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Effects of Applied Music Composition and Improvisation Assignments
on Sight-Reading Ability, Learning in Music Theory
and Quality in Soprano Recorder Playing

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ABSTRACT

Effects of Applied Music Composition and Improvisation Assignments
on Sight-Reading Ability, Learning in Music Theory and Quality in Soprano Recorder Playing

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The purpose of this study was to examine the effects of applied improvisation and composition assignments that were related to and reinforcing of curriculum content on fifth-grade students' ability to sight-read traditional music notation, ability to learn to play the soprano recorder, and understanding of music theory. Specifically, the research questions sought to determine whether there would be a difference in student achievement in these areas of music study when given the same curriculum content and delivery of instruction, one group reinforced their learning through repeated practice and the other group through applied improvisation and composition assignments.

The subjects were 46 fifth-grade students in two, heterogeneously grouped classes. The students completed the Gordon *Intermediate Measures of Music Audiation* and a pretest of music theory (written music understanding) at the onset of the 18-week study and performance exams in playing and sight-reading on the soprano recorder and a posttest of music theory at the completion of the study. Three experienced music educators evaluated the students on criteria using five-point, rating scales.

Results on the Gordon IMMA showed the groups had comparable music aptitude. Means on the posttests for performance exams in playing and sight-reading and for written music

understanding were compared using independent t tests. In addition, pretest scores on the music theory measure were compared to the posttest scores for each of the groups to determine gains.

No significant differences in mean scores were found between the two groups on posttest scores and the sight-reading and playing evaluations however the results showed that both groups made a significant gain in music theory. Mean scores for the sight-reading and playing indicated that the control group scored at the 89th percentile on both measures and the experimental group scored at the 91st percentile on playing and 88th percentile on sight-reading. A major result of the study is that the inclusion of composition and improvisation activities during music class did not negatively affect sight-reading, playing or music theory understanding.

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DEDICATION

This dissertation is dedicated to my wonderful family: my husband Don and children Hans and Alexandra whose support and encouragement made possible my pursuit and completion of a PhD in Music Education.

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CHAPTER I

INTRODUCTION

The interest for this study evolved as a result of my life quest to offer quality music education to the students entrusted into my care. The research questions reflect a synthesis of my experiences as a music educator and professional musician, my experiences and thought processes as a child and adult composer, and my many experiences with students in the nurturing of creative thinking – especially in the forms of music improvisation and composition. Whereas many music educators have examined the resulting products of creative thinking in music or the processes of creative thinking and problem solving, this study examined the effects of applied improvisation and composition assignments on sight-reading ability, soprano recorder playing and written understanding of music theory when students were given opportunities to apply what they were learning in creative ways.

In a review of the literature from 1962 to 1979, Richardson (1983) suggested a need for research that investigated matters surrounding creativity and music teaching and learning in the classroom: “As music educators evaluate the effectiveness of their teaching, one important quality which is overlooked in both the teaching and evaluation process is the creative potential of each student.” “Educators neglect creativity” (p. 1). DeLorenzo (1989), Hickey (2002), Levi (1991), Pond (1981), Strand (2006) and Webster (1992) have all reinforced this awareness in the research community. In reflecting on the results of his landmark descriptive work in nurturing creative musical ability in children, Pond (1981) wrote: “Research is necessary to find out how my findings can be made operative within the restrictions of public schools” (p. 12). Pond had no doubt that it was possible to nurture students’ musical creative ability in school environments but

surmised that it would take much dedicated research and creative imagination to accomplish it. Webster (1992) emphasized the complexity surrounding research efforts in creativity including the diversity within psychometric, cognitive, and environmental research in the relatively new field of musical creative thinking. This was especially true when considered in terms of assessment and the need for better theories in creative thinking to steer research efforts. Hickey (2002) pointed our attention to the need for the development of methods and materials that would aid teachers by giving them guidance in the nurturing of students' musical creativity and ability to compose and improvise.

Hoffer (2001) found value in creative activities when teaching secondary music education classes because they engaged students in learning to manipulate sounds and to think as musicians: Composing required students to develop an understanding of the process of creating music. Regelski (2004) advised the importance of creatively applied musicianship through *practicums* for learning that could help students to develop skills and understanding in music. Gamble (1984) saw improvisation and composition as central in importance to music education: Students learned through the process of composing. Drawing from the students' work by bringing attention to what they had created out of intuition or even accident provided a teacher with opportunities to teach, to suggest, and to reinforce concepts offered in the students' work.

Hickey and Webster (2001) have argued for the nurturing of creative thinking in the music education classroom and application of students' knowledge in creative ways in order to develop, solidify and give depth to students' understanding in music. According to Loane (1984), applied creative work allowed children to work and develop at their own pace. Children's

composing was a way of thinking; the intersection of skill learning and creation (Loane, 1984; Uptis, 1992).

Finally, the National Standards in Music Education (The National Association for Music Education [MENC], 1994) clearly state the importance of improvisation and composition in a comprehensive curriculum for music education yet it is rarely offered in elementary music education.

Despite all of this endorsement for the inclusion of creative learning experiences, Abril and Gault (2006) found contradictory results in principals' understanding of the importance of the connection between teaching for the development of creativity in the music education classroom and the importance of creating and composing music as part of the curriculum for general music classes. "Under ideal conditions, [developing creativity] was considered to be the most important of broad educational goals, yet create and compose music was considered to be the least important music learning outcome" (Abril and Gault, 2006, p. 17). Further complicating the issue, many music teachers find the inclusion of composing and improvising activities in the general music classroom daunting for multiple reasons and are often at a loss as to how to structure and incorporate creative learning activities into the general music classroom. Matters of appropriate sequencing of instructional materials, classroom discipline, adequate time for nurturing musical experiences in playing, singing, and listening as well as in creating music and the how to go about the assessment of students' creative work are concerns for teachers in their efforts to design creative tasks for students (Byo, 1999; Strand, 2006). In a survey of Indiana music teachers' beliefs and practices on composing in the classroom, Strand (2006) found many reasons for not including composing tasks. Some of the most prominent were: (1) too many other

activities to include composition in the classroom (56.9%); (2) lack of technology (28.2%); (3) not enough instruments (26.5%); (4) composing was not an appropriate activity for the types of classes the teacher taught (19.9%); and (5) not enough time (9.1%). Other reasons included the idea that composing was too noisy and not a useful learning tool; some had never thought about it. Still others felt that it was more important to meet the other standards and expressed concerns over behavior problems with students during composing activities (p. 160).

In a study that compared the National Standards for Music Education with elementary teachers' use of class time, Orman (2002) sought to find out if elementary music education teachers were spending class time on all nine of the national standards and the amount of time spent on each one. From the 30 participants – all music teachers with considerable teaching experience having completed a master's degree in music education or, in the process of pursuing one – Orman found teachers spent 3.09 % of classroom activity on improvising and only 1.03 % of time on composing activities. For the most part, two of the standards were addressed: singing alone and with others and playing instruments alone and with others; 46.36% of class time was spent in teacher talk and 21.57% of the time on teacher modeling of activities.

