. Therefore, by calculating the averages of aggregated occurrences between the two developmental levels, we can make important inferences regarding patterns of music-making behavior between the slightly older preschool children (ages 3-5) and the “toddler” children (ages 2-3):

First of all, the figures show that although there are quantitative differences between the two developmental levels, essentially the *same music-making behaviors* are present throughout the age range of both groups, i.e., ages 2-3 years old and ages 3-5 years old. (This, in fact, was true of the total group of participants across the full range of ages 2-8 years old.)

[82] In looking at these particular excerpts, we see that the percentage of increase is higher for the older children in the first two categories, creating sound and creating rhythm. This seems to be attributed to the fact that both categories are characterized by the need for a certain degree of physical dexterity. The older preschoolers are assumed to have developed greater levels of physical dexterity that would enable more salient occurrences of these behaviors. Conversely, the greater presence of

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82 As noted in other sections, four of the children had turned eight years old by the time schedule was set up with the school.
ego-centric behavior among the younger toddlers would have a negative correlation in regard to displaying these behaviors due to a higher potential of distractions that would diminish the number of salient occurrences. Most interesting, we see in the third category, Music Form and Cohesion, behaviors based more on collective group responses rather than individualistic abilities (such as physical dexterity) are not as disparate. This suggests that the social cohesion necessary to produce musical cohesion may be more equitable across both developmental periods.

Socio-economic Factors

Making music and/or learning how to make music are not typically considered essential but rather enrichment for children. A general assumption derived from social science and common sense suggests that children of families with a higher socio-economic status (SES) are, over the course of their childhood, probably exposed to a greater number of extracurricular enrichment activities – including those related to music - than children from families with a lower SES. If music is not offered as a part of a school’s curriculum and unless there is a musically proficient family member, neighbor or friend freely willing to offer instruction in music, it becomes an added expense for a family to enrich their child’s life with music-learning experiences. The additional expense might come initially when purchasing or renting an instrument and then continue in the form of making payments for the instrument and/or music lessons. Due to financial constraints, we can infer that families with a low SES probably have fewer opportunities to provide their children with diverse, high quality musical enrichment activities.
Taking this scenario as a broad generalization, it can be postulated that if socio-economic status is a determinant in formulating a young child’s relationship with music and music-making, it might be common to see demographic patterns that show a significantly greater number of children from high SES families displaying greater skill development in music-making behavior than their lower SES counterparts. In the context of this study, a significant demographic distinction between the Site 1 preschool children and the Site 3 preschool children is a general disparity in socio-economic status.\textsuperscript{83} For this reason, it is interesting that the data from the field study show absolutely no glaring differences between the children at the two sites in terms of perceived predispositions, mental and physical aptitudes, general attitudes, skill levels and attraction relating to music-making activities.

Essentially, an equal representation of the behaviors contained in the observation protocol, i.e., the 133 items used for coding the music-making activities, is found in the analysis of Site 3 preschool children as they engaged in music-making behavior, and is virtually identical to the behaviors displayed by the Site 1 and Site 2 children. In fact, the data shows significantly greater \textit{intra}-site variances across the identified behaviors among the four groups of Site 1 preschoolers (a variance of approximately 45% during

\textsuperscript{83} Available data comes from the on-line Los Angeles Almanac, \url{www.laalmanac.com/employment}, in the section Median and Per Capita Income in Cities. Comparing the general communities of Site 1 children [A] and Site 3 children [B], it shows that for the Median Family Income (MFI) between 1999 and 2005, the increase for [A] was 15% and for [B] was 0%. This resulted in a $91.9K MFI for Site 1 and $39.9K MFI for Site 3, a 57% disparity.
the first two sessions) than between Site1 and Site 3 (inter-site groups) the variance of
which is approximately 24%. In other words, the variance between the inter-site loca-
tions, two sites of significant socioeconomic disparity, is approximately half of what the
intra-site variance is at Site 1, i.e., all children from a higher socioeconomic status. The
inference to be made from this data is that the variances are reflecting normal differ-
ences between discrete preschool groups and are not based on the consequences of
overarching socioeconomic factors.

To support this aspect of the findings, excerpts from the transcriptions at Site 3
are shown below along with a discussion explaining how some of these behaviors were
displayed by the Site 3 children during their sessions.

Transcription HIC(1), p.8:

PI (immediately after he stops): Did he wake up?

Many voices call out “Yes!” or “No!”

ER quietly shakes his head ‘no.’

PI: Somebody said, “no.” Maybe we have to go faster!

PI begins the refrain again only at a faster tempo. All the children join in again,
shaking their bells even faster than before. Some children are smiling and
laughing and some look at their friend and smile or laugh.

Again, PI sings through the refrain two times. All the children continue to play
along. PI repeats the last phrase (“...ding, ding, dong!”) over and over and
allows the unifying beat to begin to dissipate by slowing down. Finally, PI stops
and all the children stop.
As soon as he stops, PI pretends to be out of breath. He slides back in his chair and fans his face with his hand and calls out, “Whew!” Some children are laughing and/or smiling at PI. The children agree with PI when he states that he thinks Brother John woke up.

Within this brief excerpt, there are at least ten items appearing from the protocol that parallels behavior in most of the sessions of all groups in the study. These include,

- creating the physical evidence of music through sound, rhythm, and form;

- musical form (structure) and musical cohesion occurring as a result of the group’s capability and willingness to follow the Music Leader, including starting together and stopping together, and performing ritardando together (a slowing of the tempo), normally considered a more advanced skill;

- children experiencing music-making as a “game” in the context of a story, showing high levels of engagement, understanding, and enjoyment while displaying positive affect (smiling and laughing) as they connect socially to both Music Leader and peers.

The above excerpt began approximately twenty-one minutes into the session and lasted less than one minute. As noted, the children were performing with sets of small bells attached to plastic, age-appropriate hand-held brackets.
Literally within a minute or two, the children were led through another sequence, virtually identical to the previous sequence save for introducing a new character in the story conveyed in the song. (The action of “waking up” switches over to Sister Sue instead of Brother John!) Again the bells were used. Immediately after this sequence, the bells were collected and maracas were passed out to the children. Then, continuing the same story concept and performance pattern, now performed with maracas, the sequence is repeated again almost identically.

Transcription HIC(1), p.11:

A few children start to shake their maracas just a fraction before PI starts on the guitar; but most join in right with PI as he begins the refrain at a faster tempo. Making sure to follow “the rules” of their musical game, PI stops in the same manner as before: repeating the last phrase, slowing the tempo, and then “crashing” to a stop. Different children stop at different times as PI “stumbles”[musically] into the ending, but all have stopped by the last beat PI plays. Many children are laughing as PI again does the “routine” of being out of breath. PI responds to various children as they gleefully call out their comments.

This third repetition of the sequence – performed with maracas - began approximately nine minutes after the first sequence with the bells and seven minutes after the second sequence with the bells. As the transcription shows, after three repetitions of the same sequence over a period of approximately nine
minutes, the children were still completely engaged in and enjoying their music-making behavior as indicated by the laughter and gleeful, exuberant comments being made. Between the energy of the sounds and rhythms, the “story” expressed in the song, and their ability to contribute vocally and instrumentally throughout, there does not appear to be even the slightest sense of boredom or loss of interest due to a series of extremely similar repetitions within the music-making activity.

Some excerpts indicate that, compared to the younger toddlers, levels of “musical thinking” are maturing and growing in complexity among the children.

Transcription HIC(1), p.2 (occurring within 5 minutes of beginning of session 1):

_PI plays the first phrase of the melody to “Twinkle, Twinkle Little Star.”_

VT: That’s “Row, Row, Row Your Boat.”

_PI asks her name; she tells PI her name._

_PI: I know the song you know! (PI plays the melody and sings, “Row, Row Your Boat.”)

_PI (to VT): Is that the one you know?_

VT shakes her head ‘yes.’

Strumming chords to make a strong rhythm, PI leads the group in singing “Row, Row Your Boat.” Many of the children sing along.

_PI: But that’s not the one I did…I went like this... (PI again plays the first part of the melody of “Twinkle” on the guitar.)_

VT: Twinkle Little Star!
PI (to VT): There you go! You got it! Good for you!

MO comments to PI “That's what I do at home...” and then many children begin talking to PI at the same time.

Some of the spontaneous verbal exchanges between the children and me (in the role of Music Leader) indicate that their capacities for “cultural thinking” are also growing.

Transcription HIC (1), p.3:

PI ... then plays the chorus of Jingle Bells on the recorder. QN begins to dance with his arms and shoulders from his sitting position.

VT: That's a Christmas song!

MO: It's not Christmas anymore!

Example of “Humorous Thinking”

Transcription HIC (2), p.4:

QN (remembering from the first session): We have to go faster!

PI: What do we need?

Two voices (children from the first session): Bells!

LN (not at the first session): A horn!

PI: A horn?

LN then performs his best (and loudest!) horn sound ([imitating] an air-horn from a “big rig” truck).

The music-making experience is holistic in the truest sense with many
developmental concepts and behaviors occurring either simultaneously or in rapid succession. Once the performance of a song is in progress, it almost seems counterintuitive to isolate particular behaviors. There is no single element that contains the whole experience; many elements must be combined into units which, in turn, create the experience. Music-making, as well as many, many other activities typical of children, seems to offer strong support for Vygotsky’s exhortations for analyzing complex social behavior by looking at compounded “units” rather than isolated “elements.”

In terms of making music, there are layers of concepts and behaviors unfolding along with the music which include, but are not limited to,

- Learning, remembering and applying “rules” to the “game” of music.
- Following the rules over many repetitions willingly and cooperatively.
- Recognizing, accepting and appreciating the marriage of ‘song’ and ‘story’ as a way to have fun and construct meaning.
- Appreciating sound, rhythm, and musical form in “complex” ways (as generalizations that are generalized across different songs).
- Using general cognitive abilities and language skills to negotiate social interactions.

\[84\] Vygotsky could not have articulated this idea more strongly than in his classic text, *Thought and Language* (1934/1986), where he describes how neither one of the two elements that comprise water - oxygen and hydrogen, both combustible elements when considered in isolation - can explain the property of water that allows it to extinguish fire. To understand the nature of the whole, the elements must be considered together as a holistic unit (p.4).
As stated throughout this analysis, the focus of this investigation is to determine whether young children can be identified as makers of actual music. The analysis protocol begins with what seems the most logical point of departure by listing criteria that point to whether the children’s behavior produces the “physical evidence” of music. Whereas the production of sound is a primary piece of evidence for this, the more important evidence has to do with the way the sounds are organized. In this regard, there are two concepts of musical organization, the first being rhythm—referred to as the micro-organization of musical sound, and the second being form or structure, referred to as the macro-organization of musical sound. Far from being mutually exclusive, these concepts are in fact inclusive and holistic. This fact notwithstanding, it is easy to conceptually distinguish them and separate them just like we do with nouns and verbs. This is why music students of all ages are introduced to the concept of rhythm almost immediately. It is generally believed by those who teach music that rhythm (the micro-organization of sound), given its very tangible nature, is readily accessible and can be understood even by beginners. Thus, in traditional approaches to learning music, rhythm holds precedence over the seemingly broader, more complex idea of musical form or structure (the macro-organization of sound). However, the excerpt below — rephrased:

Selecting a musical sound to make is not free from cultural and subjective influences. Yet, the way we choose to organize the sound, i.e., create rhythm and form, is even more profound than the actual making of sound. This is because the choice-behavior involved in rhythm and musical structure is, simultaneously, cultural and idiosyncratic, tapping into deeply rooted perceptions that express who we are in ways that are very similar to the organizing aspects of language.
resentative of multiple similar episodes throughout the study – reveals the possibility of an alternative view in regard to young children’s music-making behavior:

Transcription HIC(1), p.7-8:

PI immediately begins the refrain, “Morning bells are ring-ing…”, singing strongly and playing a rhythm energetically. All the children immediately join in. Most children begin shaking their bells as fast as they can. Some children (e.g., MA and ZO) begin shaking their bells in a way so that their rhythm pattern “matches” or is “in-sync” with the rhythm PI is playing.

Note: It is highly probable that no child is consciously aware of whether they are or are not “matching” or “in-sync” with the “pulse” that PI is creating with his guitar rhythm. What each child knows, with no equivocation, is that it is time to join in with PI and their peers and play the bells that they have been given to play. They are all able to organize their sound according to a “macro” concept, i.e., that it is time to “make a sound” along with PI and all their peers. The “micro” concept, i.e., the rhythmical organization, is not a conscious concern although each child performs some type of rhythm. AY, who is at least 2 or 3 years older than MA, shakes her bells rapidly with no concern for playing the “pulse.” Even though she is 2 or 3 years younger than AY, MA's playing is more “complex”: As PI sings the refrain the first time, MA can be observed executing the rhythms of the vocal phrases (i.e., “word-rhythms”). Then, as mentioned above, as PI repeats the refrain, she “settles into” playing a steady beat (i.e., the “pulse”) along with and “in-sync” with PI, continuing with him until he stops.

As discussed in other parts of this analysis, this study was not designed to
record or measure specific performance patterns of individuals. Individual behaviors have been noted intermittently when certain acts are seen as representing key ideas related to the study. The preceding excerpt describes the responses of individuals and the collective group and, in doing so, posits an alternative view of the genesis of young children’s relationship with music, i.e., being based on concepts of form and structure.

First we see that all the children join in. This means there is complete social cohesion which translates into complete musical cohesion which can be heard as many sets of bells spring into life all at the same time. This is not unlike what a violin section of a symphony orchestra does. Immediately, the macro-organization of the music-making behavior is heard and felt; anyone present - whether a participant or observer/listener – is unambiguous about the fact that a music performance has begun. Once the music has commenced, it is possible to look/listen more closely to reveal that some of the children are simply shaking the bells randomly as fast as they can while other children are “matching” or “syncing” their rhythm to the Music Leader. This latter scrutiny may address particular skills of particular individuals but, in the moment, it really doesn’t matter. What matters is the nature of the macro-organization which, with this group in this moment, is completely coherent and therefore displaying authentic music-making behavior. The comparison of AY and MA is significant because of the age differentiation and the inverse display of skills (i.e., the younger child demonstrating “more complex” behavior that the slightly older child).
Again, the assumption being made about the rhythmic awareness of the children speaks to the assertion of an alternative view. Clearly, it is not necessary to record or analyze how accurately or consistently individuals are performing specific rhythms. The music is being defined by their collective behavior and the fact remains that, together, there is musical cohesion. This, in effect, highlights the significance of recognizing when it is important for the macro-organization (the musical form) to take precedence over the micro-organization (the rhythmic performance of individuals) in consideration of young children’s music-making behavior.

The importance of the macro-organization of music (form) is also seen in the following brief excerpt. Here is a situation where no observations are made of individual behaviors during the music-making; only the collective response of the group. Again, the actual patterns performed by individuals during the performance would be regarded as important data if the focus of this analysis was specifically on individual musical skills. But, just as in the previous excerpt, individual skills are not the determinants of whether the music-making can be identified as “authentic.” Essentially, it is the cohesion of the group.

Transcription HIC(1), p.12-13:

*PI gives a head gestures to the children holding instruments and begins playing a steady rhythm with a full chord, singing louder, “Boom, boom, boom, boom…” etc. The five players immediately join in playing along with PI. PI sings two verses without stopping (approximately 1 minute) and the children continue to*
play very dutifully stopping only when PI “cues” them to stop. PI gives a verbal directive for the children to stop but it is after the fact. Essentially, all five children follow the “musical” cue that occurs within the song, i.e., when PI stops the steady beat and plays a series of five accents that synchronize with the words. On the last accent (which PI has slowed down only slightly), all five children stop exactly along with PI.

Explanation of “…all five children follow the ‘musical cue’ that occurs within the song…” It is very easy to gloss over this descriptive phrase without noting its significance. The fact that the children are able to follow a “musical cue” means that the Music Leader is not giving verbal directives or making gestures to guide the children to make a change in their musical behavior, i.e., start, stop, slow down, etc. It means they are listening and responding to the energy and dynamics in the music and, collectively, are able to respond appropriately so as to maintain the musical cohesion. Again, these are children spanning the ages of three years to five years who have not engaged in this particular music-making behavior with me before.

Very strong sociocultural dynamics are evident in the following excerpt. Particularly notable is the interplay between QN (child) and CRT (classroom teacher). QN is enjoying himself as he engages in music-making behavior and in this instance is moved to connect with his teacher in a very personal – musically playful – way. Also, AY performs for herself and the group by making
“cheerleader” type movements to highlight the musical structure. Interestingly, these moments of social interaction do not detract from the music-making as the excerpt also indicates the musical cohesion of the group is very strong.

Transcription HIC (1), p.13:

PI immediately begins to play a sustained chord on the guitar (i.e., a “drum roll”). Each child joins in individually but all are playing along with PI within a couple of seconds.

QN smiles at CRT and shakes his maracas toward her (who is kneeling on the floor right next to QN) not mischievously but seemingly out of a sense of playful “connecting”; she smiles back and shakes her shoulders along with his maracas. Continuing the “long sound,” PI builds tension with his voice and guitar (ascending up the neck for higher tones) and then gives the verbal cue for the “cut-off,” “Read-y...AND...STOP!” All five players stop with PI exactly on the last beat, or “cut-off.” AY freezes in a cheerleader-type pose with her hands (holding the maracas) over her head.

CRT leads the applause which is joined by the other children on the rug. Some children with instruments (having already stopped) join in along with the applause by shaking their maracas. VT (who may have seen AY) holds her maracas over her head in a victory gesture.

The discussion above posits a significant level of importance for the “macro-organization” of sound in relation to young children’s music-making behavior. When strong social cohesion is reinforced by strong musical cohesion (resulting from a
collective choice to follow the guidance of a Music Leader) the session is likely to be satisfying and successful musically, developmentally, socio-culturally, and pedagogically. Still, the “micro-organization,” or rhythmic expression, is also important. However, it must be kept in mind that rhythmic expression is mostly undeveloped in young children and, therefore, very idiosyncratic. Fortunately, as discussed above, most of the individualistic behavior is “neutralized” by the macro-organization, guiding all playing toward the “mean” behavior and thereby supporting the group effort. Still, to support the developmental goals of this study we can look at factors that relate to individualistic behaviors and seek to understand more about the music-making behavior at it manifests in specific children. Therefore, looking at the way they manifest rhythmic (micro-organizational) behavior as they perform is completely aligned with the goals of this study. This final excerpt does, in fact, give close scrutiny to individuals as they engage in simultaneous playing of maracas during one of the songs.

Transcription HIC (1), pp.13-14:

*As the children are shaking their maracas or bells, it is again possible to observe the various ways that preschool age children instinctively accompany a continuing rhythm that PI is playing on the guitar. All the children are holding one instrument in each hand.

MA shakes both hands (both maracas) together at first but soon stops one hand and continues with the other; then resumes with both hands. Throughout her playing, she (like earlier) is able to express the “pulse” that PI is playing, keeping her arm movement synchronized, for the most part, with PI.*
DN begins by simply shaking her maracas rapidly but soon is able to “find” the pulse and continues for a while matching the beat that PI is playing. However, she continues to vary her execution quite a bit sometimes shaking the maracas rapidly, sometimes just one, sometimes both hands together (parallel movement) or sometimes alternating left/right.

JH is relatively consistent, keeping both maracas moving together (parallel) and staying in-sync with the pulse PI is playing.

ZO is consistent in the way she shakes both bells together and in her own rhythmical movement but she is unaware/not concerned with the beat or “pulse” coming from PI.

ER starts out shaking both maracas together (parallel) but soon seems to find a comfortable “groove” with an alternating movement originating in his wrists rather than his whole arm. He stays with this “beat” most of the time through one verse but sometimes just shakes them. Continuing into the next verse, his playing changes considerably. He does not shake his maracas as consistently but instead adds a modest “dance” movement either by bending his knees up and down or turning his shoulders left and right.

All are “working” together successfully because they are adding the sound of their maracas to the musical performance by accompanying PI on the guitar at the appropriate times during the “performance.”