Byo (1999) examined classroom teachers' and music specialists' perceived ability to implement the National Standards in Music Education. The national standards were created to define the areas of competence regarded as important for inclusion in music curriculum; voluntarily adaptable for state curriculum design. Byo reported on the state of Florida's efforts to use the national standards as a basis for their state curriculum. However, trying to implement them brought up some difficult and confusing issues. Little progress was made at the school-based level in the development and implementation of an organizational design through which

the standards might be achieved. The Florida Department of Education found the expectations in the national standards rigorous under the restrictions of public school funding and time. Byo found lack of time to teach all of the national standards and lack of confidence in how to teach composing and improvising as common concerns of music specialists and classroom teachers of fourth grade students. Music teachers felt comfortable about teaching all of the standards excepting the ones dealing with improvisation and composition.

What might help convince practitioners of the value of including creative activities in their classroom planning is more systematic evidence. Allowing students to construct their own knowledge through the process of sound exploration, manipulation of musical elements, and creations of both figural and formal notations has been cited numerous times as integral to meaningful learning in music and essential to development in musical understanding (Bamberger, 1999; Coleman, 1922, 1926, 1931; Gamble 1984; Levi, 1991; Loane, 1984; Miller, 2004; Pond, 1981; Reimer, 1989, 2003; Upitis, 1992; Wilson, 1981). Much of this systematic study has used qualitative research techniques. Few quantitative studies exist that are devoted to the effectiveness of including creative work in music teaching and learning. Numbers are useful to this end. The present study is designed in consideration of that need. A discussion of some of the aforementioned quantitative and qualitative studies related to this study is found in Chapter III.

Purpose and Research Questions

As noted earlier, the importance and benefits of nurturing creative thinking in music education and music making is accepted and understood by many music educators (Azzara,

1993; Hickey, 2002; McPherson, 1999; MENC, 1994; Miller, 2004; Plude, 1996; Reimer, 2003; Wiggins, 2001; Webster, 1990a, 1990b, 1991, 1992, 2002). How to go about the teaching and nurturing of creative musical thinking and what materials, methods and music will most benefit teachers and students in this endeavor is not as understood (Hickey, 2002, 2003; Swanwick, & Tillman, 1986; Webster, 2003).

The purpose of this study was to determine whether certain strategies of teaching fifth-grade general music that incorporate music improvisation and composition into the curriculum as assignments related to and reinforcing of curriculum content will have an effect on (1) the ability to sight-read traditional music notation, (2) the quality in playing the soprano recorder, and (3) the recognition and understanding of applied functions of signs and symbols as found in Western musical practices. The following research questions are posed:

1. Is there is a significant difference in scores on a measure of sight-reading music notation between a group of fifth-grade students who have experienced the embedding of improvisation and composition experiences in instruction versus another group of fifth grade students who have experienced the embedding of more traditional, practice-based experiences?
2. Is there a significant difference in scores on a measure of soprano recorder playing ability on a prepared piece between these two classes?
3. Is there a significant difference in scores on a researcher-designed measure of music theory as found in Western music practices between these two classes?

Definitions

For the purposes of this study, the following definitions apply:

1. **“practicing”** – the act of reinforcing the learning of skills and concepts, in the same manner as they were learned, through repetition

2. **“attitude”** – “a firmly held mental network of beliefs, feelings and values that is organized through an individual’s experience, and that exerts a directive and dynamic influence on the individual’s response to all objects and situations with which it is related” (Cutietta, 1992, p. 296)
3. **“creative application”** – the opportunity for students to apply the instruction and curriculum content received in class in creative ways, for this study, through experiences in improvisation and assigned class and individual compositions
4. **“creative teaching measures”** – in this study, the use of improvisation and composition experiences to reinforce curriculum content
5. **“learning”** – the ability of students to retain, understand and apply classroom learning of curriculum content and skills
6. **“divergent thinking”** – “involves the generation of many possible solutions to a given problem – a kind of personal brainstorming” (Webster, 1987, p. 165)
7. **“convergent thinking”** – “involves the weighting of (those) several possibilities and [converging] on the best possible answer” (Webster, 1987, p. 165)
8. **“creative thinking”** – “a dynamic process of alternation between convergent and divergent thinking, moving in stages over time, enabled by certain skills, both innate and learned, and by certain conditions, all resulting in a final product” (Webster, 2002, p. 26).
9. **“creativity”** – is a social and individual interactive process in human development that includes tension, transformation, synthesis and decision making over time as humans engage in creative thinking, creative acts and experience historical cultural development

(based on Vygotsky's and Sternberg's theories of creativity as found in Moran & John Steiner (2003, pp. 61-63) and Sternberg (2003, p. 91).

10. **“improvisation”** – explorations in sound and experimentations with musical ideas; elaboration or change of a musical idea

11. **“composing”** – the process of developing musical ideas derived from prompts, ideas or improvisations and in regard to these, decision making with resulting original products (compositions).

12. **“music theory”** – for this study, music theory refers to students' written music understanding of the signs, symbols, notation and concepts as found in beginning levels of studies in Western notation.

Conceptual Background

During the last four decades, researchers, philosophers, psychologists and educators have contributed a number of research studies and writings devoted to the study of creative thinking (Amabile, 1982, 1983; Bransford, Brown & Cocking, 2000; Brophy, 2000-2001; Csikszentmihlyi, 1996; Davis, 1999; Fasko, 2000-2001; Gardner, 1982; Guilford, 1950, 1970 & 1971; Kurtzberg & Amabile 2000-2001; Sternberg, Torff, & Grigorgenko, 1998a; Sternberg, 2006; Torrance, 1963). Due to their efforts in combination with music education researchers of creative thinking, there is a growing awareness, if not an already established belief, of the benefits of creative work in music for increasing the quality of musical understanding (Azzara, 1993; Barrett, 2003; Bunting, 1987; Christensen, 1992; Davies, 2005; DeLorenzo, 1989; Gamble, 1984; Hickey, 2002 & 2003; Lapp & Lundgren, 2000-2001; Levi, 1991; Miller, 2004;

Reimer, 1989, 2003; Stephens, 2003; Uptis, 1992; Webster, 1990b, 1991, 1992, 2002 & 2003).¹

The current wealth of literature surrounding creative thinking has brought several educational considerations to the forefront of music education: The majority of those considerations being directly related to creative teaching and learning in a music learning environment.

Nurturing Creative Thinking in the Music Classroom: Creative Application

Providing students with opportunities to apply what they are learning in creative ways has shown to have an effect on learning and motivation. In a study involving 190 pianists, McPherson (1999) found that those who incorporated improvisation, composition, playing by ear and other creative activities into their practice sessions, had greater success in playing, memorization of music and experienced less stress in performance exams. Plude's (1996) piano students gained in both learning and motivation when given opportunities for discovery, exploration and creative work at the piano. Azzara (1993) discovered that applied improvisation study contributed to the improvement of fifth-grade students' ability to perform music and their understanding of tonal, rhythmic, and expressive elements in music when reading from notation. Miller (2004) found that assignments in composition contributed to her students' growth in musical understanding. To complete the composing assignments, children were more personally engaged and accountable for showing what they knew. Assignments in improvisation strengthened Priest's (2002) instrumental students' ability to perform.

"One's real development always comes from experience. Musical experiences are essential to musical growth" (Coleman, 1922, p.151). Coleman (1922, 1926, 1931) in the first half of the twentieth century engaged children in the creating of music, musical instruments and

¹ See Chapter III for an account of some of these studies

movement in order to nurture their musical, spiritual and social growth. Gamble (1984) also found the composing process to impact children's musical growth and understanding. "Engaging children in the creation of compositional products suffices both ends and means. Children's products are of aesthetic value and children's musical understanding is deepened through the process" (p. 16).

Balance in Structure and Freedom when Applying Curriculum Goals

Important to teaching and learning when engaging students in creative work is balance both in the planning of curriculum content – those activities that engage students in the learning of new concepts and skills that are necessary in order to realize creative endeavors – and class activities that provide students with opportunities to discover how to apply their *learnings* in creative ways (Stephens, 2003; Webster, 1987). One concern for teachers is the balance in class time allowed for guided curriculum instruction given to students and time allowed for students' exploratory freedom and creative work. Since each child is different in musical experience, learning styles, cognitive understandings and learning profiles (Smutny and Fremd, 2004), what kinds of assignments, classroom environments, styles of teaching and learning are best in order to nurture domain understandings, the ability to make informed decisions as well as creative thinking for applied learning?

Insight into answering this question lies in part in research surrounding the development of both convergent and divergent thinking in students for their creative endeavors (Amabile, 1996; Brophy, 2000-2001; Hickey & Webster, 2001; Webster, 1987; 2002). In order to nurture and develop convergent thinking in students and provide opportunities for divergent thinking requires providing students with a balance between guided learning experiences and freedom to

explore, experiment, discover and apply their learning. For example, important to musical expression in music is the understanding of dynamic levels of music: concepts such as soft, loud, gradually softer and so on. When children have acquired the understanding of the concept of dynamics, in order to read, play and perform music from scores notated in traditional Western music, students additionally must develop understanding in how to notate the symbols for the concept. Through inquiry, guided learning and exploratory experiments on instruments and with the voice, teachers can guide students in their learning of the both the concept and symbols for the concept by using instructional strategies that require an interaction of convergent and divergent thinking. For example, two scenarios follow.

Perhaps at the kindergarten or first grade level the teacher could teach the children a new song such as a lullaby and ask the children to show how they think the piece should be sung to help a baby to fall asleep. When the children perform the song softly, the teacher could start to add aural word associations “soft” and later, visuals; perhaps a picture of a baby sleeping or a baby kitten to represent singing or playing music softly. Children could be given an applied creative assignment at this point to create soft music on a barred instrument that could help a baby fall asleep. Further inquiry regarding different associations (a thunder storm, a giant walking, etc.) and explorations on instruments would lead children to understanding loud in music and other dynamic levels. “Can you make some music that would sound like a parade that is far, far away coming closer and closer to us? How do you think it would sound?” Depending on the age of the children, the small cursive “*p*” as a musical symbol for playing or singing softly would eventually be incorporated into the learning activities and the other symbols as well.

For older children in fourth or fifth-grade who might already know several of the dynamic markings, an assignment might engage children in the interplay of convergent and divergent thinking by having them listen for dynamic levels in musical examples followed by having the students add dynamics to a piece they had previously written. Children could be asked to learn or compose Orff ensemble pieces in small groups making sure that they determined dynamics for the pieces. “Write in the dynamics where you think they should go and then practice the music the way you have marked it.” Reflection questions could be, “Did you like your music better with or without the dynamics? What happens to the music when we add dynamics? How does the music make you feel with dynamics added: without the dynamics?”

In the above scenarios, the teacher is helping students to both discover and add to conceptual knowledge and understandings – convergent kinds of knowledge that are so necessary for mastering various skills and understanding in a domain. The teacher also nurtures divergent thinking while reinforcing students’ learning by having them apply what they have learned in creative ways. Small cursive “*f*” means to play or sing loudly is a fact: a cultural tool necessary for effective music reading, performing, creating and sharing in Western music practices. Loud, very loud, very soft, are also factual, conceptual understandings learned from cultural others. The application of the cultural tools requiring the students to decide on the expressive markings that would be effective or to create a piece that would help a baby to fall asleep requires divergent thinking. There are many possible answers. The assumption here is that the process of interplay between convergent knowledge and thinking, and divergent experimentation and thinking on how to use the knowledge not only reinforces understandings but expands them. This study examined such an assumption by having students apply their class

learnings in creative ways and then measured the effectiveness of the approach on their comprehension and development of skills.

In support of the idea that there should be balance between learned convergent knowledge and opportunities for divergent thinking in the using of convergent knowledge, Azzara (1993) suggested that improvisation be part of instrumentalists' learning in music education classrooms. Priest (2002) expounded on the necessity that creative work be a part of learning, rehearsing and performing instrumental music. Webster (1991) recommended the teaching of convergent content as a starting point for divergent thinking to achieve the optimal conditions for learning and motivation with young children. Ainsworth (1970) believed that the process of creative work involved informed decisions, suggesting a learning framework as a prerequisite to composing. Eaton (1992) pointed out the importance of developing creative thinking skills in the arts and providing a balance between instruction and discovery in pursuit of creative tasks. According to Eaton, students only become frustrated when expected to produce creative work without any guidance or instruction as to "how" to approach the task; including the learning of necessary tools for the task. When working with intellectually and talented gifted children, Smutny (1990, 2001) and Smutny and Fremd (2004) also informed us of the importance of balance between teacher guidance and students' freedom of choice to explore an assignment or project and allowing students to work at differentiated levels according to their current understanding and learning style. Applied creative assignments of curriculum content might provide a way for teachers to work with students at each one's level of understanding.

Another part of the considerations surrounding balance in nurturing students' creativity is the amount of teacher imposed structure and scaffolding both in design of the assignments and

the scaffolding given during the process of completing the task. Teacher-imposed structure and scaffolding is of significant importance to the creative process and resulting product (Amabile, 1996; Barrett, 2003; Gromko, 1996; Hickey, 1995, 2002, 2003; Webster, 1991, 2003). Barrett (2003) used a strategy to find out about children's thought processes while composing. She simply asked them to tell her about their piece. Gromko (1996) found that her scaffolding seemed to interrupt the children's thought processes. However, set-up of the assignment in which children could learn essential compositional strategies followed by the opportunity to apply their learning through an applied composition assignment provided an excellent balance between structured instruction and students' thoughtful exploration, discovery and successful creative application of what they had learned.

Smith (2004) found that teacher-imposed structures had an effect on the quality of student-created products and that children had differing preferences for task assignments. DeLorenzo (1989) found that when children were given the same parameter for an assignment they had different perceptions of how to carry out the composing task.

In the present study, children were given improvising and composing assignments directly related to curriculum goals and content in music theory and performing and sight-reading of music on the soprano recorder. Thus the design of the parameter was of utmost importance: both in consideration of the curriculum goals and in consideration of how to nurture musical creative thinking in children while engaging them in composing activities. Chapters II and III present details of the above mentioned studies.

Teaching Within the Influence of Psychological and Educational Theories

Psychological theories regarding how people learn affect teachers' considerations in designing curriculum, the learning environment, and in choosing and applying instructional materials. As early as the nineteenth century, Swiss educator Johann Pestalozzi (Mark & Gary, 1999, p. 114) recognized the need for a balance in child-centered learning and instruction. Education should involve the learning, applying and practicing of concepts in support of each other, not as components of learning to be addressed separately. There should be a bringing together of things that are related to each other.