Again, without cuing the children, PI suddenly pauses his rhythm after two verses. All the players stop when PI stops.
Kindergarten participants by identifying code and age:

Site 1 – Grp A: CAS 5.0; IZ 5.0; OL 5.2; MRM 5.6; JY 5.7; ARL 5.9; AD 5.10; GV 6.2; AN 6.4
Site 1 – Grp B: YSM 5.2; MT 5.2; ML 5.3; NLS 5.3; NH 5.6; DGO 5.6

Grp A: Age range, 5.0 – 6.4  Mean: 5.7
Grp B: Age range, 5.2 – 5.6  Mean: 5.4
Total Age range: 5.0 – 6.4  Mean: 5.5  Mode: 5.6  Medium: 5.6

Site 1

The youngest age of the participating children enrolled in the Kindergarten class at Site 1 was shared by two girls who had just turned five. There were also two 6-year-olds, the oldest reaching 6 years, 4 months. This 16-month age-range comprised the second narrowest range of all the groups in the study, the Toddler group with the narrowest range spanning only 12 months. Also, the mean age of the Kindergarten group is 65 months or just under five and a half years old. Comparatively, this shows an 11-month differentiation in the mean ages of the Kindergarten and younger Preschool groups, and a 32-month differentiation in the mean ages of the Kindergarten and much younger Toddler groups. The importance in noting this is that, despite chronological ranges that would be highly significant in terms of skill development in certain areas (e.g., language and math) which would normally warrant a comparable adjustment in age-appropriate activities. However, these ranges are not as significant in regard to the children’s music-making behavior: I used the same musical material and, with only few deviations, followed the same progression for moving through the songs. As the results of this study
show, there are many qualitative similarities found in the music-making behaviors of
cchildren all across this age range.

Yet, this does not mean the older children received a compromised or “watered-
down” musical experience to prove a point that their activities can match their younger
peers; nor does it mean that the younger children were “pushed” in order to prove that
they can match activities with their older peers. The unique experience of making music
is such that identical materials and progressions were completely appropriate across
this age span as the videotapes of the field work clearly reveal. The notable adaptations
for the varying ages manifested mostly in the mode of presentation not the progression
of concepts. Moreover, the adaptations were characterized mainly by the varying style
and content of language used by the Music Leader to describe or discuss activities and
to conduct peripheral verbal exchanges with the children; all of which are extraneous to
the actual music-making.

Prior to the start of the study, the fifteen children were divided by the teacher
into two unequal groups, Group A consisting of nine children and Group B with six chil-
dren. The gender profile of the aggregated class consisted of nine boy and six girls. The
racial profile was seventy-three percent White (11 children) and twenty-seven percent
non-White (4 children either Korean-American, Hispanic or racially blended).

All Kindergarten groups were at Site 1 and met with me in the same library room
as the toddler and preschool groups. Like the preschool children, the Kindergarten chil-
dren who have been enrolled at the school for a while (possibly one or more years)
were likely to have had previous visits to the school library, not only to borrow books but also for special events. When each group arrived for their first session, the prominent temperament displayed by each was positive and upbeat as if they were attending one of their special events.

Overt signs of the Kindergartener’s social development in comparison to their younger co-participants, some of whom were as much as 3 years younger, were obvious. As this group of mostly five-year-olds entered the library, everyone seemed able to size-up the scene and assume a definitive sense of presence, space, and directionality. Seeming to understand there was a purpose for this visit, each moved and settled down quickly in the “music square” (the taped-off area of the carpet), and except for normal kinds of brief exchanges with classmates, appeared ready to experience whatever their teacher had described or “promised” was in store in relation my reason for being there.

The socio-cultural dynamics framed in a pedagogical context were immediately evident (within the first two minutes) during the first visit of Kindergarten Group B on Thursday, February 17, 2011. In the following excerpt we see how the overtures of deference the teacher extended to me seemed to convey to the children that, although I am a guest presenter, I am also a benevolent adult who is interested in things that they do.

Transcription, K(B)-1, p.1:

*The teacher speaks softly to a student suggesting that they tell PI what special day it is today and to explain about the necklaces they are wearing. Several students*
begin to talk to PI from their seat on the carpet, explaining that today is the 100th day of school (since the beginning of the school year) and that the necklace that each student has [is] made [with] 100 beads. ML is announcing the colors of his necklace but PI is noticing the colors of another student’s necklace. ML finally gets the attention of PI and repeats the colors. The exchanges continue for a bit between PI, students and the teacher who is happy to contribute some of the details of the “100 days” project.

Arguably, it is the school environment (which includes the trust they have of their teacher86) that allows the children to immediately accept me and move directly into a familiar and comfortable way of relating with me, ostensibly patterned after other teacher-student relationships they experience at school. As with the younger groups, the guitar proved to be an immediate draw now evoking more mature, more complex comments and responses, though still characteristic of young children.

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86 By referring to the “trust” the children have in their teacher, I am espousing the view that the child’s perception of school is predicated not only on their relationship with a physical place but also the psychological experience as well.
Transcription, K(B)-1, pp. 1-2:

PI (picking up guitar, putting strap around shoulder): Look, do you know what this is?

Several children: A guitar!

PI: When you say you like music, it means you like sound! Because when you listen to music, what do you hear?

YSM: Sound.

(NH, who has a mild nervous condition, is making subdued vocal noises.)

NH: I like rock and roll!

DGO starts to mimic playing a guitar.

PI: Oo, I like rock and rock, too!

NH: an' it's so loud.

NLS (raising hand and momentarily rising up on knees): Guess what? I have a ukelele.

There are various comments by the children regarding guitars and ukeleles, sometimes raising their hands but mostly talking out due to high levels of interest and enthusiasm.

It was very interesting to observe how the actual music-making behavior patterns of the Kindergarten children compared to that of younger children. Highly relevant to this study is the fact that similarities far outnumber differences. By following the same protocol items used in the data analysis, patterns appear showing that many as-
pects of the music-making behavior of Kindergarten children are virtually identical to
their younger peers who were as much as four years their junior.

Transcription, K(B)-1, p.3:

PI: So how do I play the flute?

Some children respond to the question verbally; others begin to mimic playing a
flute. PI begins to play and DGO “joins in” playing his “air” flute and moving to
the rhythm.

PI: I know lots of songs. Let's see if you know this one...

PI begins to play “Twinkle Little Star.” As soon as MT identifies it, PI invites the
group to sing along. MT begins to sing immediately; PI says, “Wait, let's do it all
together. The song is repeated with all singing along except NH. YSM makes the
typical “stars up in the sky” upward arm gestures while singing. NH briefly
makes hand movement near the end of the song.

The teacher is sitting just behind the group. Yet, throughout session thus far, by
either singing, soft verbal responses, or facial expressions in response to PI
and/or children (with children looking at her very little), she is fully participating
in the session.

There are certain Kindergarten behaviors that seem to align with conclusions
drawn by Piaget relating to five-year-olds, i.e., that they have not moved developmen-
tally completely away from behavior characteristics of the earlier sensorimotor stage
(Ginsberg & Opper, 1988, p.83). However, within the specific and unique context of children's music-making, there are other interpretations available.\footnote{Given the resemblance of all children’s music-making behavior to similar adult behavior intended for the same purpose, there is reason to posit whether it might be the younger children who are “playing it forward,” not the older children maintaining vestiges of earlier stages. Piagetian theory prompts us to consider whether we might be seeing a predisposition in children that exploits a hereditary mechanism.}

The definition of music used for this study stresses the importance of structure, or musical form. Therefore, if children are attempting to make music together, they must function symbiotically, acting in alignment, so that their collective sounds are produced in such a way as to make musical “sense,” i.e., create structure. An important goal of this analysis was to identify the presence of musical form and musical cohesion in the children’s music-making behavior. In doing so, it was important to adhere closely to the purpose of this study by considering the \textit{results} of the behavior (i.e., the musical product) in light of those who are making it. This, I believe, is in the spirit of a true ethno-musicological study that would, for example, consider the music-making by the Dogon people of Mali as culturally distinct from the music-making by a group such as the American String Quartet. The view informing this study is holistic and phenomenological; the children are seen as constituting a sub-culture of music-makers who cannot be abstracted from their environment.

Transcription, K(B)-2, p.4:

\textit{PI (beginning again): Okay, get ready...When I say “Go” I want you to join}
me...start on your legs...1, 2, ready; go!

YSM and NLS start on their legs as directed and match the beat. YSM is consistent throughout; NLS does well but gets off beat after a while. DGO and MT begin the movement slightly ahead of the cue. So, as PI gives the cue, MT claps first [instead of slapping his legs] so at first his pattern is reversed [from the way PI demonstrated it]; but then he [corrects] himself and falls in-sync with PI. DGO, who also starts too soon, manages to start on his legs but his rhythm is much faster than PI. However, he, too, “corrects” himself and falls in-sync with PI. ML waits for the cue from PI but [like MT] starts by clapping[not slapping his legs]. ML's rhythm is much slower than PI so is not in-sync rhythmically but continues until PI says, “Ready, stop.” The total duration of the rhythm is not quite 20 beats and everyone stops when PI gives the cue. Despite the nuanced disparities between the individual performers, there is a group cohesion because, given a liberal interpretation, everyone basically started and stopped together.

The teacher (not the same one who attended session 1 a week ago) is again sitting behind the group where the children are not looking and is participating in all the activities, following the prompts given by PI.

Occurrences of “self-correction” as depicted in the above excerpt are especially significant as examples of when physical dexterity is attempting to “catch up” with perceptual fluency. Again we can recall the observation that “behavioral limitations can so
easily mask knowledge” (Gelman, 2006) and infer that this hypothesis can apply to musical perception as well as general knowledge.

As I focused my attention on the music-making behavior of the children, part of the effort was necessarily to determine if musical form and cohesion were present and, if so, to what extent. Occurrences of these features were identified in several ways. Firstly, I observed children to see if they were responding intentionally and cohesively when starting their sounds. If members of the group were continuously starting their sound randomly there would be little sense of musical form and cohesion. Ideally, when a music maker who is a member of a group (be it adult or child) starts her sound it should be in response to the Music Leader and connected to her musical confederates who are also responding to the Music Leader.

Transcription, K(B)-2, p.5:

PI immediately begins the alternating slap/clap pattern with his “body drum” (purposely matching the beat of the song he just sang).

First MT, then YSM (and the teacher) join in playing the beat with their “body drums.”

PI: Start together...start on your legs...Ready, GO!

88 There are of course occasions in the performance of some music, especially contemporary music, when randomness or free improvisation is called for to convey a specific feel or emotion. The “performance material” used for the sessions with the children did not call for that style.
This time, PI begins singing the chorus of Skip To My Lou as he continues the “beat pattern” with his “body drum.” All the children join in together, performing the pattern with their “body drum” as they had practiced before.

In the preceding excerpt, the children are performing with their “body drum” by alternately clapping their hands and slapping their thighs. This technique seems to be attractive to the children as most of them usually joined in immediately with much enthusiasm. Also, it is recognized as “music specific” behavior in that young children do not usually display this movement except in a musical context. Manufactured instruments, however, served as a logical extension of the “body drum” helping to highlight the musical organization especially well because of the clarity and simplicity of their function. Even more than the “body drum,” the children seemed to perceive the singular purpose of the instruments as “helping” the music by contributing a sound. In order to see if the children would use instruments appropriately, i.e., as “tools” for making music, they needed to have their instruments prior to the “performance” so they could play them if they wanted to. Then, it was necessary to see if they would choose to use them specifically to serve the music-making. Additionally, a situation needed to be presented wherein a song was already in progress. The rationale behind this is simple: if there was no music occurring at all, some children might refrain from starting simply because there was no perceived need to do so. (Or, of course, they might continue randomly “exploring” the sound of their instrument with no need to adhere to musical
structure.) However, by hearing a musical event unfolding before them, there is suddenly a basis for deciding that it just might be time to make music.

It then becomes a matter of each child deciding when to make a sound. Despite the unifying power of group dynamics, each child theoretically gets to decide for him- or herself. The basis for making that decision is derived in part from 1) a sense of making music and/or 2) the social dynamics that are informing the music making session. Without a sense of either one or both of these factors, it would be easy for a child to justify his use an instrument to simply make random sounds (which, of course, did occur at times). In practice, this dilemma actualizes the role of the Music Leader, a person whose purpose is to instill confidence in the music-makers so that they sense he is the one that they should be following. The question remains whether individual children will understand and value the role of the Music Leader as a part of their music making and are willing to relinquish their “independence” for the sake of the musical collaboration. It is interesting that across all ages and developmental levels of the participants, most children, most of the time, willingly chose to follow me in the capacity of Music Leader.

Transcription K(A)-1, p.5 (occurring approximately 15 minutes into the first session):

PI: Okay, instruments are waiting...We’re tiptoeing over; Remember the question? I’m asking with just my voice...

PI begins to whisper sing; some children join in with voices.

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89 There are many occasions throughout the study showing that children are fully capable of choosing to not do what the rest of the group is doing.
GV begins to play bells on the [third] phrase, ‘Bro-ther John...’

PI (stops singing): Instruments are waiting; we have to ask our question first.

GV complies, stopping his bells; he is okay - does not ‘withdraw’ as if receiving a reprimand.

PI begins again, all children are holding bells still. PI follows ‘script’ of song activity. First, ‘whisper singing’: “Are you sleeping, Are you sleeping, Brother John, Brother John?” Then, “Hey he’s still sleeping! We have to wake him up!” PI sings louder with strong guitar chords and all children are playing bells: “Morning bells are ringing, morning bells are ringing, Ding-ding-dong, Ding-ding-dong”.

PI (stops suddenly): Whoa!

Whole group stops.

From a pedagogical/developmental perspective, it is worth looking closer at the exchange between GV and me as described above. I had already made the announcement that “Instruments are waiting...” Given that this occurred within fifteen minutes of the first session meant that GV was still getting to know me. Also, the phrase, “Instruments are waiting,” was a new expression to him albeit easy to understand in context. (Most of the children understood the sense of this phrase immediately.) The children were choosing not to start either in response
to the verbal directive or because the non-verbal “musical cue” from the Music Leader conveyed the same message. GV, however, began to shake his bells along with the song. In order to reinforce the message that “instruments are waiting,” I stopped, gestured or looked at him, and repeated the directive. He immediately stopped but, as the transcription documents, not as if he was being reprimanded or made to think he was doing something “wrong.” My tone was that I was reminding him of the “rules” of the “game,” that it was not yet time to make the sound with his instrument. Therefore, GV complied just like any musician who misread a musical score (which happens all the time in professional arenas). He did not withdraw as children often do for being embarrassed or scolded. He then continued along with the others and me with the “performance.”

No excerpt from any of the fieldwork transcriptions is monocular in terms of isolating a single element of the music-making process. Reviewing the data shows that the physical properties of music emerge as a result of a very humanistic, multi-dimensional interaction between the children and me. (Other adults present, i.e., teachers and parents, contributed in a supportive way at their own discretion). While the above example demonstrates the children’s responsiveness in starting their sounds, it simultaneously shows more.

The transcriptions have documented repeated occurrences of the children as they start sounds together thereby affirming their ability to function, in a fundamental way, as a cohesive musical unit. However, also present (as in the excerpt above) are the
appropriate, associated behaviors wherein the children continue the sounds and, inevitably, stop their sounds. As mentioned earlier, sounds that continue indefinitely do not convey a sense of form, organization, or structure; at some point they must stop. Despite their proverbial unlimited energy, young children may become tired or bored of a particular activity, including making sound. But musical form cannot depend on children getting tired or bored. Musical form is created by multiple occasions within a single performance of starting and stopping sounds. Music-makers must remain tuned-in and mindful of the process. Like a living, breathing organism, these start-stop cycles make the music “real.” Therefore, observing children to see whether they can intentionally and purposefully stop making a sound is as critical as observing how they start making sounds.

Transcription, K(A)-1, p.6:

PI: He didn’t wake up yet? By the way, do you know who’s right next door?

Brother John has a sister; she’s in the bedroom right next door. It’s Sister Sue!
Now we can try to wake up Sister Sue. We’ll tiptoe over to her bedroom right outside Sister Sue’s window. Now we’ll ask her a question...

PI gives no directive to children to not play; begins ‘whisper singing’ again same as before. All children holding bells quiet; some sing softly along with PI. Some children nodding head to rhythm of song...

PI (at appropriate time): Uh! C’mon we gotta try to wake her up!
Repeat performance of ‘Morning bells are ringing...’ Many children sing along; all are shaking bells, some to the actual beat of the music, some simply shaking. All stop at end of refrain, following musical ‘cue’ – not verbal cue - from PI.

The activities were not conducted as lessons intended to teach the children how to make music. It is questionable as to how much they might have learned” though it is likely they did learn something. What can be said for sure is that they were engaging in music-making behaviors, which was also true for me as well. The same behaviors were displayed over and over with virtually no protest from the children. At no time during any of the music-making activities, did children express frustration when I invited them to execute multiple occasions of starting and stopping. No one asked, “Why do we have to do the same thing over and over?” There appears to be a natural acceptance and/or understanding of the need for repetitive behavior in order to successfully make music.

Transcription, K(A)-2, p.8:

PI begins rhythm on guitar. Children join in at will. PI repeats singing first verse. AT joins in singing. Children continue to play through verse.

Arguably, the children who refrained from playing may have been “protesting” in their own way. However, of those who did not participate, it was often a decision made preemptively at the beginning (usually have nothing to do with the music-making activity) or after having grown tired later in the session.
Verse ends; PI stops and most children stop immediately. One or two extra beats are heard.

PI: Now, here’s the drums…Ready drums?

Repeat chorus as before; only drummers play along with PI’s voice and guitar.

Children with drums follow phrases of chorus perfectly. Per “rules” of the “game” they’ve just learned, others do not play.

PI: And do you know what I like at the end? I like a long sound…!

PI immediately begins a “sustained” chord on guitar. Children join in at will; PI gives no directive. PI calls out names of instruments as ‘long sound’ continues.

PI: Ready…an-n-d…STOP!

GV anticipates the ‘drama’ of the last beat by raising his stick (for the frog) high and bringing it down on the frog exactly on the last beat along with PI. AN also anticipates ‘cut-off’ by throwing arms out to side. All children stop their sound along with PI.

Whereas the start-stop cycles contribute significantly to a general sense of musical cohesion, there are other related elements that are not quite so dramatic.

Transcription K(B)-1, pp. 6-7:

The teacher immediately matches the beat of the rhythm on [PI’s] guitar, seeming to do so instinctively. YSM, who is immediately adjacent to the teacher, does the same (although she is not aware of what the teacher is doing).* ML is steady in
his arm movement with [his] bells although somewhat out of sync with the guitar.** The others are shaking the bells [seemingly] randomly or as fast as they can.*** So, although the rhythms of the bells from player to player are disparate, there is an overarching musical cohesion within the group simply because the children are able to follow the PI, who is acting as music leader, appropriately, i.e., playing the bells at the appropriate time in terms if the structure of the song. PI stops at the end of the refrain and the group responds by also stopping.

* By reviewing the videotape of this sequence, it is clear that YSM’s gaze is directly ahead of her (on me) and not toward her teacher who is sitting lateral to her.

** The important thing to note in this observation of ML is that although he was not “in-sync” with the guitar, he was steady in his own execution of the rhythm. This immediately serves as a “mini” case study on the relationship between young children’s ability to hear music and their ability to make music. Surface appearances show he is not able to synchronize his physical movements of shaking the bells with the musical source which, in this case, is me. Closer observation shows that he has an internal sense of “pulse” that allows him to be consistent within his own rhythmical shaking movements.

*** In this case, referring to some children’s bell-shaking as “random” means it was not synchronized with the basic pulse of the guitar which was serving as the source of the beat.
Insight in regard to children’s development and their relationship with music was inferred from virtually all activities. First of all, similar music-making behavior occurred at each developmental level of participants in the study. Performance accuracy and consistency improves in older children but is still not as developed as their seemingly innate understanding of musical concepts. MT and ML were observed playing out-of-sync earlier in a session that later saw them playing their rhythm “on the beat.” Obviously, there are invisible factors not based on capability that determine the proficiency of their music-making at any given moment. The evidence suggesting that young children possess a basic conceptual understanding of making music parallels what is said in regard to their “natural” abilities to play games: they may need to learn the specific “rules” of a certain game, but they do not need to be taught the concept of playing games. Again, this appears to support the hypothesis that age-related behavioral limitations do, indeed, mask conceptual understanding.