John Dewey (1900/1990) took these principles to a much more sophisticated level during the early part of the twentieth century. His vision included a teaching and learning environment in which the individual was allowed to explore and pursue his interests and capabilities (Dewey, 1900/1990). Dewey believed that the child has four interests: (1) that of conversation or communication; (2) that of inquiry; (3) that of construction or making things; and (4) that of artistic expression that should follow as a natural expression and outgrowth of their experiences (p 47). Composition assignments given as an outgrowth of the curriculum, in a child-centered, constructivist-like classroom environment, fulfills Dewey's criteria. In this study, students in both classes were taught musical concepts and skills for recorder playing in a teacher-directed approach. Reinforcement of the instruction was different for the two classes. The experimental group was given the opportunity to follow up their learning through creative application, i.e., they were able to apply what they had learned by way of assignments in improvisation and composition directly related to the curriculum content. In order to facilitate the composing activities, the classroom environment became more flexible resembling a child-centered and

constructivist² approach to teaching and learning in which the children were allowed to converse without raising their hands while they were composing (part of Dewey's [making things]), were allowed to demonstrate their inquiry through exploration and questioning of the teacher/researcher and peers during the process, and were allowed to subsequently play each other's products (Dewey's idea of artistic expression as a natural outgrowth of the curriculum). These were all elements in their learning process. The control group's classroom environment remained for the most part the same throughout the instructional time of each class. They reinforced their learnings by group practicing of the pieces and concepts they had learned and applied the knowledge to the learning of new, pre-created pieces of the same level of difficulty. Freedom of movement was not necessary for the group practicing.

Dewey (1916/1967) also emphasized the importance of organization. "Organization is nothing but getting things into connection with one another so that they work easily, flexibly and fully" (1916/1967, p. 64). A lack of unity in education created waste, and waste of human life occurred in schools when there was not organization. Giving students opportunities to creatively apply their learning of curriculum content supports Dewey's ideas of organization and unity in education.

Pestalozzi (Mark and Gary, 1999) and Dewey (1900/1990) realized the importance of learning environments where balance between guided learning and freedom to explore, discover and apply learning in the ways that are natural to children were provided. They also realized the importance of organization and connectedness in learning that supports the interplay of convergent and divergent thinking. While perhaps their writings do not reflect contemporary terminology, these particular aspects of their educational ideas relate significantly to this study.

² The concept of constructivist teaching will be explored more fully in Chapter II

As relayed in the scenario on dynamics, the curriculum content is connected to the creative work and the creative work is an outgrowth of and support to the curriculum content. Likewise, in the present study, neither the teaching of concepts nor nurturing of creative thinking was a “stand alone” activity in the experimental group and like the earlier scenario on dynamics, class learning experiences laid within the organization of a larger curriculum plan. Creative application experiences are in line with Dewey’s ideas of how children learn. Children are questioning beings; social and communicative; they like to make things and they need to express in artistic ways (through music, art, movement, etc.) their life experiences. This study is related to Dewey’s ideas by applying them to the learning environment for the experimental group during their composing activities and to Pestalozzi’s by presenting various facets of the curriculum content, including creative work, in an interconnected way.

Part of the equation of organization and efficiency in education is the importance of sequential development of ideas in curricular planning: the idea that knowledge should be arranged so that children are able to build upon their former knowledge moving from uncomplicated concepts to the complex (Mark & Gary, 1999). Contemporary music educator Boardman (2001) and educator/psychologist Bruner (2006) have expounded on the importance of building upon students’ former knowledge. In order to create new knowledge, there must be connections to students’ former knowledge. This idea is an outgrowth of the work of two psychologists of the early part of the twentieth century: Lev Vygotsky and Jean Piaget.

Piaget (Myers, 2004, p. 143-150) believed that the human mind builds schemas of understanding from which new experiences are initially interpreted and then modified through assimilation, adaptation and accommodation resulting in new understandings (Myers, 2004, p.

143-150). Vygotsky (1934/1986) also wrote on how the child's mind works. The understandings a child learns in informal settings such as in the home combine with formal learnings in the school to create new schemas of understanding; all of which are culturally situated. Children mature in their knowledge and understanding by interpreting new information based on what they understand from schemas they have already formed. Social interactions with teachers, adults and peers play a significant role in the child's learning.

Under these theories, curriculum planning that allows students to build on their knowledge is important to successful learning. Further research in cognition and the workings of the brain since Vygotsky and Piaget's time confirms these ideas; the importance of learning information in context and drawing on students' current levels of understanding (Bransford, et al., 2000). In order to advance knowledge and understanding, teachers must build on the knowledge students have acquired from their formal and informal learning experiences (Bransford et al., 2000).

The aforementioned advances in theories of learning were carefully taken into consideration in the design of the environment, learning materials, and the assignments for this study as well as the kinds of learning engagement for the participating children. The curriculum content created for this study was sequentially organized in the form of a text with several "music lessons." Musical concepts, notation and technical skills for playing the soprano recorder were introduced and reinforced immediately through the learning and playing of music pieces the content of which supported the new notes and concepts learned in the lesson. Both groups learned the pieces. In keeping with schema theory in children's cognitive development, in this study, improvisation and composition assignments were examined for their effectiveness in

moving students' learning in music forward. As previously mentioned, the experimental group received applied assignments in improvisation and composition directly related to the concepts, notation and skills learned. In subsequent lessons for both classes, the new concepts and learning materials were presented in a way that the children would build on the knowledge and skills they had acquired from previous lessons and classroom learning. During the composing experiences, the children were allowed to work in pairs or groups and to move about the room freely in order to ask for help or to share ideas and their composed pieces with friends and the researcher. The control group remained in the same seating arrangement as when they first sat down for class and for the most part in a teacher-directed, nurturing environment for the entire length of class time. Inquiry as a teaching strategy was employed in both groups and children's ideas and questions were encouraged.

Improvisation and Composition as Part of Curriculum

In this study, another reason for the examination of the effectiveness of improvisation and composition on skill development in music and musical understanding is the idea that a well balanced, comprehensive education in music includes several aspects of learning in music in order for students to acquire a broad understanding in music and to develop multiple musical intelligences. As mentioned earlier, administrators, music educators and classroom teachers are often concerned as to how to go about providing students with a comprehensive music education of this nature in the amount of time given for music classes in the school schedule (Byo, 1999). A comprehensive curriculum in which all aspects of music education receive attention – singing and playing instruments alone or in groups, improvising and composing music, learning to read and notate music, performing and evaluating music and music performance; listening to,

analyzing and describing music; understanding music in relation to the other arts and disciplines and to history and culture – is implied in the National Content Standards in Music Education (MENC, 1994).

Reimer (1989, 2002, 2003) recommended a comprehensive music curriculum in order to develop all of the multiple intelligences of music and urged teachers to begin fostering applied creative thinking in students in the early stages of learning: even in beginning singing and instrument playing experiences (1989, p.191). Wiggins (2001) propounded the inclusion of applied creative work in the curriculum for the reason that composing deepens students' musical understanding. Barrett (2007) noted changing trends in music education from a traditional emphasis on performance, Western music studies and theoretical concepts to one that emphasized musical knowledge and engagement. She gave four current curricular trends: "more comprehensive views of musical behaviors; a wider array of musical styles; an integrated sense of music as an embodied experience; greater depths of musical understanding" (p.149). Within these curricular trends are roles for improvisers and composers as well as performers, theorists, critics, ethnomusicologists, and varied additional roles.

A comprehensive curriculum in music requires adequate time: perhaps more time than some teachers are allowed for each class they are assigned to teach. Again, when improvising and composing assignments are an outgrowth and reinforcement of curriculum goals, they support Dewey's ideas of organization and efficiency (including time concerns) and Piaget's and Vygotsky's ideas of learning in context and building on former knowledge. Whether or not this teaching strategy is effective in a positive way on students' learning in music is the question put forth in this study.

Innate Creative Potential and the Environment

All human beings have creative potential and a need for creative expression (Reimer 1970, 1989, 2003). While some individuals have innate propensities for creative thinking, creative thinking can be nurtured in all students (Davis, 1999; Gardner, 1999; Torrance, 1963). In order to develop creative thinking in students, Hickey and Webster (2001) advised giving students opportunities to apply their learning in creative ways rather than trying to develop creative thinking in students. According to Davis (1999), the most important aspect of developing creative potential was to develop conscience awareness that creativity was part of ones potential. Engaging in creative thinking could give individuals more options for their decision making processing; often with better results. Creativity was part of what it means to be human. Nachmanovitch (1990) also spoke of consciousness in regard to improvisation. “The heart of improvisation is the free play of consciousness as it draws, writes, paints and plays the raw material emerging from the unconscious” (p. 9). Keeping these ideas in mind, if throughout life and the schooling years children are encouraged and given opportunities to explore meaning making through sound, to use their creative thinking to find and solve problems, to construct new meanings and create new products (compositions) creative thinking can possibly become a conscious part of the child’s metacognitive processes; it can possibly become a way of life. In music class, creative thinking can be ongoing when opportunities for creative problem finding and solving in music, such as music improvisation and composition are embedded into the curriculum. With careful planning, assignments in improvisation and composition can support both the music curriculum and can be tied to other areas of the school curriculum.

Students' Attitudes about Their Learning

One consideration for many teachers of general music is student motivation to engage in class learning activities and their attitudes surrounding their learning experiences. Students' attitudes about their learning are linked to their motivation to engage in class learning therefore teachers must be careful in their selection of curriculum goals and the design of activities that support the acquiring of the goals (Regelski, 1975).

Hoffer (2001) suggested the connection between knowledge and attitudes. Students develop attitudes from numerous experiences and influences: curriculum content, the classroom environment and instructional style are three important influences. In making curriculum and instructional choices for students' learning, Hoffer (2001) offered criteria against which choices can be made. To preserve and represent the integrity of the discipline of music, music that is taught in the schools should be "valid, fundamental, representative, and contemporary" (Hoffer, 2001, p. 42 – 43). To ensure integrity between music learning in school and its relationship to students' lives music teaching and learning in the schools should be "relevant, meaningful, and learnable" (Hoffer, 2001, p. 43-44). Equipping students with skills and understandings for creating music can include all of the above criteria in the design of curricula. Young people are exposed to many styles of music in which the creators and performers are young people who make a living at it. For this reason, the opportunity for creative expression and other reasons, it may be that learning to compose songs and create music is relevant and meaningful to most young people.

Cutietta (1992) saw attitudes as learned constructs involving complex interactions between beliefs, feelings and values in the forming (p.296). He offered an adaptation of

Rosenberg and Hovland's (1976) model of attitude in which affect, cognition and behavior are identified as intervening variables with the stimuli, and with the feelings, beliefs and values of the students in an interactive process resulting in attitude (p. 296). In regard to this study, the stimuli are the students' learning experiences in the music classroom. Cutietta (1992) emphasizes the importance of students' feedback in the form of attitudes on new teaching procedures and methodologies. In this study, a measure of attitude served this very purpose: to give students "voice" in regard to their learning experiences not only for their sake, but for the purpose that what they have to say might give rise to greater understanding in the design of future curricula and instruction.

Researchers have found the inclusion of creative work to have a positive effect on students' attitudes about their learning. Boswell (1991), in a study involving 394 middle and junior high school students, used two measures of attitude; the Music Class Inventory and the Music Class Attitude Index to assess subject matter attitudes and global attitude of the class in general. Boswell found that the preferred class activities were those that involved an element of choice. Students favored improvising and similar creative tasks over describing activities and singing.

In a song writing course for secondary students, Lapp and Lungren (2000-2001) experienced an ongoing gain in students' confidence in their abilities in music throughout the term from the first day of class to the last day of class. Students of varying levels of experience in musical training explored the sounds and silences of music as they created sound compositions and songs under the guidance of the teacher. Evaluations of the students' work served as inputs in the process by which to learn and reach the desired level of competency specified in the

curriculum goals for the course. Lapp and Lundgren found that students developed confidence in their musical abilities and felt motivated to become involved in both individual and group musical experiences. Song writing also affected their learning in a positive way. The authors hypothesized that although the students would have learned through a traditional approach, it appeared that the students' comprehension was greater and learning more meaningful for the students with the inclusion of the creative work. Ultimately, the students were motivated to continue learning music.

Although the research focus of this study was not to examine student's attitudes, in order to give students' the opportunity to express their feelings and ideas about their experiences that would give the researcher some idea of the students' attitudes and reactions to the study, the control and the experimental groups completed a short questionnaire at the completion of the study. The questionnaire is found in Appendix H, the second page, and all of the students' written comments and results are found in Appendix O.

Ties to Work Completed by Members of the CSEME at Northwestern University

This study follows a major area of interest of the members, past and present, in the Center for the Study of Education and the Musical Experience (CSEME) at Northwestern University. A number of researchers in the CSEME have examined topics in creativity and music as related to teaching and learning in music education.

In her doctoral dissertation, Hickey (1995) examined the relationship between creative musical thought processes of children and the creative and craftsmanship qualities of their resulting musical compositions. A second purpose of her study was to examine the relationship of these creative musical thought processes and products to other indices of children's creative

musical ability. Hickey found that the design of the task, open-ended and heuristic, rather than contrived to be more conducive to creative thinking (p. 81). In addition, Hickey found that students who were able to manipulate open-ended tasks successfully were more likely to be creative thinkers. The present study is related in this way to Hickey's work in that it addresses the importance in design of assignments or tasks that engage students in creative thinking.

Smith (2004) examined the effects of researcher imposed structures on children's compositional products. In a preliminary study, Smith wanted to find out if giving a structured task assignment had an effect on creativity and musicality of children's composing (1994). She examined the difference in children's compositions when given a researcher imposed idea for their pieces versus compositions where the children were given the freedom to create their own ideas. She found significant differences in tonal strength between the two out of three pieces that had prompts. She found no decline in expressivity or originality when using the prompts for pieces (Smith, 1994). In the study for her dissertation, Smith gave fourth grade children a variety of structures for composing and one unstructured composing task to determine the effects on the quality of the products and found that the quality was higher in the pieces created under structured task than for those under unstructured task (2004). Smith found that children differed in preference on composing tasks: that there were many ways to engage children in beneficial, creative, composing tasks.