While similar music-making behaviors can be observed across age levels, developmental distinctions clearly lie in communication skills, thinking, and how personality is expressed.

Transcription K(A)-1, pp. 1-2 (occurring within 5-10 minutes of first session):

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This phenomenon can be observed multiple times by many participants. During the very first session at Site 3, a preschool girl was impressive as she performed her rhythms very much in-sync with the PI. During the second session, the same girl, still enthusiastically involved in the music-making, played much more “randomly” along with PI, and did not display the skills she had the first week.
PI: What does the guitar have? (gestures toward strings)

Children: Strings.

OL: Sound hole.

Various comments by children; some raising hand to be called on.

PI: Right, strings. Yes, it has a sound hole. The sound hole lets the sound out of the hole but do you know what makes the sound?

GV: Those! (Points to strings.)

OL: I have a ukulele.

[Two children raising hands.]

PI: A ukulele has strings, too.

[Many comments.]

PI: Somebody’s raising their hand. (Points to CAS)

CAS: My brother plays guitar.

Transcription K(A)-1, p.3:

PI: You know that song, don’t you! Have you heard that music before? [edit]

AN: (pointing to me as I sing) It’s a dog!

PI: Yes, it’s a dog and his name is ...

AN (saying letters): B-I-N-G-O!

Various other children: Bingo!

PI: Wow, you know all my songs!

GV (laughs): You already said that.
Transcription K(B)-2, p.3:

MT (sitting directly in front of PI, raising his hand): Can I tell you something?

MT says something to PI about “walking with mud on your face.”

Not hearing all MT’s words, PI at first thinks he is relating an incident.

PI asks, “Mud on their face...? You were...? Who was walking with mud on their face?”

For a quick moment, MT smiles up at PI with a child's classic look of amused confusion, seeming not sure if the adult is confused or joking. Assuming the former, MT says, “A song!” The teacher is smiling ear to ear. ML laughs and looks back at the teacher.

PI laughs and says, “I love it! You can make up a song about anything!” [edit]

ML: I wanna do it!

Recurring cycles of starting and stopping are strong contributors to musical cohesion; the more often this cycle is realized, the stronger the experience of “music” will be for both the creator and the listener who, as in this study, are sometimes one and the same. Although these patterns occur during performances using vocal responses only, there is a strong sense that when the children are employing hand-held percussion instruments the sound-patterns, both rhythmical (micro-organizational) and structural (macro-organizational), are made more prominent for children and also by children. Such cycles engender the perception of musical “patterns” which, based on empirical evidence gathered in this study, indicates that young children are able to recognize.
They seem to accept the fact quite readily that it is through their efforts to perform repetitive occurrences of sound, rhythm, and form that a song comes to life. This assertion is supported by the fact that virtually all of the kindergarteners enthusiastically contributed to making musical patterns over the 40 or so minutes of the music-making session. Although it would not be inappropriate for children of this age to experience restlessness over this time span, there were very few or, in some sessions, no expressions of boredom or fatigue.
**PRIMARY** participants by identifying code and age:

Site 1 - **XN** 6.0; **MIC** 6.0; **MZ** 6.4; **BGT** 6.5; **ELN** 6.5; **SHR** 6.8; **JO** 6.8; **SA** 6.8; **BL** 7.0; **ELS** 7.4; **JK** 7.6; **MK** 7.7

Age range: 6.0 – 7.7 (19 mo. range) Mean: 6.6 Medium: 6.8 Mode: 6.8

Site 2 – **CN** 6.1; **LO** 6.1; **SO** 6.3; **WL** 6.6; **KT** 6.8; **RE** 6.8; **RL** 6.9; **JS** 7.1; **SR** 7.3; **AI** 7.6; **ZN** 8.1; **GB** 8.2; **JL** 8.3; **LY** 8.5

Age range: 6.1 – 8.5 (28 mo. range) Mean: 7.8 Median: 7.1 Mode: 6.1

Aggregated:

Age range: 6.0 – 8.5 (29 mo. range) Mean: 7.1 Median: 6.8 Mode: 6.8

**Site 1**

There are twelve children enrolled in the Primary classroom at Site 1. Although the structure of the class is not rigidly divided by grade, the enrollment is essentially the equivalent of eight 1st graders and four 2nd graders. The group is comprised of seven girls and five boys. The statistics on their ages are shown above. The ethnic make-up of the group is 75% White (9 children) and 25% minority (one Asian-American, one Black/African-born, and one bi-racial child). Whereas I met with all other groups of Site 1 in the school library, the students in the Primary group were met in a large, open, central activity room. This room is located in the main building of the school which not only contained two non-traditional classrooms and a small separate lunch area for the Primary students but also a large administrative office for the school’s director and secretary and the school library as described in other sections.
Site 2

There are fourteen children enrolled in the Primary classroom at Site 2. This group is distinguished in several ways. Far from being traditional, this group of children meets once a week as part of what is considered a “hybrid” program. Each child in the group is being “home-schooled” and comes voluntarily to meet with the group every Wednesday in a large, two-room mobile bungalow that sits in a corner of a huge playground. The playground is adjacent to and maintained by a relatively large charter school occupying the site of one of the city’s elementary schools (which had been closed down due to budget cuts). The hybrid program functions under the auspices of the charter school and is called a “center for independent study.” The purpose of the center, as indicated in their mission statement, is to offer academic and social enrichment so as to augment the benefits that the children receive from individualized instruction at home. Given this truly “new age” structure, another distinguishing feature is that the group is completely ungraded; no child is assigned to a traditional grade such as kindergarten or first grade. The last feature to note is the four children who are eight years old. The study was presented to the director stating an interest in children up through age seven which initially conformed to the group’s age demographic. Due to the birthdays of four children falling during the fall and winter, and the delay in receiving final approval by the Institutional Review Board, these four children had turned eight years old by the time the music sessions could be scheduled.

Given the inclusion of the four eight-year-old children (two boys and two girls), there are several observations to make. First of all, based on my direct observations, I
saw how certain conclusions I made regarding their behavior are in complete alignment with NAEYC’s definition of “young children” which encompasses children up through eight years old. This statement is made in light of the fact that their music-making behavior showed many similarities to their younger counterparts thereby rendering the maturational factors – at least in terms of music-making behavior – to be extremely subtle if not invisible. The actions and responses of the eight-year-olds are not dramatically distinguishable from their peers of six and seven years old. I believe when the facts are known it is the children’s individualistic personalities that will prove to be a dominant factor in determining the extent and manner of participation in music-making behavior, not their chronological age.

For example, LY, a girl who was the oldest child at Site 3, was at times the most outgoing, sometimes volunteering to perform by herself in front of the group. When she did so, she did not appear to be trying to impress anyone with her level of proficiency in music-making skills; she simply had a lot of fun, bordering on being a little silly, which both she and her peers enjoyed immensely. KT, almost a full two years younger, was as tall as LY and conducted herself in the context of music-making with equal maturity to LY. (Based on height and demeanor, one might take them for being much closer in age.) Although KT did not volunteer to perform alone in front of the group, she participated consistently and enthusiastically in the group activities. Also, the data did not indicate a gender distinction in the music-making behavior. Like these two girls, it also appeared to be the diverse personalities among the six boys, not chronological maturity, that accounted for the quality and quantity of their participation. As extreme as it may sound,
this same statement can be made with a fair amount of accuracy across the whole age range of children participating in the study. Essentially, due to what appears to be a unique behavioral phenomenon in context of making music, the behavior of the two year olds is strikingly similar is certain ways to the behavior of the seven and eight year olds. Many behavioral elements that inform and surround the interaction of child-to-child and child-to-adult, especially physical dexterity, language, and attention to environment, could comprise long lists of maturational differences. But when it comes down to simply making music (through the integration of voices and percussion instruments), given the necessity to focus on the actual behavior that defines the process – and not a critique of the resultant musical product - there emerges a “level playing field” that is almost uncanny considering how age differentiation is usually such a determinant in so many other areas of normal activities.

Developmental Evidence of Similarities

Despite the fact that there is a six year separation between the children comprising the oldest group of participants (the Primary children) and the youngest group of participants (the Toddlers), an important disclosure can be made: there is no introduction of novel elements present in the music-making contributions of the older children. Despite the fact that I designed and facilitated all the sessions by adjusting my presentation and delivery according to the age and developmental level of the specific group, it remains that most of the 133 items comprising the coding protocol – including all of the most critical items in the three major categories (the physical, pedagogical, and soci-
ocultural features of music-making behavior) – were found present within the Primary groups just as they had been in the other 10 groups at three discrete developmental levels. As discussed in Chapter 9, both quantitative and qualitative differences can be observed in the children’s music-making behavior as their chronological maturation progresses. Of particular interest to this study is the similarities that remain across this age range.

**Extra-musical Behavior (EMB)**

The similarities in behavior relating specifically to the music-making do not obscure the distinguishing aspects of the extra-musical, peripheral behaviors of the 6-, 7-, and 8-year-old children. As could be expected, there is a greater intellectual development that is evident among the older children.

This development manifests in various ways:

1) Independence in actions, mobility and choices,

2) Language

   - Fluency in their social language (e.g., in their spontaneous comments to each other and to me, intentional humor),

   - Pedagogical exchanges (e.g., questions or comments to adult/teacher/Music Leader),

   - Responses to adult language use (e.g., using nuance and metaphor when speaking with the group and/or individuals.\(^\text{92}\),

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\(^{92}\) There is much research on what is known as Infant Directed Speech (IDS), also known as *motherese*, that concurs on the universality of an instinctual adult behavior regarding the way verbal
- Complexity and spontaneity in the language as it functions as part of the music, increased references to past experiences, prior knowledge.

3) Sensitivity to peers (usually in positive ways, sometimes negative ways).

Examples of extra-musical behaviors (EMB), that were either not prominent or simply did not occur with younger children, are interwoven throughout the music-making and are found in the transcribed activities from the Primary groups at Site 1 and Site 2.

**Example of Older Children’s EMB: Greater Independence and Mobility**

Transcription AVE(1) p.1:

*The CRT teacher and some children come and go, in and out, of an adjoining the room... Other children stand and talk or interact with each other [as it] takes PI about 5 or 6 minutes to finish preparing for the session.*

**Example of Older Children’s EMB: Responses When PI Uses Nuance**

Transcription AVE(1) p.1:

*PI (purposely asking a “trick” question): So, who likes music?*

*All the children raise their hand. Some utter quietly, “Me!”*

*PI (looks around [feigning] no enthusiasm): Oh well, I guess that's okay. Did you notice something? I didn’t raise my hand. When people ask, 'Who likes music?’*

expressions are altered in specific ways when directed toward newborns and infants (Mithen, 2006). Observing my own verbal behavior across the different groups of children, there seemed to be instinctual adjustments when speaking to children who are beyond the toddler stage but not yet fully mature, albeit less exaggerated than IDS. Interestingly, this included the older children in the Primary group who have reached a relatively sophisticated level of language use yet are far from being fully mature.
don't raise my hand!

Some children look puzzled. Voices are heard: “What?”

To dispel the mystery, PI suddenly becomes very animated and explains that he always waits until someone asks, 'Who loves music?' In response to the latter question, PI raises and waves his hand energetically and asks, 'Who loves music? Raise your hand!' [Most of] the children raise their hand again...

Second Example

Transcription AVE(1) p.3:

PI discusses the fact that “noise” and “music” are both made of sound and asks them what the differences are between the two.

Many children simultaneously offer their answers so there is a loud flurry of voices.

Example of Older Children’s EMB: Spontaneous Comments with Humorous Response to Use of Metaphor

Transcription AVE(1) p.1:

PI explains that 'loving music is like loving a peanut butter and jelly sandwich: it consists of putting two things together.'

Various children make comments.

RS says “If you only love jelly you could have almond butter!”
Example of Older Child’s EMB: Pedagogical Language

Transcription AVE(1) p.1:

PI: There's two things we're learning about with music.

GB (sitting with head in hands): Are we learning “beat” music? (pauses and sits up) Are we learning salsa? Those are a type of music!

The sequence is interrupted but then continues later.

Transcription AVE(1) p.2:

GB again asks about learning “salsa.”

WL: Classics? (sings with arm outstretched) La...La....!

AI: Disco?

GB: What about Reggae? (pantomimes holding two drum sticks, playing a drum)

PI: Long live Bob Marley!

Second Example

Barely 11 minutes into the first session KT is able to feedback newly gained knowledge about music (demonstrating what Vygotsky would call “scientific learning”).

Transcription AVE(1) p.2:

PI: Those are all different styles of music and they all need to have two things...

KT: Sound and rhythm! (then KT keeps talking to PI although he is distracted.)

An Example When Older Child Draws From Prior Knowledge

Transcription AVE(1) p.2:

PI: How does my guitar make a sound?
ZN raises his hand and PI calls on him but others are answering randomly and KT (who is right in front of PI) says loudly, “Strings vibrate and make sound.”

PI: Ah, it vibrates! Very good.

**Older Children’s EMB: Collective Behavior**

Three of the boys display spontaneous collective behavior that, considering its specificity, does not manifest very often among younger children.

Transcription AVE(1) p.2:

*PI acknowledges [AI’s] information and makes a comparison with an electric guitar.*

*AI, WL, and GB are listening to PI and then suddenly and simultaneously (amazing because they were not colluding!) burst into playing electronic “air guitars” with vocal sound effects.*

A significant use of language – by the students and me - has been present throughout the music-making activities including the sessions with the youngest children not yet three years old. As indicated above, this language factor has only increased exponentially as the children’s ages progressed. As a salient element in the extra-musical behavior (EMB), language continues to impact the music-making for the older children in the two primary ways that were also present with the younger children: 1) in helping to create an imaginative framework via lyrics of songs and 2) in helping to create “performance rhythms” that the children easily recognize and execute either with voices only or with voices accompanied with instruments. In other words, language not
only helps to create a context for the music but also functions as part of the music. These older children (6, 7, 8 years old) display heightened levels of attunement and proficiency in the execution of the language-derived rhythm phrases.

An impressive example of the marriage of music and language in context of young children’s music-making behavior occurs within fifteen minutes of the first session of primary grade children at Site 2 embedded in a universal, fundamental technique referred to as “Call and Response.”

Transcription AVE(1), p.3:

As PI continues the rhythm he calls to the group, “Everybody repeat after me!”

PI spontaneously performs Call and Response with the group by “calling” a series of simple, 4-beat word-phrases:

Dog, cat, mouse, rat! (children echo).

They like to do that! (children echo).

Making music! (children echo).

Sound and rhythm! (children echo).

Drums and masaracas! (children echo).

Claves and tam-tam-bourine! (children echo).

Dog, cat, mouse, rat! (children echo).

They like to do that! (children echo).

Note from transcript, AVE(1), p.3:

Their enthusiastic response suggests that the children are attracted to vocalizing through a “Call and Response” format. Possible reasons include but are
not limited to 1) because they are hearing “fun,” recognizable words executed in a way that emphasizes the rhythmic character of the word-phrase (not any particular individual word); 2) because it presents both a physical and intellectual (language-based) “challenge” that they can meet easily and successfully; 3) because it is musical, i.e., based on sound and rhythm.

Transcription AVE(1), p.3:

All respond together after PI. AI is still laying down yet joins in on the verbal response. LO, still sitting on her mother's lap in the back of the room, also performs the verbal response.

Note from transcript, AVE(1), p.3:

The behavior of AI and LO suggest that even when children feel the need to distinguish themselves from the group, the attraction of making music keeps them involved. Also, even though ZN's body language reflects either low energy or little interest, he nonetheless continues to participate in the verbal response; he shows no enthusiasm and does not seem to be making audible responses yet his lips can be observed moving at the same time that the others respond.

Other evidence is found for identifying developmental similarities and dissimilarities among the older children in the Site 1 Primary group. A performance with instruments leads into Call and Response, using voices and instruments together.

Transcription JAN(1), p.8 (occurring approximately 30 minutes into the first session):

After continuing the rhythm [on guitar] for several measures, PI articulates the cue for the “cut-off,” “Read-y and stop!” All the players stop exactly with PI.
PI: But then all of a sudden... (Gives a count-in at a faster tempo) 1, 2, Read-y, Go!

The players again join right in playing their maracas along with the guitar at the correct tempo.

As the rhythm continues, PI calls to the children sitting down asking them “to repeat after me!”

PI performs simple vocal phrases that are directly synchronized with the rhythm of the guitar, maracas, and sun rattles. Most or all of the children sitting down, echo the phrases after PI:

<table>
<thead>
<tr>
<th>Call</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hey, hey!</td>
<td>(hey, hey!)</td>
</tr>
<tr>
<td>Ho, ho!</td>
<td>(ho, ho!)</td>
</tr>
<tr>
<td>Ha, ha!</td>
<td>(ha, ha!)</td>
</tr>
<tr>
<td>Hey, hey, hey!</td>
<td>(hey, hey, hey!)</td>
</tr>
<tr>
<td>Me oh my!</td>
<td>(me oh my!)</td>
</tr>
<tr>
<td><em>I wan-a piece o' pie!</em></td>
<td>(<em>I wan-a piece o' pie!</em></td>
</tr>
<tr>
<td>Scoo-by Doo!</td>
<td>(Scoo-by Doo!)</td>
</tr>
</tbody>
</table>

Note from transcript, JAN(1), p.9:

Even though the vocal phrases vary, each phrase is contained within four beats. The shorter phrases (“Hey, hey!”) are rhythmically expanded into four beats and the longer phrases (“I wan-a piece o' pie!”), constructed mainly of 8th
notes, are condensed into four beats. These types of vocal phrases are experienced by most people who speak American English very naturally even from very young ages. This language phenomenon is generalizable to the extent that PI can spontaneously guide this group of 6 and 7 year-old children successfully – even as other young beginners are performing a simple rhythmic accompaniment – within in the very first session. The unfolding musical structure is at once simple and complex: a simple vocal part is overlaid onto a simple rhythm accompaniment. This results in a novice level of musical complexity which, in turn, begets an aesthetic richness especially for the children but also for supportive adults who are actively participating.

Example of Response to Nuanced Humor (based on prior knowledge of cartoon character)

Transcription JAN(1), p.9:

*As the children respond with “Scooby Doo!”* PI intentionally stops suddenly and wrinkles up his nose in a questioning expression. The instrument players stop as soon as they hear PI stop.

*PI: Scooby Doo?*

*By suddenly bringing attention to the name of the famous cartoon dog, it immediately becomes a joke and most of the children burst out laughing.*

Example of Adult (other than Music Leader) and Older Children Making Music Together as “Equals”

Transcription JAN(1), p.9:
The children holding the instruments put them down on the floor as PI calls on the one who have not had a turn yet. It turns out there are only two children who have not played an instrument yet so PI invites [Teacher Assistant] and a visiting adult known to the school personnel to participate with the children. They accept the offer and come forward to pick an instrument and stand in a line with the two students.

Once the players are ready, PI tells everyone that so far “we have just been jamming” and that now they were going to “do a song.”

PI tells the musicians not to start but listen to his “beat.” PI begins a new rhythm on the guitar and then calls, “Maracas...GO!”

The two adults and two children all begin together, joining PI with complete musical cohesion.

Note from transcript, JAN(1), p.9:

If one's eyes were closed, it would not be discernible that two adults were performing with two children under 8 years of age. Such a statement is neither disparaging toward the adults nor patronizing the children. This equitability occurs in the same way a child movie “extra” is comparable to an adult movie “extra”: even if the skill may be at the top of a child's capability and the bottom of an adult's capability, the context puts them on a level playing field in terms of what they are providing to the event. In this case, the four individuals – functioning as a unit - are contributing musical sounds which are rhythmically and structurally “organized” as efficiently as necessary for the situation.
Additional commentary:

In a school-based context, such music-making behavior is based on the each player’s current skill level and is adequate for producing an aesthetically satisfying musical result. Equal in importance to the Music Leader who is guiding the activity is the child-centered attitude of the participating adults who, ideally, will appreciate the value they bring to the music-making event, not only in support of the children’s efforts but also as a measure of musical satisfaction for themselves as well.93

Some activities appear the same at all developmental levels. The children play instruments, follow the Music Leader by either starting or stopping, and maintain a nominal, yet recognizable, musical cohesion within the group.

**Example of Music-making Behavior of Older Children Resembling Younger Children**

Transcription JAN(1), p.10:

*Once the maracas and sun rattles join in, PI begins to sing the chorus to the traditional children's folk song, “Skip To My Lou.” [Classroom Teacher] and some children are bobbing or bouncing to the rhythm of beat.*

*The chorus is not long, lasting for 8 measures (32 beats). As it ends, PI stops the steady beat (or, “pulse”) that he had been playing to lead the group and also gestures toward the players; all four stop playing.*

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93 For adults who are not musically trained, this can be a substantive music-making experience if they allow themselves to be open to the fact that they are not condescending themselves to be collaborating, i.e., “partnering” with children for the sake of engaging in music-making behavior.
Although the music-making behavior of the older children began virtually identical to the younger children, there is a greater potential for both quantitative and qualitative differences on the part of older children, both in their behavior and the resultant musical product.

**Example of Music-making Behavior of Older Children Displaying Maturation**

Transcription JAN(1), p.10:

*PI begins to sing the first verse to the song (“I lost my partner, what’ll I do...”) but without playing a beat. Instead, he strums one chord at a time, letting each ring out with a sustained sound. PI gestures again toward the players, pantomiming what others did earlier, i.e., to play a “long sound” (or, a “sustaining” sound like a drum roll). Without an explanation from PI, the four players understand PI’s gesture immediately and begin shaking their instruments rapidly [to create a “sustained” sound with their instruments]... PI joins them playing a congruous sustained chord on the guitar. PI gently says, “Very soft!” and the instrumentalists lighten the intensity of their playing[as they continue to play].*

It is interesting to note that this group of players (two children, two adults) is “following the Music Leader” in organizational maneuvers that are neither complex nor difficult yet are certainly beyond simple “start/stop” cues.
These maneuvers could be characterized as a progressive step past the most basic level of musical organization. Considering that this is occurring approximately thirty minutes into the first session means that I have had to teach very little to them and are relying more on their propensity and inherent skills to play the “game” of music. It is also essential to note that these non-musically trained adults and young children are functioning together with high levels of musical cohesion.

Second Example

Transcription JAN(1), p.10:

*PI leads the group through three of the four phrases (or, “lines”) of the verse as described above, elongating his singing lines so as to be musically compatible with the sustaining sounds of the instruments. At the end of the third phrase, PI gestures for the players to stop which they all do together. PI also stops the guitar and, with no accompaniment, sings the last phrase faster (“Skip to my lou, my dar-ling!”) suggesting a return to the initial faster tempo. Following a typical performance-pattern for this song, PI immediately continues back into the chorus returning to the same strong beat on the guitar as he had played when they began. The four accompanists immediately join in.*

Note from transcript, JAN(1), p.10:

*Like migrating geese in V-formation, the two adults and two children follow their leader as if it was a biological imperative by also returning to the first rhythm. This musical cohesion between PI and the four players supports a sense*
of true musical development.

Although these 4 people have never performed this music together before, the net effect is not unlike the members of a rehearsed band or ensemble who consciously attune themselves to each other toward a common music-making goal. Each individual follows the “music leader” and contributes a musical component that is congruous (similar yet disparate) with the others, all working together as a whole. Both adults and children have the opportunity to experience an authentic music-making experience.

One of the most salient areas of development in music-making of 6 and 7-year old children, is in their ability to execute specific rhythms. In the transcriptions of the sessions with the younger children, it was noted that it was much more difficult to discern the rhythmic performances of individuals. This is mainly true because of the inconsistency in their execution. With the motor development afforded to older children, this difficulty is significantly diminished. Of course their individual skills in rhythmic execution could be “put under a microscope” by simply designing one-on-one activities that would allow each individual child to be “tested” and evaluated along a quantified calibration of poor/good/excellent in a series of different rhythms ranging from easy to difficult. However, this would not be a measure of their true music-making capabilities which can only be determined in an authentic context of making music as was provided in this study.
Example of Music-making Behavior of Older Child Displaying Maturation Independence in Actions, Mobility and Choices

Transcription JAN(1), p.16:

BL (recently turned 7 yrs. old) has chosen the güiro. As soon as PI begins the rhythm on guitar;

BL “finds the groove” in his body and begins rocking his shoulders. He then moves his position from standing behind the others to where he is in line with the others. At PI's invitation, he begins to scrape it in an appropriate manner, aptly synchronizing his rhythm to match PI. As he begins to play, BL also begins to sway his hips to the rhythm. It seems the disappointment that was expressed in his face earlier when he wasn't chosen to play with the first group has long since melted away. It is also interesting to see him respond to the music in a physical way so readily because it was apparent by observing BL during the earlier activities that he is a child who is not “outgoing” but rather more reticent in his relationship with the group. This suggests that his physical movement along with the rhythm is not a “display” for others but simply his own natural reaction.

As PI continues the rhythm, he begins singing the chorus to “Skip To My Lou” as he did earlier. The children continue to play along.
Extended note from transcript, JAN(1), pp.16-17:

This circumstance is conveniently presenting an ideal model that shows how different people, including different children, will naturally and easily perform one of several interpretations of the basic rhythms present in a song.

As indicated above, BL is aptly performing a beat (or, “pulse”) in sync along with PI. In fact, he is playing on every “downbeat” that PI plays on the guitar. Another way to describe what he is doing is to say he is playing a steady “quarter-note” rhythm, or beat. If someone were counting each time BL executed a “beat,” they would count, “1, 2, 3, 4” etc.

Standing right next to BL is ENA (6 yrs. 5 mo.) who choose to play the “turtle.” (Playing the wooden “turtle” requires holding the “turtle” in one hand and hitting it with a wooden mallet [stick] held in the other hand.) As ENA responds to PI's invitation to play, she begins playing more beats than BL. But they are not incongruous to what BL is playing because she is also playing a legitimate interpretation of the same pulse. ENA is playing a steady “8th note” rhythm; she plays two beats to each one that BL plays. While BL only plays “downbeats,” ENA plays “downbeats” and “upbeats.” If someone were counting along with ENA’s rhythm, they would count, “1 and 2 and 3 and 4 and...” etc.

Another thing to note about ENA’s performance: as she begins playing along with the guitar, her rhythm is a little “wobbly.” However, once PI begins to sing the words to the song, her playing suddenly “snaps” into perfect sync with PI's rhythm!
Standing right next to ENA is MZ who choose to play the güiro. Due to the “scraping” requirements of the güiro, playing it is conducive to using big arm movements which MZ is doing. By observing her arm movements (although her instrument can be heard when listening closely), it is evident that MZ is performing a rhythm that is different from BL and ENA yet also completely compatible with them and PI: she is “expressing” the word-rhythm that PI is singing (“Lou, lou, skip to my lou...” etc.).

None of the children are consciously aware of what they are doing in relation to PI or each other; most likely they would not even be interested in an explanation. The explanation would not likely be meaningful to them but what they are actually doing is very meaningful. This is parallel to a child's early language experience wherein their ability to function far exceeds their intellectual understanding.

In the retrospective presented in Chapter 6, The Evolution of a Theory, I conveyed how my initial experiences with school age children was very gratifying simply due to the appreciation and, dare I say, even respect, that they displayed toward simple, “low-tech” traditional percussion musical instruments. There were no blinking LED light that went off when an instrument has scrapped, shaken, or hit. All that happened was a 1-to-1 ratio of movement and sound: if they hit the drum, it made a sound; if they shook the maracas, they made a sound. That was it. Given that mine was a performance-based program, a historical discussion of the instruments was not usually part of my presentation. (Of course, I always answered questions to the best of my ability, usually from the
older children: “Where do maracas come from?” etc.) Therefore, the totality of the respect and appreciation that the children gave to the instrument(s) came purely from direct interaction with the instrument. (There are scant cultural models that offer encouragement for children to interact with simple percussion instruments. I have never seen a commercial with a celebrity sipping on a Coke in-between performing rhythmic phrases with a percussion instrument!) Yet, when children play these instruments they suddenly realize that they are the only one to control the particular they are using and can make a valuable contribution – on par with any other participant, child or adult - to a significant, possibly multigenerational social experience.

Now, fifteen years later, I have engaged with children who are growing up with the internet and digital technology. Fortunately, at least as of this study conducted through the spring and early summer of 2011, things are still the same. The 6, 7, and 8 year old children, i.e., the oldest participants in the study once again seemed appreciative, respectful, and even curious about the instruments. (The younger children expressed similar interest and appreciation as well.) The instruments really do seem to arouse a certain fascination in the children. So, once again, I am gratified that this tradition continues. After all (and I’m not really sure if the children are intuitive in this regard or not), the tradition is quite protracted going back hundreds, thousands, and even tens of thousands of years depending on what instrument we are discussing. It gives me pause to think that these very traditional, “low-tech” artifacts can still hold their own in the current arena of electronic “wonders.” This makes me hopeful as an educator and
researcher to know that these ancient tools of human expression can still offer children dynamic developmental experiences that can compete substantively with any digital device. It may be coming but for now there are no “apps” that can allow adults and children to gather together and organize sound in exciting, meaningful ways that are not only fun for everyone who wishes to participate but beneficial, especially for children, on higher intra-psychological and inter-psychological (sociocultural) planes of development.

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Discussion of Findings Regarding Qualitative Data

The preceding qualitative data suggest there are unique attributes that characterize young children’s music-making behavior. In Chapter 9, the model for this developmental theory will show there are both qualitative and quantitative factors that must be considered simultaneously, sequentially, and interdependently. In addition, the model indicates that the same is true for the discrete yet dyadic processes of maturational and organismic integration, also occurring simultaneously, sequentially, and interdependently. Taken together, it seems defensible to conclude that greater scrutiny and additional research of young children’s music-making behavior - a pan-human phenomenon, pertinent to individuals both psychologically and sociologically – is warranted. Research has discovered so-called “critical periods” in the development of language and other cognitive processes. Continued research in the area of this study may show that when children receive opportunities to engage in music-making behavior within a “criti-
cal period” – referring specifically to Piaget’s preoperational stage of development, approximately 2-7 years old – important developmental benefits may occur.

The qualitative data also supports why it was deemed necessary throughout the dissertation to differentiate music-making behavior (a process sans a consideration of what the behavior actually produces), from the results of the behavior, i.e., the music itself (a product) which is what typically receives the preponderance of attention. In the adult world that views music as a performing art, usually it is only the artists (musicians) who have any vested interest in the process of making music. The body of music consumers, i.e., the audience, is justifiably focused on the musical product, that is, the outcome of the music-making process. However, recognizing that the participants of this study were young children, it becomes evident that both the qualitative data and the quantitative data justify a paradigm shift that would value music in the lives of children as a “developmental art” rather than a “performing art.” At the heart of such a shift would be a strategy wherein the process of making music would be considered equal in importance to the product; wherein the process would be understood to possess the potential for delivering powerful developmental experiences, both perceptually and conceptually, for cognitive and social development, while delivering to all young children an aesthetic experience that adults usually derive only from a musical product. (The exceptions to this are adults who are proficient music makers). On the other hand, musical “products,” most commonly in the form of songs, would continue to be valued for their ability to deliver fun, coherent, meaningful, child-friendly auditory structures - but with the realization that they are actually providing structural templates that are mean-
ingful enough to the child to prompt participation in the music-making process. In this sense, a song is not an end in itself but also serves as validation for the music-making behavior. As an additional benefit, the music-making experience also begin to formulate cultural identity.

At the risk of oversimplification, the symbiotic relationship between the process and product in context of young children’s music-making can be symbolized through an analogy: An infant who is just starting to walk may be standing and holding onto the arm of a chair. An adult who wishes to help the infant develop her walking skills, might sit a distance away and lovingly display an appropriate “reward.” The adult hopes that the child will be motivated to walk over so as to receive the reward. If the strategy works, the child will take some important, incremental steps toward her pre-destined goal of becoming a walker.

Interpretation: All young children are in the throes of organizing their experiences so as to structure their world and make it meaningful. Children may become cognitively stalled as they hold onto a “chair” of familiar experiences. An adult can guide the child into a musical zone of proximal development simply by inviting the child to engage in music-making behavior. For most young children, a song is a natural, intrinsically motivating “reward.” (Here it is important to separate the analogy from the actual experience: a child’s natural attraction to engage in a song does not emanate from a desire to receive an extrinsic reward; the child, in fact, experiences internal motivation.) Due to the natural attraction, the child will take important, incremental cognitive “steps” as they delight in helping to create a song through music-making behavior. Like the hypo-
theoretical external reward, the song (the musical product) is not the essential goal of the “strategy” but rather the involvement in music-making behavior. The music-making behavior assumes the role of “taking steps” that all children must execute in order to achieve independence. By engaging in the music-making process along with an adult and peers, the child moves toward greater cognitive fluidity and greater conceptual, physical, and social competence in the world. Arguably, there is no other behavior that offers such a comprehensive, social, multi-modal, developmental experience for which the young child possesses inherent skills and capacities for and which can follow the child across many years of development while increasing beneficial outcomes.

Discussion of Findings From Quantitative Data

The quantitative data has a special function for this analysis. Adults usually evaluate their music on a sliding scale from bad to good – not whether or not it’s “real” music. Unique to this investigation, it was of utmost importance to determine whether the children’s music-making behavior actually produced real music thereby affirming that they do, in fact, engage in music-making behavior. Ultimately, this did not prove to be difficult but may have been confusing due to the fact that this study aligns children’s music-making behavior with play behavior and also makes the assumption that children understand music-making in much the same way that they understand playing games. The resolution of these apparent contradictions come from drawing inferences from the observations: the children appeared to approach music in the same way they would ap-
proach play in the way they take it “seriously” while making continual and repeated efforts to engage, presumably because it is meaningful to them and therefore “real.”

While a child-centered view is important, it is also important that the quantitative analysis shows that the identification of music-making behavior was taken beyond the child’s perspective. The items in the Observation Protocol - fully described and explained in Chapter 7 (pp. 116-139) - are replicated in the graphs in Appendix A and are quantitatively measured to show the number of occurrences of protocol items. In the seven pages of the Final Summary graphs (pp. - - - ), the four developmental groups of children are listed separately and further subdivided according to the sequence of first and second sessions. (Note: For the Primary group, only data of the first session is shown.) Quantities are aggregated for each group at each session, respectively. The Final Summary graphs show that all participants demonstrate ample quantities of occurrences across the full spectrum of protocol items that, admittedly, comprise a relatively comprehensive and complex protocol. Such an elaborate protocol emerged in order to achieve an analysis from the most authentic picture of the participants as possible. This included pedagogical and sociocultural elements.

In contrast, the Final Averages graph zooms in on specific data. It provides a slice of the analysis by looking only at occurrences of the physical evidence of music. In this way, the participants are set against a global backdrop of the music-making behavior of all music-makers. While not the primary goal of the study, this data serves to support the hypothesis that young children make “real” music.
The fundamental assumption is that when an average person receives an auditory signal that conforms to certain criteria, he or she will identify that signal as music. The very fact that the stimuli are auditory means they are derived from sound. Therefore, those who assume the role of “sound initiator” would presumably have to manifest specific criteria in order to be regarded as music makers.

In the Final Averages graph, the numerical data show ample occurrences of sound production across the full range of participants. The graph also shows that the sounds were made from sources that are typically associated with music. The “Voice” category shows the children used their voices to make musical sounds; the “Body Percussion” category shows the children either clapped their hands or slapped their thighs to make musical sounds; the “Instruments” category shows the children used percussion instruments to make musical sounds. As indicated above, the quantitative data of the three youngest developmental levels (toddler, preschool, kindergarten) are from the first and second sessions while the data shown for the oldest children (Primary group) are only from the first session. These data reveal significant developmental patterns that reflect both maturational and non-maturational (organismic integrative) influences, clearly offering relevant material for addressing the research questions.

Looking at the youngest group (toddler) and oldest group (primary) during the first sessions, the data show what might be a predictable pattern of voice occurrences based on maturation, 3.7 and 22.5 per session respectively. The Primary children who are approximately five years older than the younger children appear capable of more voice-based music-making participation from the very beginning. (This certainly falls in
line with patterns of normal language development between ages 2 – 7 years.) However, the data from the middle two groups (preschool and kindergarten), whose ages occur between the youngest and oldest, do not support a consistent pattern of development based solely on maturation. The measurement for the older kindergarten group (age mode = 5.6) is lower than the measurement for the younger preschool group (age mode = 4.3).

The average occurrences of music-making voice sounds increased between the first and second sessions for each of the three youngest developmental levels. This could be an indication of the value of repeated episodes of engagement and/or increased familiarity with the Music Leader (PI). While the data show large jumps between the two sessions of the toddler group (10.3) and the kindergarten group (15.0), there is a comparatively small increase between the two sessions in the preschool group (2.7). The data show this is based on the relatively high number of vocal occurrences in the first session of the preschool. As noted above, the preschool children are generally younger than the kindergarten group and yet displayed a greater number of vocal occurrences than their older kindergarten peers on the very first session and a smaller jump in occurrences between the two sessions.

Given that the Primary Investigator introduced similar activities to all four developmental levels, and given that the increases in the average occurrences do not follow exactly along chronological lines, we can see that maturation has a general influence but is not the sole factor as suggested by the discussion above.
The conclusion that maturation has a general influence but is not the sole factor is shown repeatedly throughout the quantitative data that measures the physical presence of music as well as the total analysis. Another example is seen in the averages of the total number of occurrences of all protocol items relating to the “physical presence of music” during the first session:

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean age</th>
<th>Av number of total occurrences, 1st sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toddler</td>
<td>2.9 yr.</td>
<td>36.5</td>
</tr>
<tr>
<td>Preschool</td>
<td>4.6 yr.</td>
<td>25.2 (decrease from Toddler by 11.3)</td>
</tr>
<tr>
<td>Kindergarten</td>
<td>5.5 yr.</td>
<td>51.3 (increase from Preschool by 26.1; from Tod. by 14.8)</td>
</tr>
<tr>
<td>Primary</td>
<td>7.1 yr.</td>
<td>92.8 (increase from Tod. by 56.3; from Preschool by 67.6; from Kinder. by 41.5)</td>
</tr>
</tbody>
</table>

A comparison of certain other protocol items is also informative:

**Physical presence of music/sound/instruments.**

The data show that the number of occurrences of making musical sounds with authentic though child-adapted percussion instruments, varies only slightly across all groups in the first sessions.

- Toddler group: 10.3
- Preschool group: 11.8
- Kindergarten group: 12.5
- Primary group: 12.5

Particularly noteworthy is the fact that the Toddler group comprised of the youngest participants (mean age 2.9 years) averaged only 2.2 occurrences less than the two old-
est groups (Kindergarten and Primary groups) and only 1.5 less occurrences than the next older group, i.e., Preschool group.

Instruments, just like many other sources of sound, can be experienced as “noise” rather than music. As noted repeatedly throughout this study, making music is not simply a matter of making sound but organizing the sound, or sounds, according to specific criteria. The Observation Protocol identified two primary forms of organizing sound, i.e., rhythm (the micro-organization of sound for music) and form (the macro-organization of sound for music). A third criterion, “cohesion,” is a more general perception contingent upon the first two: when sound is organized by rhythm and form, a general sense of musical cohesion can be experienced by music-makers and music-listeners. The data show that all participating groups were quite proficient in these skills relating to organizing sound:

**RHYTHM**
- Toddler group: 14.3
- Preschool group: 15.0
- Kindergarten group: 13.5
- Primary group: 24.5

**FORM**
- Toddler group: 31.0
- Preschool group: 33.0
- Kindergarten group: 23.0
- Primary group: 71.5
COHESION

Toddler group: 32.3
Preschool group: 35.8
Kindergarten group: 26.0
Primary group: 33.5

Even the most cursory review of these data will not fail to substantiate two critical goals of this study. With skill levels that do not afford young children the abilities to be accurate or consistent, they are, nevertheless, authentic music-makers by virtue of the fact that they can adequately manifest the physical presence of music by making musical sounds and organizing those sounds according to specific criteria. In addition, the data show that maturation has a general but not an exclusive influence on young children’s music-making behavior. By authenticating young children’s ability to make real music, we are, in effect, attempting to bridge (but not take away!) the magical, non-rational world of the child with that of the adult. Ironically, such an effort is made mainly out of respect for the needs of adults! When engaged in making music, the children do not really care about the comparisons or the analyses but are totally in their element of pure experience which is, in essence, what music - a conceptual artifact - and making music - a naturalistic behavior - is really all about.
CHAPTER 9

“MUSIC-MAKING AS A DEVELOPMENTAL BEHAVIOR”

A DEVELOPMENTAL THEORY ADDRESSING YOUNG CHILDREN’S MUSIC-MAKING BEHAVIOR
In 1987, Paul Simon was awarded a Grammy for singing, “...these are the days of miracles and wonders...” Although Simon’s post-modern lyric continues by urging, “...Don’t cry baby, don’t cry!” the song is far from what would be considered a lullaby intended for young children. Still, Simon’s sentiment was, is, and always will be applicable to young children because “miracles and wonders” are a daily fare during early development, when many things that adults consider ordinary are perceived as quite wondrous in a child’s imagination.