The results of Smith's study are important to the present study. Since the improvising and composing assignments (tasks) given to students in this study directly reinforce the curriculum, they are somewhat structured. Students are asked to create music putting to use the concepts they have learned. How they go about the task is extremely flexible and open-ended. It has been

argued that in order to nurture creativity in students, assignments should be heuristic rather than algorithmic (Amabile, 1982; Getzels and Csikszentmihalyi, 1976; Hickey, 1995, 2003; Wiggins, 2003). Smith's study supports the idea that children can produce creative products from task assignments that are structured.

Earlier doctoral dissertations at Northwestern have addressed other aspects of creative work with children. Dagnault "examined children's computer mediated strategies in relation to the craftsmanship and creative qualities of their resulting musical compositions" (1996, p. iii). A second purpose of his study was to generate teaching guidelines for a Computer-Supported-Improvisational Approach to Composition (CSIA) (1996, p. iii). Dagnault found that students in groups designated as "low" in compositional craftsmanship and creativity spent most of their time in the experimental or improvising process stage while students designated as "high" in compositional craftsmanship and creativity moved quickly from the improvisation stage and used the improvisations to generate composition products. Students in the high creativity group manipulated improvisation and students in the high craftsmanship group manipulated notation. Dagnault also found that piano study had an effect on students' compositional products (1996). In the present study, the emphasis is not on the level of creativity or craftsmanship students have at the onset of the study, but whether or not applied-curricular-content-creative-assignments have an effect on all students' learning, and skill development.

Yunker (1997) examined the thought processes and strategies of three 8-, three 11-, and three 14- year-old students that occurred while they composed with technology. Yunker found that methods of inquiry in scaffolding provided the teacher/researcher (Yunker) with valuable information as to where the students were in their learning and "what knowledge support was

needed and how it should be delivered.” (1997, p. 376). This work is highly related to the present study and its examination of approaches to the nurturing of musical learning through creative ways, improvisation and composition. The process of composing with children is by nature multi-level and requires a flexible approach to teaching and learning. Each child is at a different level of musical growth and understanding and although an open-ended assignment or whole class introduction to an assignment can appear to be the same for everyone, the carrying out of that assignment by each child will be different and require sensitivity on the part of the teacher in scaffolding techniques. Strategies of inquiry in this process such as asking children about their pieces (Barrett, 2003) and about particular aspects of their pieces (Webster, 2003) engages the child in thinking about their music in a very conscious way.

Summary of Conceptual Background

This study investigated an approach to teaching music that was an outgrowth of the aforementioned considerations: innate creativity in human beings and how to go about nurturing it in students in educational environments like schools; creative application; balance in curriculum design and instructional strategies in order to nurture convergent and divergent thinking skills; balance between structured activities and activities that involve freedom of choice; psychological and educational theories that have a bearing on educational environments, in part, of Dewey, Piaget and Vygotsky; the design of parameters and the role of inquiry when engaging students in composing; and a comprehensive music curriculum as advised by the National Association for Music Education. In particular, this study addressed the effects on learning in music theory and skill development in playing the soprano recorder and sight-reading

when creative assignments were an outgrowth and reinforcement of curriculum content and classroom learning; i.e., when students were given opportunities to apply what they were learning through assignments in improvisation and composition. Again, subsequent chapters will describe and clarify the relationships between the considerations and the methodology of the study.

Design of the Proposed Study

Overview of the Pilot Study

In preparation for this research, during the spring of 2002, a pilot study³ was conducted to test the viability of the method, teaching procedures and materials. Forty third-grade children, twenty per class, in a suburban public elementary school north of Chicago were the subjects for the pilot study. A graphic rating scale in the form of facial expressions to determine individual student attitudes about recorder playing, and a test consisting of thirty-five beginning music notation signs, symbols and expressive markings important to music reading were given to the children on the first and last days of the study.

During the days that followed the pre-treatment collection of data, the two classes received instruction in recorder playing, music reading and learning of signs and symbols. The curriculum content and supporting teaching materials were identical for the two groups. However, one class, the experimental group, received opportunities for creative application of what they were learning. The control group received the same amount of instruction time as the

³ A full account of the pilot study is given in Chapter IV

experimental group however they reinforced what they were learning in the same manner as they had learned it: by repeated practicing of the material they had covered. Data were collected from the students during their regular class time on the first (pretest) and sixth (posttest) days of the experiment. Results from the graphic rating scale were converted to a numerical scale for statistical analysis and the raw scores of the theory portion were recorded. Both of these data sets were then treated by statistical analysis.

Main Study

For the main (present) study, research with two intact classes of fifth-grade, general music students began in fall of 2007 for an 18 week study ($n = 46$). Class assignments were made by the school. Music aptitude mean scores revealed similar musical ability between the two groups. The researcher was the teacher for both groups. All children received the same curriculum content, supporting materials and style of classroom instruction in playing the soprano recorder and Western music reading and notation. Follow-up to the instruction was very different for the two groups as explained below. The curriculum content for the study was created by the researcher/teacher. The children in both groups were taught during their usual music class time of 40 minutes one time per week.

One group was randomly assigned as control and the other designated as experimental. As follow up to class instruction in which musical skills for recorder playing and musical concepts were introduced, the control group was taught in a traditional manner of instruction including drill and practice techniques common to music education practices. The experimental group was given assignments in improvisation and composition directly related to the newly learned skills and concepts as follow up to their learning. That is, the children in the

experimental group were given opportunities to apply what they learned in creative ways as follow up to the traditional instruction. The control group reinforced their learning by repeated practice on the newly acquired skills and concepts. The first six lessons or chapters of a text designed for music learning through soprano recorder playing were used for the study (Guderian, 2002, 2007). Improvisation activities preceding composition assignments related to curriculum content were also organized for the students. They are described in the detailed description of the study in Chapter IV. For this study, assignments in improvisation and music composition were an outgrowth of class activities given in varied levels of structure and open-endedness as applied to curriculum and instructional content (Guderian, 2002; 2007).

Sight-reading and playing ability dependent measures were researcher-constructed and evaluated for validity by a panel of music educator experts at Northwestern University School of Music.

Following the eighteen weeks of classes and instruction, all students were administered the following measures of evaluation:

1. a researcher-created measure of sight-reading – a piece of music not previously seen or heard by the students. Students' sight-reading ability was evaluated in four areas: note reading accuracy; rhythm reading accuracy; steadiness of beat; and tone quality. An additional check was given for any observation of dynamic markings but was not treated as part of the statistical analysis.
2. a researcher-prepared measure of playing ability – six criteria evaluated: pitch reading and playing accuracy; rhythm reading accuracy; steadiness of beat; tone quality; facility in playing; fluency in playing. An additional check was given for

any observation of dynamic markings and expressive quality but was not treated as part of the statistical analysis.

3. a researcher-designed paper and pencil measure of music theory (written music understanding) (pretest and posttest)

To explore the possible effects of the two approaches to music teaching and learning on students attitudes about their learning, and to give students voice in reflecting on their learning experiences, a researcher designed post-study questionnaire was given to the students on the last day of the study. The data were not part of the results used to answer the research questions.