Almost forty years before Mr. Simon sang his words (around the time of his early childhood development), Dr. Maria Montessori (1967/1989), who was not a songster, was writing of wonders that caught her attention,

...the child, instead of being a burden, shows himself to us as the greatest and most consoling of nature’s wonders! (p.8)

Such sentiment evidently helped move Montessori to become an uncompromising advocate of young children, conferring upon them unprecedented dignity and respect as whole persons. The same can be said for Piaget, Vygotsky and numerous other theorists

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94 The Boy In the Bubble © 1986 Words and Music by Paul Simon and Forere Mothoeloa

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and thinkers who, throughout the 20th century and continuing today, turned their research efforts toward gaining more knowledge of human capacities that are functional and available throughout early development.

I am fortunate to be able to say that I, too, have at times felt in the midst of “miracles and wonders,” especially when engaged with young children during episodes of making music. Now, as a result of my own experiences and inspiration derived from both historical and current research, I aspire to better understand a specific aspect of children’s natural relationship with music, their music-making behavior.

Ironically, early in my career as an early childhood music specialist, I remember puzzling over one particular statement by Montessori (1967/1989),

*The child’s true constructive energy, a dynamic power, has remained unnoticed for thousands of years.* (p.5)

I remember thinking that a timeframe of “thousands of years” seemed like a gross exaggeration and that it is unlikely that anything regarding children could go completely unnoticed over such a protracted period of human history. Those were my thoughts then. Now, many years later, after countless hours of direct contact with well over one thousand children, and a substantive field study as a doctoral candidate involving another one hundred children, I have changed my tune. In this paper I wish to present a developmental theory that addresses an aspect of children’s behavior that, echoing Montessori, seems to have remained unnoticed for ... well, at least a very long time. The behavior of which I speak is young children’s music-making behavior and, given its somewhat obscure status in both early childhood education and music education, I know the corre-
lations and assertions I present must be clearly articulated and adequately supported; otherwise I, too, will be accused of gross exaggeration.

First of all, this claim is not made out of ignorance of the high levels of attention given to children’s music in my own time. Without question, during the past forty years there has been a significant proliferation of high quality musical material produced specifically for children and delivered through television, film, theater, and children’s song artists.\textsuperscript{95} Coinciding with this same period, there has been a significant and ever-growing body of research focusing on the impact of music in the lives of young children. These studies have diverse perspectives that include but are not limited to psychology, education, neuroscience, and sociology. In light of these facts, it may seem timely to acknowledge what historically might be an unprecedented focus on music in children’s lives; a claim that would, at first, appear contrary to my proposition. In truth, there are no oppositional sides in this equation. Juicy, ripe tomatoes in a salad are not less savory due to a lack of cucumbers! Any attention given to children’s relationship with music is good and it is counterintuitive to discount the value of current efforts just because a related element goes unnoticed. Still, a child who gets to help \textit{make} a salad will receive a greater learning experience than a child who is \textit{served} a salad! More to the point, consuming (listening to) music, while truly a dynamic experience in its own right, is not the same as participating in the creation of it. If children's early, functional musical skills

\textsuperscript{95} While there are many important antecedents prior to the 1970’s, the quality of children’s music took an important turn for the better with the success of \textit{Sesame Street} (first broadcast was in November, 1969) and the music associated with it.
were limited to listening, this study would have a very different design. However, based on many years of on-the-job observations and current data gathered during the research phase of this study, this is not the case: young children have a capacity for and an interest in making music.

Within a few years after launching my music program with young children, certain behavioral patterns were proving to be consistent across a wide range of children varying in age, gender, and ethnicity. Growing curious, I began reading related materials. Permeating the literature were views deeply rooted in cultural bias, expressed both explicitly and implicitly, that inform our general sense of the relationship between music and young children. Based on many years of speaking with parents, teachers, and other concerned adults as well as reading books, articles, and essays, I can summarize my interpretation of current normative views. These views were critical in helping to formulate a developmental theory of young children's music-making behavior.

1. Music is a phenomenon found “out there” in the world; it is external to the child, not within the child. Just as with many other aspects of culture, a young child is seen as an heir of the music that already exists. While true in certain respects, a skewed interpretation of this fact has evolved in such a way so that young children, collectively, are not considered to be a source of musical expression. Except in cases involving extraordinary individuals, i.e., music prodigies, young children are seen only as recipients and learners of music.

The findings of this study suggest that 1) music is “within” the child, 2) young children’s music-making behavior is not learned, and 3) young children express themselves with music as naturally as they do with laughter and play. Although they will obviously inherit the music of their culture, their predisposition to make music does not arise from that.
2. Initial efforts to help young children nurture their relationship with music are largely based on exposing them to existing music. Before children are considered music-makers, it is assumed that they need time to develop specific skills through practice and experience. The irony is that by the time “sufficient” development occurs, children have progressed to new levels of maturity. In effect, they are no longer young children.\textsuperscript{96}

The findings of this study suggest that it is completely natural to consider young children as authentic music-makers while allowing for the fact that their aesthetic experience is derived neither from accuracy nor consistency in the music they produce but rather their engagement in building musical structures. The findings also suggest that strategies for their musical development should include \textit{making} music as much as \textit{learning} music with an understanding that the difference lies in defining a collaborative role for the adult music leader.

3. The music-making activities in which young children engage are considered play activities. It is generally acceptable to state that young children make play music, not real music.

The findings of this study suggest that, while children enjoy making music partly because it is like a game and therefore fun, the music they make – from their own perspective - is genuine, authentic music. What this means is that for young children, no music-making experience is a rehearsal or a “practice” for a hypothetical future time. The experience is real and meaningful; to them, their music is not “play” music.

4. The belief that young children are not makers of real music seems, in part, to be strongly rooted in our general understanding of aesthetics, aesthetic value and aesthetic experience - concepts defined according to the way adults view these subjects. Aesthet-

\textsuperscript{96} NAEYC defines young children as birth to eight years old.
ic perception is not usually cited as a salient feature that guides young children in their music-making behavior. Little consideration is given to the fact that young children may consider their own music-making behavior meaningful and real, i.e., containing aesthetic value, in the same way that their play behavior is meaningful and real to them.

The findings of this study suggest that young children can be attributed with a qualitatively unique capacity for aesthetic perception that can and should be differentiated from the adult capacity for the same. The implication is that when such regard is given to young children, their music-making behavior is seen in light of the true value this behavior contributes to their optimal development.

5. Although young children are not perceived as inborn music-makers, it is considered a skill that can be “added on,” i.e., something they can learn. For example, Welsh (2006) states that musical behaviors are “the product of a complex interaction between biological, developmental, and environmental factors over time” [Emphasis added] (Welsh, 2006, p.251). Research is cited for showing evidence that realized musical potential necessitates experience [emphasis added] (Welsh, 2002). This falls in line with the general assumption that in order to perform or produce music – usually regarded as a form of artistic and/or cultural expression - a certain level of skill is required. Such skills are normally associated with persons who have sufficient maturity so as to be able to infuse an acceptable degree of aesthetic and/or artistic integrity in the performance of the music.97

97 For the purpose of this study, “art” is seen as a subcategory under culture: whereas there are forms of cultural expression that are not considered “art,” art will always express its cultural origins. Aesthetic value can be attributed to both. Adults carry the burden of wrestling with such semantic issues; children do not. Young children are, allegedly, both “pre-artistic” and “pre-cultural” in their early music-
The use of age-appropriate percussion instruments has certainly not been completely ignored or discounted but has been grossly undervalued in several ways. These instruments are analogous to the box of traditional, oversized crayons: in the same way that the crayons help facilitate a young child’s entry into a world of visual creativity, so, too, can a collection of simple percussion instruments (drums, maracas, claves, tambourines) help to open the door to a world of musical creativity. This is true because, just like the crayons, an array of instruments facilitates choice behavior. Also, children who are reticent or struggling with oral language skills will enthusiastically participate in the performance of a song when allowed to use an instrument. Is it possible that a lack of complexity in the character of the sounds produced by these instruments are (for many adults, not children) belying their true aesthetic value? Adults who lump them together with other toys may not observe the capacity young children have to exercise auditory making in the sense that they neither pass judgment on the aesthetic value of their own music-making process or “product” nor are they self-critical about the degree of “purity” with which they adhere to traditional styles or genres. This may not apply to child prodigies but certainly applies to average children. The musical expression of average young children may align more with what Cole (1996), drawing from cultural anthropology, expresses as a universal “psychic unity” of humankind that represents characteristics across all cultural groups (p.14).
discernment when presented with an assortment of these instruments; or notice that children are genuinely attracted to the sounds they make, even to the point of developing a “favorite” instrument when only three years old. Very little attention has been given to the way these instruments help children a) develop sound discrimination, b) participate in social music-making, c) help to reinforce the development of abstract concepts in musical forms and structures, d) develop physical and rhythmical dexterity, and e) enhance language-derived rhythmical expression.

| The findings of this study suggest that the value of high quality, age-appropriate percussion instruments has been grossly underrated in terms of their impact on the optimal development of young children. From observations of children in action with these authentic musical instruments over multiple occasions, it appears that they understand the purpose of such “manipulates,” use them for their intended purpose and respect them for the special experience they provide. |

7) According to conventional thinking, the primary purpose behind making music is not related to early development. Consequently, nurturing young children’s music-making behavior is not regarded as a high priority compared to other early behaviors. At best, it is seen as optional and more likely superfluous. While there is a growing body of advocates who believe music is important in the lives of young children, this sensitivity is lost on many who fall short of assuring that young children receive opportunities to make music. Even efforts to advocate for young children as music-makers are often constrained by an implicit consensus “...once they are old enough.” In the traditional/current paradigm, there is no sense that music-making is necessary or essential for early development. This is completely understandable when, in Western civilization, the timeline can be traced back as far as ancient Greece when a seminal, cultural shift oc-
curred that gave birth to the formalization of the performing arts (Boorstin, 1992) which included music. While generally this is considered “progress,” the shift was away from community participation and toward a performer/audience (specialist/generalist) dichotomy. Essentially, inclusion was sacrificed for the sake of a greater aesthetic experience. The long-term outcome is predictable: when parents believe it is not essential or even important that they participate in music-making, it is likely they will pass this thinking along to their offspring – probably more implicitly than explicitly. It is assumed exceptions will occur among parents who have musical training or parents and teachers who are committed to see children engage in music-making. Other exceptions would probably include the statistically small number of parents who discover their child is “gifted” and are therefore more likely to believe it is essential that their child begin to develop skills as a music maker as early as possible. (Note: The data gathered in this study suggest that the vast majority of children are “gifted” music-makers if their actual capacities are compared to what they are credited with!)

The findings of this study suggest it would be valuable for gatekeepers to take a deep, probing look at the current paradigm in early childhood development and music education in an attempt to understand how music-making behavior, of which can be said that virtually all children can and will display when given the opportunity, is associated with important early development in multiple domains, and appears to be valued in all historical and extant human cultures, has been relegated to a status of non-essentiality in the lives of young children.

8) We adults are eager to share our precious gift of music with our children. Being preoccupied with this notion, it does not occur to us that children have music to share with us. This oversight seems logical for the obvious reasons: adults have always been
and continue to be considered the administrators, conservators, and performers of music. As such, there has been no consideration of an alternative view that suggests, although dependent on us for music-making opportunities, young children enthusiastically embrace their own music-making and receive great joy in sharing it with adults – not through discourse or discussion but simply by making music together with adults.

The findings of this study suggest that young children are not simply passive learners or consumers of existing music but are, in fact, creative music makers and value opportunities to engage with others in order to share their music-making experience with peers and adults in ways that are potentially meaningful to everyone who participates.

9) By keeping music on a pedestal of artistic specialization, there has been no opportunity to compare children’s music-making behavior with “play” behavior or to realize how much there is in common between children playing games and children playing music. Indeed, it would be absurd if someone claimed that young children’s “play” skills do not sufficiently fulfill their play needs and that the true joy of play will actually come later when they are “old enough” to learn how to play the right way! This of course sounds humorous but can immediately become true-to-life by substituting the term “music-making” for “play.” Though tacit, it seems we believe that young children’s joy and fulfillment in making music comes only after they learn how to play it the “right” way. Admittedly, it is legitimate to think in that music should be made the right way. In fact, this begins with willful acts of making sound and simultaneously organizing the sounds through concepts of rhythm and form. Based on data gathered in this study, it appears that young children have a predisposition for understanding these very simple
musical premises - which suggests they have an inherent understanding of music when it is performed the “right way.” (This understanding may be what informs their ability to follow along cohesively with an adult music leader even though they have had no prior musical training.) Many adults seem loath to think we might constrain children’s natural musical expression by imposing structure. Again, the data gathered in this study suggests that imposing structure is not constricting children’s aesthetic experience of music. To the contrary, a young child’s aesthetic experience appears to be structure-dependent! Structure is what children look for in their play, in their games, in language, (indeed, in their life!) and also in their music-making.

The findings of this study suggest that young children relate to music-making more as a form of play rather than “artistic expression” and confer a similar level of value to their music-making experiences as they do play and games.

10) Children are seen as inheritors of “our” (pre-existing, culturally-defined) music, which of course is true. However, because their capacity to recognize, value and understand rhythm and musical structure has not been thoroughly investigated, the current understanding of children’s musical development has engendered approaches that typically do not emphasize the need to provide them with adequate opportunities to engage in music-making behavior.

The findings of this study suggest that young children would benefit from a new evaluation of the fundamental elements of music, especially in regard to rhythm and structure, in an attempt to understand 1) what really pertains to the musical needs of young children and 2) how these musical needs relate to their broader, general developmental needs.
11) Adults project their need to focus on musical “works” onto children. Because the musical works that children create through their music-making behavior are not perceived by adults as “real music” or containing real aesthetic value, the behavior (or process) that produces the music is not considered as being valuable to children. It has not been considered that the act of making music is for young children an important behavior that provides a meaningful aesthetic experience for them!

The findings of this study suggest that a new and/or greater effort should be made to apply the theories of Piaget, Vygotsky and Montessori to young children’s music-making behavior for the purpose of understanding as much as possible about the whole child and especially the true nature of young children’s relationship with music as music-makers.

In these bullet-points, I am attempting to be honest without alleging that gross insensitivities have been inflicted upon myriad young children. These observations are not intended to read like a laundry list of oversights. They can be better understood by realizing that the theory presented here has been historically impossible until now when, after more than a century of research and investigation, science and practice are using new tools and strategies that promise to give us a greater understanding for young children who, although not yet fully developed, are whole human beings.

The following is a summary of the preceding eleven points that characterize the current mainstream view of young children’s relationship with music.

1. The phenomenon of music is external to the child who is therefore seen only as a receiver/recipient/learner of music
2. The basic, tacit strategy to nurture young children’s relationship with music centers on an effort to expose them to existing music so that, over time, they can develop the necessary skills and perceptions for making music.

3. Young children make play music, not real music.

4. Normative adult views pertaining to aesthetics allegedly color their perceptions of the music-making efforts of young children. Adults do not stop to consider how aesthetic perception may guide children in their own music-making.

5. Young children are not inherently music-makers but can become music-makers over time through experience and skill development.

6. Age-appropriate percussion instruments, largely undervalued in early musical and general development, provide a set of creative tools that can be highly effective for helping children construct music and meaning.

7. Making music is desirable for children once they become “old enough.” Traditional views passed along for many generations do not foster the perception that average young children can be valid music makers.

8. Adults lovingly share music with children but do not usually consider whether young children wish to share THEIR music with adults.

9. Music is regarded as a performing art and to correlate it with children’s play seems degrading to its “true” purpose. Adults believe young children must learn music the “right way” but are wary of imposing “structured” music activities on young children.
10. Young children are seen as “heirs” to adult music. Limited investigations regarding young children’s natural relationship with music have resulted in little emphasis on music-making.

11. Adults project their musical perceptions onto young children. Adults do not experience the music made by young children as having “real” aesthetic value and, consequently, have not considered that young children’s music-making behavior is valuable to the children who engage in this behavior.

Special Circumstances

Considering that music and music education have traditionally been designated as areas of specialization, it is understandable that a developmental theory pertaining to the music-making behavior of young children is likely to appear intended to follow in that mode. It may be problematic to conceive of music-making behavior in a broader, more generalized context. One problem that may confound an understanding of the need for a theory that emanates from a more generalized perspective lies in a relatively obscure sociocultural construct. Please envision a horizontally positioned rectangular graph: to the left of the graph, a large section represents our (adult) understanding of music and how it functions for us. At the midpoint of the graph there is a smaller section that represents the adult perception of how we think music functions for young children. Finally, at the far right side of the graph is the smallest section indicating our disenfranchised young children with their unique, non-intellectualized understanding of music, which includes a capacity to derive meaning from their own music, but with no
voice to explain or describe their need or understanding of music. In spite of the fact that music is recognized as a multifunctional behavior in human culture (Wallin et al., 2000), its range of functions has not been extended downward in age so that music is considered a “developmental art” for younger children as well as a “performing art” for older children and adults.\footnote{This does not mean that music cannot facilitate “development” for older children or adults. Of course it can but certainly in ways that differentiate from early development.} If children’s music became recognized as authentic, such a perspective would extend music’s currently perceived specialization into a broader role that would encompass young children’s predisposition to be music-makers.

What bears repeating is the focus here on young children’s music-making behavior.\footnote{Statements made here are specific to children’s music-making and do not, for example, reflect on data that address the neurological development of children due to exposure to certain quantities or qualities of music as listeners. There have been no significant studies to date on the cognitive impact of children’s music-making behavior, i.e., developmental benefits when they participate in authentic music-making behavior.} Many contemporary thinkers believe that activity is at the center of young children’s development. This fact would seem to support a strategy wherein all behaviors and activities deemed normal and natural to children would warrant at least some investigation. However, sometimes special circumstances occur. What if a particular behavior that is normal and natural to children and is dependent on a collaborative (not authoritarian) engagement with adults has remained invisible to adults? It is likely then that adult efforts to nurture that behavior in children would remain dormant. The behavior of interest in this study is children's music-making behavior and the special circumstances described here pertain to this behavior.
Currently, there is a huge body of research relating to music and children. However, conclusions inferred from this study suggest there is a perceived need to propose a theory that is not concerned solely with the effects of music on young children, music invariably created by adults (including music made especially for children) but rather music that children participate in making. The theory presented here is not concerned with any particular style or genre of music but rather with children as they engage in collaborative music-making with an adult music leader, i.e., in a musical Zone of Proximal Development. It is not known exactly what age children become fully functional to display this behavior. However, behaviors that are clearly identifiable in regard to making music were evident throughout the age range of participants in the study, two years through seven years.\(^{100}\)

**Process vs. Product**

In addition to the hypothetical graph described above, there are yet other convoluted aspects to this undertaking. With no intention to ignore the indissoluble relationship between cause and effect, independent and dependent variables or, in this case, behavior and the outcome of the behavior, it is, nonetheless, necessary to look at them separately as well as together. The purpose for the separation is logical and can be expressed in a very simple syllogism: if behavior and activity potentially beget develop-

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\(^{100}\) Due to when their birthdays fell, four participants in the group of Primary level children at Site 3 had already turned eight-years-old.
ment, then music-making behavior should be no exception; it, too, potentially fosters development.

Several ideas are key to justifying why a developmental theory of young children’s music-making behavior necessitates that we make pointed efforts to differentiate the behavior from the outcome of the behavior. However, this statement should not be misconstrued: there is no intention to suggest that young children have no interest at all in the outcome (product) of their music-making behavior. To do so would be to ignore the basic human sense that Donaldson (1978) and other thinkers credit children with. Children as young as two years old will request a favorite song because they are drawn to that song for reasons they can’t explain. What appears to be more consciously available to them is the theme or main idea conveyed through the words of a song. Observations of their responses suggest that children’s imaginations can be sparked by the images, or “word pictures,” evoked by the lyrics in a song. These observations reveal that, for many children, if they are attracted to a song they become excited to help bring that song out into the social world by performing it.

The importance of a child's relationship to the musical product that he or she might create during an episode of making music with an adult music leader is not in question. However, the theory presented here supports the hypothesis that significant

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101 Young children do not often express why they like a song. Yet they may request certain songs over and over. Sometimes they do not know the name of a song and will make up their own way to refer to it. We can infer that early cognitive development does not allow for such music/language processing that would enable them to say, “I like that melody!” or “I like that rhythm!” They simply know they like particular songs. Such preferences are clearly genuine due to spontaneous reactions to favorite songs that are not displayed for other songs.
development that occurs due to episodes of making music is not solely contingent on
the resultant musical product but rather the activity or process that transpires during
the music-making. This, of course, underscores the importance of the structural guid-
ance that an adult music leader brings to the experience. Thus, an important assump-
tion posited by the present theory is expressed as follows: The total range of potential
outcomes from music-making behavior, including physical, cognitive, and higher forms
of psychological development (as described in theories posited by Piaget, Vygotsky, and
Montessori reviewed in this study), are possible only when young children become ac-
tively engaged in making music in collaboration with an adult music leader, creating
what this study refers to as a musical Zone of Proximal Development.

Paralleling patterns of young children’s conduct can be found in visual art activi-
ties. Young children are often not attached to the creative artwork they produce
through drawing, painting, or coloring. (It is the parents who put the artwork up on the
refrigerator, not the kids!) It is true that many young children “never look back”! Once
finished with an activity, including a so-called creative activity, they are immediately on
to the next thing. (Being creative is not a big deal to young children because it's as natu-
ral as breathing!) Yet, we are remiss if, because they do not seem to value the fruit of
their own labor, we assume that nothing of value happens between the starting and
ending points of their creative behavior. This speaks strongly to their music-making be-

102 Despite the analogy used here, it should be noted that musical creativity for young children
strongly contrasts with visual creativity due to the social dynamic. True musical creativity for average
young children surges to life as a collective, social, intergenerational experience. The closest reference to
a visual art experience from this social perspective is found in murals created by “teams” of artists.
havior (which traditionally could not be taped up on the refrigerator but now can be “uploaded” to a computer-based family video album!).

Similar behaviors are found among adults. As an adult finishes writing a letter, poem, or story, it may get set aside. Life goes on. However, depending on the nature of what was written, a significant psychological transformation may have occurred. This is why some professional psychologists recognize patients’ “journal writing” as legitimate approaches to psychological processing (Monte, 1995, p.624). To extrapolate from this, it is exciting to think what the potential developmental dynamics are for young children, still in the formative stages of development, as they engage in music-making behavior. If there is any judgment at all by a child in regard to their music-making, it will only be toward the quality of the total experience - whether they had fun or, conversely, if something happens to make them unhappy - not the quality of the resultant musical “product.”

Real Music in the mZPD

It is extremely important to understand that any reference to “real” music or “authentic” music-making that involves young children is assumed to be occurring from within a musical Zone of Proximal Development (mZPD). This means that young children’s sustained efforts to create real and authentic music come about due to collaborations with an adult music leader. It is the collaboration between children and an adult that defines an mZPD. Though birthed in theory, an mZPD does not remain a theoretical construct; it becomes a palpable, empirical manifestation that initially centers on a simple 3-step sequence of music-making activity; a process that must be guided by an adult
music leader (due to the adult’s more mature, natural sense of musical organization) and enacted by the children,

beginning a song,

continuing through a song,

ending a song.

While the simple act of singing along does not inhibit young children from experiencing such musical structure, the present study shows how the use of age-appropriate percussion instruments clarifies, reinforces, and enhances these structures palpably and conceptually.

It is across the span of this temporal experience of music-making that the child’s mind and body work together. Compounding the *intra*-psychological experience is the *inter*-psychological, sociocultural dynamic. Based on the model of a musical ensemble, we can infer that music-making skills, i.e., individualized “gears,” connect with the larger social gears. Through this multi-dimensional interaction, it can be assumed that higher levels of development become activated in the child thus fostering cognitive differentiation and integration, the touchstones of development (Deci & Ryan, 1985).

Certain aspects of the act of making music as described in the context of this theory are, presumably, unique to the young music maker and completely off the cognitive radar of an adult music-listening audience. This is because the developmental maturity of adults enables a greater focus on more nuanced qualities that potentially deliv-
er a more sophisticated aesthetic experience. Many of these more nuanced qualities are absent from the music produced by young children. Ironically, and much to our young music-makers good fortune, such nuances are not determinants of whether their music-making is less real or authentic in terms of their own assessment of it. Most adult music-listeners may not consciously focus on the structure of the music. Therefore, it does not occur to them that the organizational elements of a song may be the most salient, comprehensible feature in determining the “realness” or “authenticity” of the music. Yet, it is these very features that young children appear to recognize and respond to most naturally.

**Real Music, Real Aesthetic Perceptions**

In support of this theory, mention has been made in regard to aesthetic perception, aesthetic experience, and aesthetic value. Therefore it is necessary to thoroughly explicate this subject in regard to children's music-making behavior. This author is in full agreement with those who believe the power of music lies in its aesthetic value. The present theory acknowledges the child's ability to derive aesthetic value from his own efforts; otherwise, it can be presumed that their sound-making efforts would not be something that they appreciate, respect, or find meaningful. Without an aesthetic factor in the music and without the children's ability to perceive that aesthetic factor, the music-making experience — especially when using instruments - would be nothing more than a cacophony of sounds and probably tolerated by few children except during epi-

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103 Ironically, these factors prove to be inhibitors among adults causing them to be self-conscious and therefore reluctant to display their actual level of competence for music-making behavior.
sodes of simply making noise – a behavior that children also enjoy but which needs no mZPD!

Throughout the presentation of this hypothesis regarding young children’s aesthetic experience, the role of the adult music leader must always be viewed as essential and maintained front and center. In the same way that it is necessary for adults to build the apparatus in a playground so that children can create their own fun naturally, so, too, is it necessary for an adult music leader to guide the musical structure of a song so children can create their own aesthetic experience naturally. Moreover, the assumption is being made that without their inherent ability to derive aesthetic value from their music-making behavior, the music-making experiences of children could not deliver the far-reaching, multi-modal developmental benefits as purported by this study.

Is aesthetic perception a salient concept that helps to inform a developmental theory of young children’s music-making behavior?

It is believed by this author that the theory presented here must attempt to express the true nature of children’s relationship with music and the significance of their music-making behavior in context of their general development. The perception of this relationship is not based on a future-oriented projection of how it may support them later. Rather, it emanates from the present way young children display conscious, intentional, music-making behavior of their own free will. ¹⁰⁴

¹⁰⁴ “Free will” in young children is often expressed in “choice behavior” within a context that is dependent on adult supervisors who provide time, space, and materials. Given that the set-up of the
The population under the lens of this query is children who fall within Piaget’s preoperational stage, i.e., approximately two years old through seven years old. The current study shows that children within this age range show interest and enthusiasm for music-making at levels that, accounting for relative differences, are comparable to adults. Yet, they are not mature enough to know or care about the artistic value or the general social relevance of the musical “products” that result from their music-making behavior.\footnote{105} This suggests that children may differ from adults in their motivation to engage in music-making behavior. Yet, it is also being suggested that aesthetic perception is an inherent human capacity which underlies the creation of all music. If children are attributed with the ability to be “authentic” music makers, then we must ask whether they are able to experience aesthetic perception and aesthetic values, either consciously or unconsciously. In the pursuit of a valid theory of young children’s music-making behavior, it is necessary, then, to look at how we understand the nature of aesthetic perception so as to determine whether children are capable of employing this perception.

\footnote{105} The difference between of the quality and character of the musical products created by adults and those of children is not being compared for obvious reasons. The vast majority of young children cannot come close to matching the musical refinement and sophistication of adult techniques. Except for child prodigies, the musical products of children are not comparable to those of an adult, even if the adult has no musical training.
during music-making behavior, in ways like or unlike adults. The following is a brief overview and rationale that provide a framework for addressing aesthetics in context of a developmental theory for young children's music-making behavior.

**Beauty, Art, and Aesthetics**

To best serve this discourse, I will by-pass formal research literature for the sake of reviewing a source that offers a generally accessible, culturally-stabilized – quotidian, if you will - view on the subject of *aesthetics*. In this way, we are assured that we are assessing a thoroughly “mainstream” perspective, not the findings based on specific research.

Encyclopedia Britannica On-line is such a source and contains a twenty-two thousand word treatise on aesthetics (Munro & Scruton, n.d.). Yet, despite the comprehensive treatment of the topic, the article makes no reference to perspectives relating to young children. But why should it? Topics and sub-topics that inform adult interest in *aesthetics* seem to be far removed from concerns associated with children. For example, the article states that the study of aesthetic concepts provides a language of criticism to enable judgments to be expressed with logic and justification. Certainly, a “language of criticism to enable judgments” is very far removed from the needs and concerns of young children.

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106 Encyclopedia Britannica On-line (n.d.) does, in fact, offer a vague association between children and aesthetics in a separate article on children’s literature. It states that children’s *literature* has developed aesthetic criteria of its own and contains “the beginnings of an aesthetic theory...” However, the author’s intent seems to address the literary skills of the writers who infuse aesthetic elements into the literature rather than a theory pertaining to young children’s perceptual capacities.
The Britannica article also presents some historical references which show the legacy of current views on aesthetics. Emmanuel Kant is noted as an important thinker of the 18th century who established early philosophical groundwork in aesthetics by describing an aesthetic attitude as one of disinterest, divorced from practical concerns, and a distancing or standing back from the ordinary. Again, these are hardly terms that would describe young children as they joyfully and enthusiastically engage in music-making behavior. Considering the historical timeline of the article, we get a general sense that, for at least the past two hundred and fifty years (and probably longer), the notion of aesthetics is completely disassociated from the concerns of young children.

Continuing in Kant’s wake, aesthetics today is a popular notion closely aligned with “art” and “beauty.” It appears that many authors writing on the subject of aesthetics present this view. For example, in “Beauty and Art,” Prettejohn (2005) begins, “Philosophical aesthetics has concentrated on the human subject’s experience of the beautiful” (p.9). Essentially, her entire text focuses on ideas that attempt to offer a greater understanding of aesthetics in relation to art and the emotion that art conveys. Whether young children have capacities for aesthetic responses to art is not a concern of the author. (Nor should it be. It is a rare young child who enjoys accompanying his or her parents for an afternoon at the art museum or an evening of Beethoven at the concert hall!)

The relationship of “art” and “aesthetics,” is strongly fused to cultural views; the terms are frequently used interchangeably. Responding to the question, “What is art?” Dutton (2009) states, “The obsession with accounting for art’s problematic outliers...
left aesthetics ignoring the center of art and its values” (p.50). Some authors approach the subject of aesthetics with transcendental, romantic, and philosophical richness. Overall, most literature on aesthetics is intended to appeal to artists, art lovers, and art critics, all of which comprise a purely adult audience and with no apologizes: according to general thinking, this where the whole scope of interest in aesthetics lies.

**Aesthetics and Music Education**

Elliot (1995) is a music educator and theorist who helps us appreciate the complexity of presenting a developmental theory of young children's music-making behavior that is, in part, informed by aesthetic perception. Elliot reminds us that because the European tradition of orchestral “art music” guided musical tastes and standards in early America, it was inevitable that its influence would extend into American music education. Elliot quotes American music education pioneer and philosopher, James Mursell (1893-1963): “If music [is] to yield its educational value, then it must be taught and learned with a primary emphasis upon its esthetic [sic] aspects” [Emphasis added] (p.27). According to Elliot, most of those who thought and wrote philosophically about music education in the twentieth century mainly followed in the ideological wake of Mursell and esteemed philosopher Susanne Langer. Langer (1958) influenced education by espousing how the aesthetic qualities of musical works capture and represent the general forms of human feelings and confer on the music listener a special kind of knowledge.

The perceptions of Mursell and Langer seem pertinent for adults and older children but do we expect the music of average preschool and primary grade children to
capture “general forms of human feeling” or convey “a special kind of knowledge”? The answer is yes if we can assume a strongly child-centered stance in these issues. But for most people, this is probably not the case. The children themselves are not even mature enough to have such expectations, but that is hardly the point. What is important to query pertains to whether it is possible for the young child to experience forms of human feeling and construct special knowledge of themselves and the world as they discover their ability to be music-makers.

What role can aesthetics play in the early development of children? When thinkers such as Elliot (1995) advocate for a philosophy of music education that embraces a view of music as something “more than a collection of autonomous aesthetic objects” (p.33) and sees music education as centered on the act of making music, it appears to be supportive of this developmental theory. Yet, challenging the legacy of traditional philosophies in aesthetics is not the same as considering the possibility of an alternate understanding of aesthetics that wholeheartedly embraces young children. While it is good to consider the broader significance of human music-making behavior, it is also important to determine at what stage in a human being's life does this importance become operationalized? Elliot suggests a philosophy that would apply “regardless of age” (p.271) yet he still believes that a music curriculum begins by having the teacher decide the kinds of “artistic” music-making that students will seek in the future. Once again, the notions of art and aesthetics remain stuck together in ways that undermine the significance of aesthetic perception in young children.
Humphrey’s Natural Aesthetics

This study makes the assumption that young children do not pursue the “artistic” music-making that Elliot (1995) speaks to. Yet, they are music makers in their own right who can be attributed with a sense of aesthetic perception when that term is defined appropriately. In pursuit of an appropriate definition, we turn to British developmental psychologist, Nicholas K. Humphrey. In a treatise entitled “Natural Aesthetics,” Humphrey (1980) offers a theory of aesthetic perception that is founded on biological principles and therefore, unlike the previous examples, embraces and supports young children and their music-making in a relevant way. This is true even though Humphrey’s intention was not at all directed toward music or young children. I will refer to his premise as a theory of natural aesthetics.

Humphrey (1980) begins by asking a question that borrows language from biology: “What is the function of Man's appreciation of beauty” (p.59). Knowing that “function” has a special meaning for biologists, Humphrey believes that if the response to beauty occurs regularly within the human species, it must confer some biological advantage considering that “nature gives little away for free” (p.59).

Humphrey (1980) references German philosopher J. F. Herbart (1776-1841) who offers a foundational premise: “Each element of the ...whole is, in isolation indifferent, but the form comes under the aesthetic judgment.” Humphrey then cites 19th century

107 In *The Pleasure Instinct* (2009), Wallenstein seems to corroborate Humphrey’s view: “Pleasure, like fear and fire, is a natural force...[it is] evolution’s ancient tool for prodding us in the directions that maximize our reproduction success [and] has created a staggering panorama of behaviors, pathologies, and cultural idioms...”
English poet Gerard M. Hopkins who also understood that “the essence of beauty lies in certain relations [which can be perceived as] a mixture of likeness and difference, or agreement and disagreement, or consistency and variety, or symmetry and change” [Emphases added] (p.63).

To further explicate the idea of a relational definition based on contrasting elements, Humphrey (1980) points to two natural elements found in poetry, rhythm and rhyme. First, he considers the way rhythm contains relational contrast or “likeness tempered with difference” (p.63). Humphrey is also aligned with preeminent English philosopher, Alfred North Whitehead, who wrote, “The essence of rhythm is the fusion of sameness and novelty; so that the whole never loses the essential unity of the pattern, while the parts exhibit the contrast arising from the novelty of their detail” (p.63).

Just as rhythm is comprised of likeness and difference, Humphrey (1980) also formulates a concept of rhyme, not only as it occurs in poetry but also through in a diverse array of natural circumstances as in “the leaves of a tree, the spots of a leopard, the bodies of a flight of geese...” (p.69). Each of these present a theme (a constant or likeness) with variations (a change or difference). Myriad examples are taken from virtually all aspects of nature: “Mountain peaks, pebbles on a beach, clouds, raindrops, ocean waves – each alike but different from the others. Children, monkeys, gardeners,

108 Humphrey again cites Hopkins who offers the view that rhyme is the epitome of the principle of aesthetics: “All beauty may by a metaphor be called ‘rhyme.’“
stamp collectors, mathematicians – all, I think, are engaged in essentially similar aesthetic enterprises” (p.69).

Confronted with such a sweeping scope for conceptualizing aesthetics, we can begin to sense the importance of Humphrey’s thinking in regard to young children: that the primordial source of aesthetic experience is not awarded to the artist’s studio or even to the psychological constructs of the human mind but, more fundamentally, within the very core of our biology and the biological infrastructure of the phenomenological world. Synthesizing his own thoughts with correlating ideas from others, Humphrey (1980) arrives upon a comprehensive view of aesthetics that is considerably larger than one that is tied exclusively to socially defined works of art or even to the normative sense of what is considered beautiful. From this, we can infer that a subjective perception of aesthetic experience can occur whenever and wherever there is a juxtaposition of elements that possess both consistency and change (or, variation).

If we accept these propositions regarding the metaphors of “rhythm” and “rhyme,” there are several core assumptions we can make:

1) “Rhythm” and “rhyme” are ubiquitous throughout the phenomenological world and applies to all sources of sensory stimuli – including sound.

2) Our attention is drawn to “rhythm” and “rhyme” due to our innate propensity to formulate emotionally informed preferences.

3) “Rhythm” and “rhyme” – metaphors for the biological foundation of
aesthetic perception - facilitate the construction of meaning from the
forms and structures that we perceive and select.

4) Young children are as engaged in processing and conceptualizing these perceptions as much as adults.

Humphrey (1980) goes so far as to posit a correlation between aesthetics and species survival. His assertion is that the ubiquity of “rhythm” and “rhyme” provides the ways and means for every animal species, including humans, to recognize, identify, and classify or, in essence, learn about and survive in their respective environments. Humphrey's research on the behavior of monkeys supports the biological premise of his hypothesis on natural aesthetics: “While they do not spend long on thoroughly familiar things, neither...are they interested in looking at a total jumble” (p.65). According to renown researcher Jerome Kagan (as cited in Humphrey, 1980), this is found in human behavior as well. Kagan (1970) found that human babies who have been made familiar with a particular ‘abstract’ visual pattern take pleasure in seeing new patterns that have minor variations of the original. Other studies show that babies are not attracted to stimuli that are wholly unrelated to what they have already seen but are attracted to stimuli that have both a degree of novelty and some familiarity (Humphrey, 1980). Spelke (as cited in Diamond & Hopson, 1998) reports that a baby will stare longer at a novel, unexpected sight than at an ordinary expected one (p.120). Congruent with Humphrey’s theory, Spelke also describes how an infant becomes habituated to an initial stimulus that serves as a constant in order to discern, by virtue of contrast, a change that
occurs. From these examples we can infer that, virtually from birth, human neonates are responding to biologically-determined imperatives involving natural aesthetics which, in turn, provides motivation for learning.

Forms, structures, patterns, and designs in nature give us what we perceive as the phenomenological world. Evidently, our brains are “hard-wired” to perceive these external phenomena thus enabling us to respond to the aesthetics of natural structures. Then, too, all human-made structures pay homage to our aesthetic prowess through eclectic displays of patterns with seemingly endless variations. Most pertinent to the present hypothesis is the evidence that these perceptions have meaningful application to early childhood development. According to Piaget, our ability to develop higher levels of intelligence is contingent on instinctive efforts to internalize structures (physical and psychological) as we interact with our environment (Ginsberg & Opper, 1986). Thus, we can infer that aesthetic perceptions, which link to preference and choice-behaviors, are positively correlated to knowledge building and the construction of meaning, ultimately undergirding the development of human intelligence.