The researcher taught the classes and administered and recorded the playing and sight-reading evaluations. The playing and sight-reading exams were evaluated by an experienced elementary general music teacher not present during the study as well as by the researcher and the school music teacher.

Data Collection

Data for the written music pretest and posttest were collected from the students during their regular class time on the day before the first day of instruction and on the last day of the study. Data for the playing and sight-reading exams were collected over three days beginning on the last day of instruction. The first page of the aforementioned questionnaire, a musical background query, was given on the first day of the study. After the sight-reading and playing evaluations were completed, the second page of the questionnaire was given on the last day of the study to collect students' feelings and ideas about their experience during the study.

Conclusion

Creative thinking techniques in music education, especially those of improvisation and composition and the materials and methods that support such work have been targeted as areas that need research. How to provide students with these opportunities, while at the same time helping students to develop musical understanding, musicianship and facility in playing and singing, is an important issue in music education. This research will possibly provide music educators with a better understanding of the impact of creative work on overall learning in music and ideas as to how to incorporate music improvisation and composition into the curriculum. In addition, children's attitudes about their learning in classrooms that do and do not incorporate the nurturing of creative thinking by giving students opportunities to apply their learning experiences in creative ways may give insight into how to engage children in learning that is meaningful, enjoyable and supportive of educational and curricular goals. Long term effects could include more informed and better ways to teach and learn music resulting in larger percentages of a more musically literate population; tangible teaching methods to nurture creative thinking and music making, and; ways to help to make children aware that they have great potential for creative work. This self-awareness of creative potential would benefit not only individuals, but society at large. It might even have an effect on how students spend time outside of school. The pilot study noted earlier in which third graders were allowed to creatively apply and experience what they were learning showed positive results in music learning. This larger-scale study adds dimensions of understanding and generates questions for future research that did not arise from the pilot study. Modifications of the present study applied in a variety of settings would, it seems, yield

valuable information regarding curriculum design and instructional strategies in the general music classroom.

Subsequent Chapters: Description

Chapter II places this study in the context of educational and psychological theories that have a bearing on present day teaching and learning environments inclusive of the relationship to the considerations surrounding the interest, design and research questions for this study: namely, the place and importance of inclusion of improvisation and composition in current music education practice and the effects of such on student learning. Concrete examples in education as to the connection between the theories and the present study as well as research studies in music and music education relevant to the discussion are incorporated in Chapter II. The chapter ends with a general description of the curriculum content for the study. The instructional materials were created by the researcher from a synthesis of understanding developed under the influence of the educational theories discussed in chapters II and III of the main study, from research in music education and from the teacher-researcher's experience as a music educator. An example of the curriculum, Lesson I is found in Appendix A.

Chapter III is devoted to the examination and discussion of studies that found composing and improvising to have an effect on student learning. The chapter begins with a discussion of research by pioneers in creative music making and composing with children. This is followed by a discussion of research studies, from the last twenty-five years, on the effects of composing and improvising on student learning in music. Although the present study was an experimental design, studies are included from both qualitative and quantitative music education research

related to this study. Chapter IV presents the methodology for the present study including: a description of the research site and all of the evaluation and statistical measures employed for this study. Detailed descriptions of both the pilot study and present study are found in this chapter. Chapter V provides a presentation of the research results; data; tables, statistical analyses, and an analysis of the results. Chapter VI offers a summary of the study, interpretations of the results, a discussion of the relevance of the results to the purposes of the study, the limitations of the study, the implications of the study to music teaching and learning in the general music classroom and a conclusion.

The Appendices provide readers with the researcher-generated protocol and researcher-designed instruments used for this study. While it is not possible to provide the entire text used for the study, the basic design, sample pages from the text, curriculum content for the study and all of the creative treatment assignments are found in the Appendices.

CHAPTER II

THEORETICAL CONTEXT

Introduction: Setting the Context for this Study

This study investigated the effectiveness of an approach to music education where opportunities for creative work – in this case, assignments in music composition and improvisation, directly related to conceptual learning in the classroom – were embedded into the curriculum. In general terms, the research questions focused on the possible effect on students' learning when they were consistently given opportunities to apply what they are learning (curriculum content by means of instruction) in creative ways. This chapter presents the theoretical context for this study: theories in educational psychology, creativity, and cognition briefly mentioned in the background section of Chapter I that have a bearing on the design of this study and the answering of the research questions.

The teaching of any particular discipline does not, or should not occur in a vacuum. There are many considerations and influences that go into the design of educational environments, curricular design, instructional materials, and teaching strategies. The design of this study, including the design of the instructional materials for the study, involved considerations in content standards as advised in the National Standards for Music Education; learning theories from behavioral and cognitive psychology; theories regarding creative thinking; research on children and composing; design of learning environments; research in cognition and current curriculum trends in educational reform. First, an overview of Torrance's (1963) beliefs regarding the nurturing of creative thinking in educational settings is presented followed by

Sternberg's (1998, 2006) *triarchic* theory of learning, *successful intelligence*, and creativity as a decision making process (2003) and the relevance of these to music education and this study.

Gardner's (1982) theory on artistic development is referenced next and again, the relevance of Gardner's research findings and subsequent theories to the present study is made clear. Educational theories evolving from the work of Dewey (1900/1990; 1916/1967), Piaget (1955; Myers, 2004 p. 143-150), and Vygotsky (1934/1986) that influenced the researcher in both the design of the study and the formulation of the research questions, the design of the learning environments for the two groups of participants in this study and design of the instructional materials are presented next. Following this is a discussion inclusive of research examples by psychologists and music educator-researchers who examined and built upon the foundational principles inherent in the theories of the three, early twentieth century psychologists.

The work of Cole (1996), Cole and Wertsch (1996), Pfloderer (1964/2001), Saxe (1991) and Serafine (1980, 1988) are referenced as well as related studies in music education. As mentioned in Chapter I, theories on the interaction of convergent and divergent thinking in the composing and improvising and music learning processes are significant to the purpose of this study and the research questions asked. Therefore, the last section of Chapter II is devoted to the role of convergent and divergent thinking in composing, improvising and other aspects of music learning. Included in this last section on convergent and divergent thinking is a discussion on parameter design and inquiry as a scaffolding strategy for classroom composing. The relevance of all of the above to this study is intertwined throughout the chapter.

Theoretical Influences in the Design of the Study

Creative Thinking and Education

“The creative challenge to education of the future is not only to provide environments where children can learn, but can learn how to think” (Torrance, 1963, p. 4). Prophetically, Torrance, and earlier Guilford (1950) realized that the survival of an anticipated technological society lay in the development of creative potential and creative thinking more than simply the diligent acquisition of knowledge. It was learning how to use knowledge in applied, creative ways that would ultimately have an effect on the quality of human life (Torrance, 1963). “Children can be taught to use creative thinking abilities in acquiring even traditional learnings” (p.7). As applied to music education, Reimer (1989, 2003) supported this idea in suggesting the cultivation of the interdependence of technique and creativity right from the start with students.