“A very basic human purpose”

The form, structures, patterns, and designs that people create are all the results of organizational behavior – both physical and mental. We have a form (our bodies) and most everything we know that has any meaning to us has a form.\(^{109}\) While it may be true

\(^{109}\) Philosophical views regarding thought and other metaphysical phenomena often contend with notions of “formlessness.”
that form follows function, it also makes sense that meaning follows form! My argument for its relevance to children stems from the fact that forms, structures, and patterns are immediately available and very prevalent in children’s lives – offering ample opportunities for children to employ their biologically ordained, perceptual mechanisms. Indeed, children are organizing reality by acting on their environment (Allen, Brown, & Yatvin, 1986) which means they are pattern makers in their own right. Language-based communication is, just like music, structure dependent. Although young children are not capable of understanding aesthetics analytically, they appear to connect with the underlying “human sense” and “basic human purpose” (Donaldson, 1978, p.17) associated with aesthetic experience and perception. When defined by a biologically-informed view as posited by Humphrey (1980), natural aesthetics can be seen connected to, not precluded from, the lives of children.

Music, being based on sounds that are organized or patterned, is clearly contained within the parameters of Humphrey’s (1980) theory of natural aesthetics. It is not coincidental that ‘rhythm’ is used by Humphrey as a metaphor for aesthetic perception. The broadly interpreted rhythms of life and the more specific rhythms of music continuously offer exemplars of aesthetic perception: consistency tempered with variation. The aesthetic value is there; children need only engage it and give it personal meaning. Without the presence of aesthetics as defined by Humphrey, life as we know just doesn’t exist. Sadly, there are children in the world today who are living without immediate access to inspirational works of art. However, there is no child – no human
being – who can be denied access to myriad phenomena (either natural or humanly constructed, *including music*) that by the very essence of their form, organization, or structure are imbued with aesthetic value. It is everywhere; we cannot escape it even if we try.

When children are invited to create sounds in musical Zone of Proximal Development with an adult music leader, they automatically organize their sounds (made vocally and/or instrumentally) into patterns thereby instinctively evoking the very foundations of music and aesthetics. When nurturing adults participate in music-making experiences along with children, those children have been propitiously invited into a zone of *optimal* development where the uniquely human, higher psychological levels of thinking and understanding are brought within reach of each child.
A Model for

Music-Making As A Developmental Behavior:

A Developmental Theory of

Young Children’s Music-making Behavior
This model uses a chronological timeline that spans across six years of early childhood, from two years of age to seven years of age. The timeline, as displayed in the figure, is divided into two sections that reflect several variables occurring simultaneously thereby expressing different perspectives of the same phenomenon, i.e., young children’s music making behavior. In this sense, the figure can be viewed as a kind of two-dimensional hologram.

General Variables

The author acknowledges that children’s music-making behavior can occur at various times, in various places, and under various circumstances. This model has been developed for the purpose of supporting the present dissertation and conforms to the constraints of the present study. It assumes the following:

1. Children can make music in a school environment functioning as cooperative members within social groups.

2. Children may engage in music-making behavior when given the opportunity to make sounds through three age-appropriate sources: 1) their voices, 2) their “body drum” (clapping hands, slapping thighs) and/or 3) percussion instruments (bells, drums, maracas, etc.).

3. Their music-making occurs within a musical Zone of Proximal Development (mZPD). The mZPD is created when an adult Music Leader conducts a music-making session by inviting children to participate under his/her guidance so as to organize the sounds they make in specific ways. Essentially, children ac-
tively and intentionally make simple rhythms and song forms (musical structures) along with the Music Leader.

4. Although learning is inevitable, the nature of a musical Zone of Proximal Development (mZPD) is, as the name implies, to facilitate development. It is assumed certain development occurs in this context when children employ current skills, some presumed to be unlearned, in a context of musical complexity greater than would be possible if left on their own, with no adult Music Leader.

5. The mZPD is a social, collaborative music-making experience. The collaborative nature of the music-making is derived from the concept of a musical ensemble that is guided by a “music leader.” The primary role of a music leader is not to teach music but rather guide music-making behavior that is understood to foster developmental competencies, both specifically related to making music and more broadly related to cognitive and social development.

6. A unique feature of the mZPD is that the differentiated skill levels usually found among individuals within a group (typically organized by age or developmental level) are “neutralized” to a significant degree. This means that children who are more assertive, comfortable, and/or competent with emerging musical skills do not “carry the group” and those who are less assertive, less comfortable, and/or less competent with the same skills do not “hold back” the group. Essentially, by following the adult Music Leader in his/her own way, each participant makes spontaneous contributions that
support the musical goal of the group, i.e., usually the performance of a song but can also include telling a story that is punctuated by musical interludes. Although the immediate emphasis is on using current skills, the Music Leader will assist individual children accordingly during a music-making session. Given the current understanding of the impact of experience on learning and development, it is likely that certain skills and perceptions are learned and/or improved over time, assuming there are multiple opportunities to participate in an mZPD.

7. The behaviors that children display during episodes of making music are consistent with age-appropriate behaviors as identified and used in the analysis of the data gathered for this study. These include but are not limited to 1) making sounds, 2) performing rhythms, 3) maintaining structural cohesion with the Music Leader and peers, 4) responding pedagogically, 5) socially connecting with or interacting with peers, 6) displaying affect, and 7) playing the “game” of music.

8. Children who are present in a musical Zone of Proximal Development are encouraged to participate but are never forced to participate. It is assumed that, even if a child chooses to abstain from active participation in the music-making, simply being in the musical ZPD with peers and an adult Music Leader will foster learning and development.
Brief Overview of the Graphic Representation of the Model

Time-box.

The largest section of the graph (from left-to-middle) shows the target period to which this theory pertains, i.e., children spanning the ages of two through seven years old. The timeline is inflated into what would more accurately be referred to as a time-box. The “box” provides a space subdivided into two sections, top and bottom, which symbolize a bilateral mode of experience related to young children’s music-making behavior as they progress chronologically from 2 years old to 7 years old. The two components of this bilateral mode are the musical product and the musical process.

The top section of the time-box contains numbers representing the progression of ages from 2 years to 7 years and offers 1) a depiction of the linear, maturational, chronological development of children across this age-span and 2) a reference to both quantitative and qualitative measurements of musical products (typically songs) that the children create during any single music-making engagement at any time during this span of years. The bottom section of the time-box refers to 1) a perception of a naturalistic development that is not defined strictly by maturation but also by the processes of differentiation, integration and re-organization of stimuli and perceptions and 2) a reference to both quantitative and qualitative measurements of what they do during any single episode (process) of making music, i.e., music-making behavior. During this span of years, there are predominant schemes that children adhere to in their music-making behavior and particular characterizations that adults project onto children’s music-making behavior.
Right side of time-box.

On the right-side of the time-box, the graph shows that this phase of development does not end abruptly. There is a transitional period symbolized by lines on the figure that are angled up from the bottom section and down from the top section. This symbolizes the fact that there is a gradual transition on the part of the children as they gradually move away from that which is associated with the earlier period (described in the time-box) to that which is associated with the later period briefly summarized on the far right side of the graph as “artistic, cultural expression.” The transition may begin around eight years old but may start earlier or later. This depiction is intended to align with Piaget’s understanding that the time when any particular young child evolves away from the preoperational stage of development cannot be exactly predicted.

Far-right section of graph.

On the far-right section of the graph the time-box continues beyond the scope of this theory. Essentially, the two “lanes” of the target period merge into one “lane” suggesting a subsequent, more unilateral mode of experience.110 This symbolizes the next stage in children’s maturation when new emphases in their behaviors and perceptions appear. They begin developing schemes associated with “artistic” and/or “cultural” expression that align with Piaget’s subsequent stages, i.e., the concrete operations stage and then on to the formal operations stage which continues into adulthood.

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110 Of course musical forms of artistic and cultural expression are limitless in their breadth and depth of expression. Characterizing them as “unilateral” is only in contrast to the relevance of a “bilateral” period for young children where the process has equal or more significance than the “product.” Ultimately, emphasis is mainly on musical products.
Details of Model

1. **a) TIME-BOX, TOP SECTION**

   **Chronological, maturational.**

   The top section in the time-box symbolizes a six-year span, addressing children from 2 – 7 years of age, and refers to children’s natural, biologically-driven, chronological maturation. It is assumed that natural, biologically-determined maturation with normal physical and cognitive growth will have a progressive influence on their ability to create musical products, usually songs.

   **Product = songs.**

   In many cultures, including American culture, songs are likely to be the most common and, if you will, most natural musical “products” for children to create during the preoperational stage, 2 – 7 years old. This makes sense considering that, beginning with lullabies, songs are the form of musical expression adults most readily share with children and initially encourage them to participate in.

   Within this relation between young children and songs there exists an interesting paradox regarding culture that pertains to the present theory. When children in this age range perform songs, it is reasonable for us to view their behavior as an act of **cultural expression.** This perception is based on two considerations: firstly, the songs young children learn usually conform to culturally familiar and/or traditional cultural styles and forms. Secondly, when children perform songs together with adults and peers, they are participating in a socio-cultural experience centered on music. Thus, even if the songs
are NOT familiar or traditional, the experience is still culturally meaningful to the child. But there is another view to consider: the child’s view.

**Pre-cultural, pre-artistic.**

Because the theory presented here is child-centered, it makes certain assumptions. Although adults may be aware of the cultural implications contained in the forms of the music and/or ideologies expressed through the words, young children are not necessarily aware of nor concerned with such content even though they can be attracted to it for reasons of their own. This study makes the assumption that young children initially respond to music as an expression of their generic *human* culture, not a specific national culture. This assumption is made based on observations that reveal how young children are not initially concerned with maintaining cultural purity or authenticity even though it is inevitable they will express culturally informed styles in their music-making behavior. However, it is the adults who recognize this, not the children. It is also assumed that during the preoperational stage, young children are not concerned with creating “works of art.” Therefore, from the child’s perspective this period of their music-making behavior can be considered *pre-cultural* and *pre-artistic.*

**Quantitative measurement of product.**

There are behavioral elements related to making a musical product that can be measured *quantitatively* in each child as he or she progresses across the age span from two to seven years old. Across all the behaviors associated with making music (see Chapter 7), the child at 2-years old will typically make fewer contributions during a particular music-making episode than will a 7-year old. This is due in part because the gen-

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eral behavior of a 2-year-old child is conspicuously more ego-centric than that of a 7-year-old (although even the 7-year-old will still display traits of ego-centrism). As the younger children are engaged in making music, the ego-centric traits make them more susceptible to any number of external or internal distractions or concerns, real or imagined. Over the span of these years, as children gradually move away from ego-centrism, greater amounts of time will transpire with greater focus on the group activity including when they are making music. However, virtually all children across the preoperational stage of development have the potential to make significant contributions to a music-making engagement along with peers and under the guidance of an adult Music Leader if they so choose.

While it is true that 7-year-old children will contribute a greater number of music-making elements than their younger peers, they do not introduce any novel elements to the musical product. This means that, although the overall number and variety of behavioral components in a given music-making session are most likely greater among 7-year-olds, all these same elements or components of music-making behavior, as listed in the observation protocol, may potentially be displayed by younger children. As the age of a child progresses, however, the potential for a greater number of novel extra-musical contributions emerges. Such extra-musical behavior (EMB) includes but is certainly not limited to language behavior, i.e., comments and/or questions directed to the Music Leader, peers, or others. Interestingly, the extra-musical contributions may or may not directly impact the quality or character of the music per se but will most certainly impact the pedagogical style and content of the gathering as well as the socio-
cultural dynamics that unfold within the group as they make music together. It is especially important when considering the music-making behavior of young children that the extra-musical behavior (EMB) is not disregarded from the music-making experience but rather seen as an intricate part of the event.

Although varying from child to child, it would be reasonable to predict conspicuous, gradual quantitative increases in their general, music-related “contributions” (both vocally and instrumentally) while participating in music-making episodes throughout each interim year between 2 and 7 years old.

Another aspect that can be measured quantitatively is simply the number of songs learned by individual children over time. To this author’s knowledge there has been no study to determine limits in the number of songs that children can learn at different developmental stages. It might be quite surprising to discover the actual number of songs that a 2-year-old child “knows” or can recognize. With that determination yet to be made, it can be assumed that, in the same way that vocabulary increases exponentially during the span of 2 – 7 years old, the quantity of songs known by a 7-year-old is probably greater than the quantity of songs known by a 2-year-old.

To summarize, we can say that as young children progress in age and maturity from two to seven years old, quantitative measurements can be made in two primary categories relating to music-making behavior: 1) the total number of contributions of appropriate behaviors and the variety of appropriate behaviors and 2) the number of different musical products (songs) known by individual children.
Note regarding the first category: A progressive increase in the total number of behavioral contributions, as identified above, will likely although inconsistently have a direct bearing on the quality and character of the musical product as the children progress incrementally and inevitably toward the adult model. This shows there is a direct correlation and a unique interrelationship between the quantitative and qualitative measurements of young children’s music-making behavior.

**Qualitative measurement of product**

In the same way that quantitative assessments can be made of children’s musical products, there are elements that can be measured qualitatively, either for individual children or collectively as groups.

The most salient criteria for determining qualitative measurement of young children’s musical products are consistency and accuracy of their contributions across the identified behaviors. When assessing a musical product, it is impossible to avoid the long-standing legacy of adult musical standards. In the creation of any musical product by any group of any age, this standard will always prevail. That being said, when appreciating and evaluating the musical products of young children, we must move away from the center of this adult standard and toward the periphery where the aesthetic value can be child-centered and understood accordingly. It is important to recognize that, while the musical products of young children rarely rise to the standard of adults’ products, they are not completely devoid of the same criteria. After all, there would be no sense of music whatsoever if young children were never accurate or consistent. In fact, they often are.
Across the age span, a 2-year old is less accurate and less consistent over the total number of contributions than the 7-year old. (Here, again, we see how a quantitative consideration dovetails with a qualitative consideration). Invariably, as younger children follow the Music Leader with either voice or instrument, they do not match their rhythms accurately or consistently. Some children start or stop after the Music Leader; some children start or stop before the Music Leader. This is not a problem as long as it is understood that the overall quality of children’s musical products will usually be “rough around the edges” in accuracy and consistency. But this perception comes from making a comparison of their musical products with those of adults. Ideally, adult music leaders who engage with children will supersede the comparative stance by hearing the charm of the “rough edges” in the same way that we see the charm in their visual artwork, e.g., a head drawn three times too big for a body, a crooked line establishing the side of a house, or a cat with all the whiskers on one side of its face.\footnote{It seems only too obvious that young children’s musical expression should be analogous to their visual expression. What might mask an adult’s perception of this may have to do with the fact that in the latter case the children normally work independently whereas a musical Zone of Proximal Development necessitates an adult music leader.}

In terms of qualitative measurement, there is an interesting contrast among the sound-producing elements featured in this model. The children’s voices are probably least accurate and consistent. Even within a single performance of a particular song, a child’s vocal performance may vary qualitatively going from loud to soft, on pitch to off pitch, strident to demure.\footnote{Of course, the children who sing most accurately and consistently always attract the most attention from adults who immediately identify them as “talented.” While this may or may not pose a problem for the “talented” child, traditionally, this pattern of adult behavior completely obscures the music-making “talents” of other children.} When this is multiplied by the number of children in the
group, the quality of the vocalizations that comprise the musical product assumes a “roughness” as described above. It is important to note, however, that this perceived “roughness” does not preclude striking occasions of musical cohesion displayed collectively by the group.

In stark contrast, many of the sounds produced when children use percussion instruments are quite accurate and relatively consistent simply due to the way the instruments function. For example, the sound of maracas is always the same no matter how they are shaken. The same is true for many percussion instruments such as the tambourine, drums, and woodblock-type instruments. The velocity of an instrumental sound may vary depending on how much energy a child exerts when producing the sound of the instrument; but the character of the sound changes very little. Therefore, the use of age-appropriate rhythm instruments can greatly enhance the consistency of the quality of young children's musical products.

In summary, it should be recognized that the qualitative aspects of children’s musical products (the outcomes of their music-making behavior), defined mainly by levels of accuracy and consistency, transform gradually over the trajectory of the age span. As children acquire greater physical dexterity and perceptual skills over time, incidents of accuracy and consistency will increase. As is true for the elements of their musical products when measured quantitatively, so, too, will chronological maturation significantly impact the elements embedded in the qualitative measurements of their musical products.
Organismic Integrative Process

The bottom section of the time-box displays the most innovative premise to the present theoretical model. It is at once complementary and contrasting to the upper section which addresses chronological maturation. It is complementary by virtue of the fact that it addresses the music-making process that is essential in order to manifest a musical product. Interestingly, it is contrasting for the same reason: given that music is being presented as an important developmental behavior wherein the significance (developmental impact) lies in the act of making music, it is necessary to abstract the process of making music from the resultant “product” so as to identify the unique characteristics of that process, which, in terms of the child’s experience manifests as a behavior.

The main premise of this component of the model asserts that children’s biologically-driven chronological maturation is not the sole factor in determining the developmental outcomes and benefits of music-making behavior. This section also introduces the idea that the developmental impact of young children’s music-making behavior is not solely, or even necessarily, derived from the outcome of the behavior, i.e., the resultant musical “product,” but rather the child’s active engagement in the process of making music. These latter ideas immediately connect to a constructivist rationale for the present theory, clearly aligning with key constructivist principles such as 1) understanding knowledge as “internally constructed [and] socially and culturally mediated” (Fosnot, 1996, p.ix) and 2) acknowledging structure-building processes which occur as
the child engages with the environment. More specifically, Fosnot (1996) states, “Rather than stages being the result of maturation, they are understood as constructions of active learner reorganization” (p.10). During music-making behavior, young children are specifically “reorganizing” abstract, yet meaningful (musical) auditory structures, pedagogical information, and social interactions.

Important connective concepts are also found under the auspices of an “organismic integrative process” (Deci and Ryan, 1985, p.114). Again, the relevance of these ideas to a developmental theory of young children’s music-making behavior rests upon the fact that they support notions of development that are not solely determined by maturation. To support this line of thinking, it is helpful to understand *development* as “a process of one’s potentials becoming manifest or actualized” (Deci and Ryan, p.113) and also as changes that involve “progressive organization of organic or psychological structure” (Bertalanffy as cited in Deci & Ryan, 1985, p.114). (The significance of an interactive/structural view of development in relation to young children’s music-making behavior is elaborated thoroughly in this dissertation through the discussions on Piaget, Vygotsky, and Montessori.) An organismic integrative process is described by Werner (as cited in Deci and Ryan, 1985) as “the fundamental law of organic development [that tends] toward increased differentiation of elements and hierarchical integration of those elements” (p.114).

Deci and Ryan (1985) elaborate,

*We suggest that development follows a general pattern in which one distinguishes specific elements of one’s internal and external environments and then brings*
those elements into harmony with one’s existing structures, thereby elaborating and refining the structures (p.114).

These theories, combined with data gathered from the field study, strongly support the proposed developmental theory of young children’s music making behavior, especially in the way it accounts for all children between 2-years-old and 7-years-old with parity and equality. To measure children’s developmental outcomes based solely on maturational milestones is insufficient: “Developmental change, from an organismic perspective, represents synthetic alterations of structure, and integration is the process through which this synthesis occurs” (Deci and Ryan, 1985, p.119).

Essentially, people – which presumably does not preclude young children - continually seek challenges “neither too easy nor too difficult” and stay involved in continuing cycles... [Emphasis added] (Deci & Ryan, 1985, p.33). Such views support the proposition that, despite their young ages, children receive developmental benefits from cyclical behavioral patterns which, in this case, are found in music-making behavior.

**Music-making behavior, a developmental process across early childhood.**

The data gathered through the study conducted in conjunction with this dissertation indicate there are common or like behaviors displayed by the vast majority of participants in the study across the total age span of 2-7 years. This suggests that certain predispositions, perceptual capacities, and skills necessary for making music are accessible to children as young as two years old, continue to be accessible across this age

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113 As indicated in the analysis section of the study, at least four children in the oldest group of participants had had birthdays prior to the start of the study at which time they turned eight years old.

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span, and are still present and attractive to children throughout their seventh and well into their eighth year of life. As indicated earlier, this development is believed to occur only in a musical Zone of Proximal Development which means the children’s behavior is facilitated by an informed, sensitive adult Music Leader.

The significance of young children’s engagement in the process of making music offers an additional if not alternative view of the traditional value placed on the musical product or musical work. The normative, adult-oriented emphasis on the musical product can be attributed to factors presumably arising from adult musical needs and adult interpretations of aesthetic perception, neither of which can be used for accurately determining or explaining young children’s high interest, high enthusiasm, and impressive skills and capacities for making music. However, this does not mean to suggest that the adult presence is superfluous and can be precluded from strategies that would purport to foster optimal developmental outcomes and assure the authenticity of the children's music-making behavior. What’s necessary is an informed adult who is sensitive to a child-centered perspective thereby understanding the need to differentiate between her own personal musical perceptions outside the mZPD (that would align with cultural norms) and what is required of her in order to offer children an optimal yet natural developmental engagement within the mZPD.

This view also emphasizes the value of the child’s access to simple percussion instruments by understanding the function of these “tools” beyond a purely supportive role to children’s nascent vocalizations. This study shows that quality, age-appropriate
instruments can provide a unique emphasis on creative, structure-building, language-enriching rhythmical experiences in ways no other music-making component can do.

Summarily, there is strong support for positing a theory that suggests young children’s music-making behavior may, in fact, exist for purposes that are different yet equal in value and impact to their music-making counterparts in the adult world. To state it frankly, if no one – neither the children nor adults – really care about the product or outcome of what the children produce musically, there is every reason to look more closely at what might be the true purpose of their music-making behavior. Considering that music offers a qualitatively unique experience to the adult world, there is probable cause to assume music-making behavior may offer a qualitatively unique experience to young children. There have been no previous major investigations that have attempted to identify or measure specific developmental outcomes and benefits for young children as they engage in music-making behavior.

From undifferentiated/un-integrated to differentiated/integration across the age-span.

Whereas the top section of the “time-box” addresses quantitative and qualitative measurements of children’s musical products (usually songs), the lower section, labeled Naturalistic Development – Differentiated/Integrated, pertains to the process of making music and, therefore, is directly relevant to the central focus of the study, i.e., music-making behavior. As stated earlier, the numbers in the top section of the time-box represent the progression of children’s ages in the preoperational stage of development, 2 years through 7 years. Also in the upper section, there are long “arrows” pro-
jecting from each of the numbers, each directed toward the left-side of the lower section. Following the direction of all the arrows, we arrive at an area in the lower section that can be described as visually random and chaotic. The fact that each number, i.e., each age, has led to the same area lacking “organization” is significant. This visual depiction is symbolizing auditory stimuli: children, throughout all years of the 6-year span of the preoperational stage, are likely to experience auditory stimuli in the environment, including music, and probably engage playfully in creating random sounds, which may or may not come from musical instruments. Most importantly, despite the likelihood of these common experiences, there are no guarantees that any of these episodes will move the children to differentiate, integrate and reorganize their experiences so as to foster substantive development. In other words, this space – where abstract colored shapes, unfinished line-figures and random musical notes are depicted “floating” around - resides outside of a music Zone of Proximal Development, contains no adult Music Leader and is therefore devoid of authentic music-making behavior.

To the right of the “random chaos” is a symbolic representation of an adult “music leader” who would serve as an intervening entity with any group of children, especially in a school environment. The presence of such an entity immediately offers the potential for creating an mZPD. The primary role of the adult who assumes this position is not functioning exclusively or even necessarily as a music teacher (although significant music learning by the children can and will most likely occur) but rather a music leader, essentially guiding the young music-makers in their sound-organizing efforts. However, the role of this Music Leader this is not exactly in the tradition of all music directors who
traditionally strive for artistic and/or cultural expression. The music leader in an mZPD maintains a child-centered perspective. The common factor shared with other musical directors lies in the objective to achieve an aesthetic experience for all participants (children and adults) through authentic music-making; an aesthetic experience that emanates from a meaningful, not necessarily a perfect, organization of the sounds. An adult music leader is essential in a music Zone of Proximal Development in order to authenticate the children’s music-making behavior through actual musical organization which then fosters the aesthetic experience. The music-making behavior of the music leader, centered on guiding the group’s effort, also draws from a natural and instinctive sense of musical organization just as it does for the children. (To bring adults who are not music specialists to realize that they can tap into personal, creative, music-organizing capacities is the bedrock for a new paradigm in early childhood teacher education.)

The results of the intervention of the adult music-leader is symbolically represented by the configuration to the right which, contrasting the more random design of the shapes on the left, reflect a sense of organization that is recognizable, identifiable, and theoretically, for the purpose of this model, more meaningful. A pattern of musical notes is shown cascading around and through the reorganized, differentiated, integrated figures suggesting authentic musical results are emerging from the collaboration of adult and children in the musical Zone of Proximal Development.

Finally, the QUANTITATIVE / QUALITATIVE labels in the upper section are intended to be applied to the developmental process depicted in the bottom section. This means that the theoretical model acknowledges the fact that factors such as accuracy
and consistency are also found in the process of making music, i.e., the actual music-making *behavior*, and can therefore be measured qualitatively and quantitatively across this age range in a manner paralleling their application to the musical products that the children create.
EPILOGUE

Delivered orally to dissertation committee at Dissertation Defense, Claremont Graduate University, October 16, 2012
My understanding of the traditional paradigm in music education is that music is thought of as something that should be part of a child’s education, something that is good and maybe even essential for a child to learn.

Based on the findings of this study, there is evidence suggesting that music may also be a significant factor in children’s early development. However, the developmental theory presented here does not rely solely on music that is already out in the world, music that is external to the child. Here, it is important to give attention to the music that is presumably within the child and, more specifically, to the behavior that enables the child’s creative acts of making music.

Fortunately, this notion is supported by other evidence derived from this study, namely, that the nature of a young child’s relationship with music is as much as a music-maker as it is a music learner or music consumer; and that their music-making behavior emerges developmentally in ways that are at once simplistic – given they are naturalistic – as well as complex.

The findings of this study also suggest that young children’s musical needs are different from adult musical needs which are predicated on cultural and artistic expression. Evidence suggests that children’s musical needs do not emanate from those social constructs nor are they simply preparatory, projecting only to a hypothetical future time when they will get to experience the “real deal.” Contrary to this notion, there are indications that the music they create, though “rough around the edges” to our adult ears, is as authentic to them as our music is to us.
Finally, this study posits the notion that a direct correlation might exist between young children’s musical needs as music-makers and their early efforts to construct knowledge and meaning of the world and themselves. Thus, in accord with prevailing general early development theories, this study suggests that the emergence of music-making behavior appears to be completely aligned with the young child’s structure-building competencies.

There are signs that point to the importance of these findings. For example, speech is a human behavior based on making communicative sounds and organizing those sounds in meaningful ways. Given how language behavior is touted as a significant part of early cognitive development, should we not assume music-making behavior - also based on making communicative sounds and organizing them in meaningful ways – would also contribute to cognitive development?

If, as Piaget says, children develop intelligence by assimilating and accommodating structures they encounter in the environment, then what about a young child’s engagement in making music? In fact, each occurrence of music-making involves building auditory structures that, inevitably, are similar to what children encounter in the environment from the earliest moments of their mother’s first lullabies.\textsuperscript{114}

\textsuperscript{114} Research referenced in the dissertation shows strong evidence suggesting that even infants are capable of recognizing complex auditory structures – referred to as ‘chunks’ - arising from both language and music events.
Montessori says the nature of human order comes from the human mind and is formulated, in part, from collaborations between the power of imagination and our ability to abstract meaningful qualities from the endless flow of stimuli in the environment. Given that young children recognize and learn songs, it would seem these child-friendly auditory structures also foster imaginative associations abstracted from meaningful qualities within the word-phrases, sound patterns, rhythms and musical structures of the songs.

And, as Vygotsky says, if higher psychological levels of human consciousness can only become fully expressed through our complex social structures, which according to Vygotsky occurs for young children in a Zone of Proximal Development, then what might occur for children in a musical Zone of Proximal Development, where sensitive adults can guide children to express musical competencies that otherwise lay dormant?

However idealistic it may sound, I would like to know a world where all children grow up feeling and believing they are valued for everything they have to offer. I believe we contribute to this goal when we acknowledge children’s early predisposition to be music-makers, when we encourage them to speak the language of music and let them know it is something they can do and should do, and when we SHOW them that we value their musical expression by joining in with them. Evidence suggests that by inviting young children into a musical Zone of Proximal Development, we create a place where their music-making behavior is channeled toward powerful, developmental advantages. Moreover, it is not unreasonable to assume this musical ZPD also holds significant social and cultural benefits for adults as well.
References


Electronic references

www.laalmanac.com/employment
Theorists’ Charts

Theories of Piaget, Vygotsky, Montessori
CHART 1: Piaget  Six principles posited by Piaget as applied to learning and development.


1. A brief overview relative to this study

Learning is neither a product of language nor a product of perception. It grows instead from activity and the consequent process of self-regulation, or equilibration, that integrates both assimilation and accommodation and the various subsystems of the organism.

What learning a child achieves is dependent on his or her initial level of development. Knowledge will be quickly lost unless it is understood – that is, unless the child is able to assimilate it to his or her own logical structures. This assimilation can occur only when the child is active (p.57).

Gallagher & Reid, 1981

2. Construction of rules and principles

Another principle of learning is that children learn not only by observing objects but also by reorganizing on a higher mental level what they learn from coordinating their own activities in the construction of rules and principles (p.7).

Gallagher & Reid, 1981
3. Genetic (developmental) epistemology

Genetic epistemology recognizes the importance of the role of experience in development and learning (p.2). Gallagher and Reid (1981) offer a basic Piagetian tenet: What children are able to observe about the world (and therefore potentially learn) is more dependent on their own special system of thinking (i.e., their current level of development) than it is on what actually exists (p.1).

Stated differently, learning in any specific situation is dependent on a broad range of prior experience (p.6).

Learning is an internal process of construction (p.2) and is subordinated to development (p.5).

Piaget identified three factors of development - maturation, physical experience, and social experience. However, “experience, both physical and social, cannot account for the sequential character of development, and maturation cannot account for the variations in children’s rates of development” (p. 47). Piaget then identified a fourth factor which he called equilibration, the process through which the child coordinates, or organizes, the other three factors into a coherent whole (p.47).

Equilibration, the central concept of genetic epistemology, is a process that illustrates the reciprocal nature of the relationship between children and their environment. Children don’t simply record what is in the external world; they act on it (p.7).

Gallagher & Reid, 1981

4. Equilibration

Experience, both physical and social, cannot account for the sequential character of development, and maturation cannot account for the variations in children’s rates of development. There must, then, be a fourth factor that coordinates the others into a coherent whole. This factor is equilibration (p.47).

Equilibration is a process of self-correction or self-regulation; it leads to increasingly advanced states of equilibrium of the cognitive system (p.7).
5. Assimilation and accommodation

Humans tend toward organization and adaptation both at the physical and psychological levels. Two mechanisms of adaptation that operate simultaneously are assimilation and accommodation. Through these two mechanisms, each person practices self-regulation which, in turn, “results in ever-new and increasingly advanced states of equilibrium” or developmental growth (p.48). All living things, including humans, have two innate tendencies, or functions: organization and adaptation (p.47).

Two mechanisms of adaptation are assimilation and accommodation; and they operate simultaneously. Humans assimilate, that is, incorporate elements of the environment into their current physical or psychological structures – while at the same time they adapt, or accommodate, to the demands of the environment (p.48).}

Gallagher & Reid, 1981

4. Equilibration (cont’d)

Three (of five) models of equilibration (p.50):

- One model (observable-causal) refers to the equilibration that occurs when children observe the results of their actions on objects. The child makes use of “tools of assimilation” (the preexisting cognitive structures); that is, what she sees is dependent on her level of cognitive development.
- A second model (observable-operative) refers to when children view objects as part of a ... set. They see them as a group.
- A third model (inferential-causal) refers to when children not only observe the results of their actions but also conceptualize them. They reconstruct on a conscious level what they had observed before only at the practical level.

Three types of equilibration (p.54):

- Equilibration between assimilation and accommodation
- Equilibration among subsystems
- Equilibration between the parts and the whole

Gallagher & Reid, 1981
6. Structure as organization

Experiences with structures give rise to the organization of our own cognition and, ultimately, our human-type of intelligence (p. 17).


The concept of structure is no doubt one of the most basic in genetic epistemology (p.30). A structure is a system with a set of laws that apply to the system as a whole and not only to its elements (p.31).

A structure is not observable. Children, as well as adults, may be not aware of the mental structures that underlie their thinking. Through careful analysis, as the child interacts with the environment, we are able to infer structure (p.32).

Gallagher & Reid, 1981

The basic notion is that growth of knowledge is always linked to action. Knowledge does not originate in the child or in the objects with which the child plays; it originates in the interactions between the child and those objects. A simple way to express the meaning of structure is to say that it is an organization of these interactions (p.33).

Piaget was looking for evidence of structures (regularities) in children’s behavior. Structures have three important characteristics: wholeness, transformation, and self-regulation. Psychological structures are also characterized by these three characteristics. Human abilities are always organized into systems, and these systems can be transformed through self-regulation (p.53).

Gallagher & Reid, 1981

1. The Zone of Proximal Development

Vygotsky criticized existing techniques of psychological testing because they failed to address the issue of predicting their future growth. Vygotsky wanted to examine the psychological functions that were in an embryonic state. Therefore, Vygotsky defined the Zone of Proximal (potential) Development as the distance between a child’s actual development as determined by independent problem solving and the higher level of potential development as determined by such actions under adult guidance or in collaboration with more capable peers (pp. 67-68).

Wertsch, 1985

Rationale: The child’s concept formation achieved in cooperation with an adult offers a much more sensitive gauge of the child’s intellectual abilities as opposed to independent activity (p.xxxv).

Vygotsky, 1934/1986

The distance between the “effective development” of the individual and his or her “potential development” (p.79).

Rosa & Montero (1990), In Moll (ed.).

The difference between the level of the tasks that a child can perform with the help of adults and the level of the tasks performed by a child through independent activity.

Rosa & Montero (1990), In Moll (ed.), p.79.

The conceptual place at which a child's empirically rich but disorganized spontaneous concepts “meet” scientific concepts, i.e., the systematicity and logic of adult reasoning (p.xxxv).

Vygotsky, 1934/1986
2. Spontaneous learning and scientific learning

Vygotsky distinguished two basic forms of experience, which give rise to two different, albeit interrelated, groups of concepts: the “scientific” and the “spontaneous.” Scientific concepts originate in the highly structured and specialized activity of classroom instruction and impose on a child logically defined concepts; spontaneous concepts emerge from the child’s own reflection on everyday experience. Vygotsky argued that scientific concepts, far from being assimilated in a ready-made form, actually undergo substantial development, which essentially depends on the existing level of a child’s general ability to comprehend concepts. This level of comprehension, in turn, is connected with the development of spontaneous concepts. Spontaneous concepts, in working their way “upward,” toward greater abstractness, clear a path for scientific concepts in their “downward” development toward greater concreteness (pp. xxxiii-xxxiv).

Kozulin (1985), In Vygotsky’s Thought and language (1986)

3. Social interaction and the transformation of practical activity

The most significant moment in the course of intellectual development, which gives birth to the purely human forms of practical and abstract intelligence, occurs when speech and practical activity, two previously completely independent lines of development, converge (p.24).

Prior to mastering his own behavior, the child begins to master his surroundings with the help of speech. This produces new relations with the environment in addition to the new organization of behavior itself. The creation of these uniquely human forms of behavior later produce the intellect and become the basis of productive work: the specifically human form of the use of tools (p.25).

Vygotsky, 1978
4. Social origins of indirect (mediated) memory and the structure of sign operations

“We are able to describe in schematic form the basic laws that characterize the structure and development of the child’s sign operations. Memory is exceptionally appropriate for study of the changes that signs introduce into basic psychological functions because it clearly reveals the social origin of signs as well as their crucial role in the individuals’ development” (p.38).

First there is “natural memory” which “is very close to perception because it arises out of the direct influence of external stimuli upon human beings. Humans, however, go beyond the limits of the psychological functions given to them by nature...to a new culturally elaborated organization of their behavior, including memory (p. 39).

Vygotsky, 1978

The simple operation of tying a knot or marking a stick changes the psychological structure of the memory process. These are “artificial or self-generated” stimuli which we call signs. This merger is unique to human beings and signifies an entirely new form of behavior. The essential difference between it and the elementary (natural) functions is to be found in the structure of the stimulus-response relations of each. The central characteristic of elementary (natural) functions is that they are totally and directly determined by stimulation from the environment. For higher functions, the central feature is self-generated stimulation, that is, the creation and use of artificial stimuli which become the immediate causes of behavior (p.39).

Vygotsky, 1978
1. **Theory of basic order**

   Just as the form of a language is given by its alphabetical sounds and by the rules for arranging its words, so the form of man's mind, the warp into which can be worked all the riches of perception and imagination, is fundamentally a matter of order. Even in the imaginative worlds of poetry and music, there is a basic order so exact as to be called “metrical” or measured (p. 185).

   *Montessori, 1989.*

2. **The education of the senses and appropriate material**

   The education of the senses must undoubtedly assume the greatest importance (p. 167). [Instruments] are adapted to cause the child to exercise the senses (p. 168). In order that an instrument shall attain a pedagogical end, it is necessary that it shall not weary but shall [redirect] the child. Here lies the difficulty in the selection of didactic material. With little children, we must...select the materials in which they show themselves interested (p. 168). [Appropriate] didactic material used with normal children...provokes auto-education (p. 169).

   *Montessori, 1964.*

   The senses are points of contact with the environment, and the mind, in what it takes from these, can become extremely skilled.

   No sensorial education can ever occur except as a part of some total activity in which both intelligence and movement are involved (p. 182).

   *Montessori, 1989*
2. The education of the senses and appropriate material (cont’d)

The senses, being explorers of the world, open the way to knowledge. The number of different objects in the world is infinite, while the qualities they possess are limited. These qualities are therefore like the letters of the alphabet which can make up an indefinite number of words. If we present children with objects exhibiting [various] qualities separately, this is like giving them an alphabet for their explorations (p.183).


3. The importance of movement

One of the greatest mistakes of our day is to think of movement by itself, as something apart from the higher functions. It is an error which has been taken over by the schools [and] there comes about a separation between the life of movement and the life of thought (p.141).

Not only are thought and action two parts of the same occurrence, but it is through movement that the higher life expresses itself (p.141).

Mental development must be connected with movement and be dependent on it (p.141). It obvious that the development of his mind comes about through his movements. Observations...confirm that the child uses his movements to extend his understanding [of the world]. [E]ducators have thought of movement and the muscular system as aids to respiration circulation, or building strength [but they did not seem to realize] that movement has great importance in mental development itself (p.142).

4. Free activity (experience) nurtures self-regulation

The fundamental principle of scientific pedagogy must be the liberty of the pupil; such liberty as shall permit a development of individual, spontaneous manifestations of the child’s nature (p.28).

*Liberty is activity*. Since the child now learns to move rather than sit still, he prepares himself not for the school, but for life; he becomes able...to perform...the simple acts of social or community life (p.86).

*Montessori, 1964.*

Education is not something which the teacher does, but...is a natural process which develops spontaneously in the human being. It is not acquired by listening to words, but in virtue of experiences (p.8).

*Montessori, 1989.*

5. Intelligence and the hand

The skill of man’s hand is bound up with the development of his mind, and in the light of history we see it connected with the development of civilization. The hands of man express his thought. Hence, the development of manual skill keeps pace with mental development (p.150).

The changes in man’s environment are brought about by his hands. Really, it might seem as if the whole business of intelligence is to guide their work (p.151).

Intentional grasping...gives way to true exercises of the hand expressed particularly in the moving of objects here and there [and is] necessary for helping the child make her way in the world. Children, of course, need their feet and legs to move from one place to the next but it is through the experiences with their hands that their intelligence and character will grow (p.154).

If [the child’s] hand wishes to work we must provide him with things on which he can exercise an intelligent activity (p.155).

*Montessori, 1989.*
APPENDIX B

Graphic Rendering of Theoretical Model

(see Supplemental Files)
Quantitative Graphs

(see Supplemental Files)

Graphs pages 326-332:
Aggregated tallies of the number of occurrences of the protocol items during the 1st and 2nd sessions of the toddler, preschool and kindergarten groups (18 groups), and the 1st session of each of the groups of primary-level children, grades 1 and 2 (2 groups).

Graphs pages 333-335:
Averages of the number of occurrences of the protocol items relating to the physical presence of music as derived from the analysis of the data of the field study activities.