“From the very first moments of sound-expressing in performance, and sound-imaging in composition, and imagining-expressing in improvisation, the need for technique as the servant of creativity becomes obvious: you can’t do what you want to do – make music – unless you have the wherewithal to do so. The goal, the point, the purpose, is to make music—that is, to create sounds that satisfy as only music can. That is what needs to drive our instruction: the search for creative musical meaning. Technique becomes the partner in that endeavor, not an obstacle to be gotten over so one can then be creative, but the wherewithal that allows creativity to happen” (Reimer, 2003, p. 130).

The present study is influenced by Torrance’s supposition and Reimer’s suggestion in the context of a fifth-grade general music classroom by having the children apply even small portions of sequentially-constructed, curriculum content in creative ways for the purposes of

nurturing creative thinking and at the same time developing and reinforcing students' learning, understandings and skills in music.

Learning how to use knowledge in beneficial ways requires learning how to engage in various thinking processes. Torrance (1963) lamented the fact that in teacher training programs only the psychology of learning, not the psychology of thinking was taught with neglect to examination of various thinking processes. Torrance proposed that there must be a change in teaching methods; in curriculum and instructional materials; in identifying talent; and in evaluating achievement: new ways to nurture and develop both learning and thinking (p. 7). Torrance's belief – one first brought to public attention by Guilford (1950) and carried on by Torrance (1963) – is the idea that all human beings have creative potential, and creative thinking can be nurtured and developed in all human beings. Torrance believed that creative ability could and should be developed alongside of the development of cognition in memory related learning that requires conformity to behavioral norms (p. 12). There must be ways to teach more effectively; nurturing creative thinking and ability while at the same time acquiring knowledge and intellectual skills without sacrificing educational standards (p. 13).

This study was an attempt to realize Torrance's belief that the ability of the child to develop and use creative thinking and the ability of the child to acquire knowledge and skills in particular domains and subjects can occur simultaneously in classrooms. The instructional materials created for the study reflect the idea as applied to learning the symbol system of Western music notation to appropriately aged children.

Sternberg: Triarchic Theory of Teaching and Learning

Similar to Torrance's ideas, Sternberg (1998a, 2006) believed that school achievement was better accomplished by teaching for successful intelligence. Sternberg found that teaching students for successful intelligence, i.e. according to his triarchic theory of teaching and learning that involves analytical, creative and applied practical aspects of thinking, raised students' levels of achievement. The researcher's experience in composing and in teaching composition has resulted in a similar understanding as applied to the process of composing. Composing involves analytical, creative and practical kinds of thinking as well as an interactive synthesis of these. Applied to the present study, the researcher addressed Torrance's and Sternberg's beliefs and several aspects of teaching and learning that are related to them. The researcher's assumption was that it is possible to develop domain knowledge in music and creative thinking in students for the most part simultaneously when students have been given opportunities to apply what they are learning in creative ways.

Sternberg (2003) has also written that creativity is a decision making process. One decides to be creative, how to be creative and how to implement the decisions to be creative and how to be creative (p. 91). By giving students opportunities to apply what they are learning in creative ways helps to make them aware that they are able to be creative. Open-ended creativity fosters the how of creative decision making.

Gardner: Artistic Creativity and Human Development

Exploring artistic creativity in regard to development, Gardner (1982) found preschoolers to be very creative however children seemed to demonstrate less creativity when they entered school and experienced a slump in creativity at around grade four. Gardner projected that

children might need the time in school to learn symbol systems and rules in order to be creative in the future. Gardner and colleagues of Harvard Project Zero felt that the key to children's creativity and artistry lay in understanding patterns of development (p. 87). In Gardner's (1982) view, the first stage of development for the child was one of direct knowledge obtained through his senses, actions and social experiences. During the second stage, ages two through seven, the child began to learn the symbol systems of his culture thus the child began to experiment in expression and communication through symbol systems. For most children, language was the predominant symbol system during this time but not the only one nor necessarily the most important one. Children learned several symbol systems during this age and in many cases were able to synthesize these to communicate in ways that were unhindered by the knowledge of convention and rules that evolve from culture to culture regarding many aspects of life: including artistic and musical practices. Because of this, preschool children's artistic and musical endeavors were often refreshingly creative to the adult population.

Gardner (1982) found that when children entered school, both cultural and societal conventions impacted their creative endeavors. Conforming to societal norms through peer pressure; learning the rules of particular disciplines affected students' perceptions and efforts in learning to make sense of life resulting for most in a conscientious effort to adhere to these. Gardner called this stage the "literal stage – one of realism" – arguing that it might be crucial in the development of children to learn the rules of their society and particular domains in order to produce creative work. During this stage children also showed a continued development in the understanding of artistic products created by others. In the years just preceding adolescence they

began to exhibit sensitivity to the qualities of artistic expression and communication such as balance, style, expressiveness and composition (p. 88).

Scholars have commented on this U shaped progression of creativity in regard to creativity and music education (Hickey, 2002). According to Gardner (1982), creativity seemed to become a somewhat dormant trait as children, age seven and eight entered a literal stage: one in which realism was accepted and preferred over the abstract and impressionistic modes of communication (p. 94). Artworks produced at this age were less creative than during the preschool years and post literal stage years of early adolescence and beyond. Debate exists on whether this seemingly decline in creativity during the early elementary years is caused by the educational system, i.e., the way children are taught, or by a natural progression in stages of human development: or, perhaps, some of both. Applied to this study, if children are taught to apply what they are learning in creative ways as an ongoing, natural outgrowth of the curriculum, can the creative thinking in early childhood be sustained or rather continued and possibly even developed just as other cognitive thinking skills are developed during the elementary school years?

For this study, fifth-graders were the subject. Therefore, in Gardner's understanding of the developmental stages of creativity, fifth-graders would be at the tail end of the literal stage and at the beginning stage of adolescence when they would begin to exhibit sensitivity to the qualities of artistic expression and communication. In subsequent research studies, applying the same design as in the present study to different aged elementary children such as third, fourth, or sixth graders, the results in students' learning, creative products, attitude and motivation might reveal interesting information on this topic.

Child Centered and Teacher Centered Educational Environments

Two Approaches to Classroom Teaching

Two general approaches to teaching and learning have dominated educational practice in the twentieth century to present: a child-centered or constructivist approach to learning stemming from the work of Dewey, 1900/1990; Piaget (1955; Myers, p. 148-153), and Vygotsky (1934/1986) and a teacher-centered/directed (teacher directed) approach to learning – an approach in which the teacher is perceived as a transmitter of knowledge for the children: most effectively realized when instruction is delivered in a structured and efficient manner (Collins, 1996; Cuban, 1990; Mark, 1996; Scardamalia & Bereiter, 1993). Teacher-centered/directed teaching and learning is based on the idea that most knowledge is fixed ($2+2=4$) and can be transmitted by teachers to students. Hallmarks of the approach are standardized curricula and assessment; teacher control over the knowledge that is imparted; organized classrooms with mostly passive student involvement; and efficient means of covering large portions of knowledge within defined, inflexible scheduling. In this approach there exists the idea that intelligence is a general ability, i.e. one-dimensional and fixed at birth (Lieberman, 1992).

In child-centered/constructivist teaching and learning, the teacher designs learning experiences that will engage children in creative and critical thinking through inquiry, exploration and discovery. The idea is that individuals construct their own knowledge. Child-centered learning is based on the interests and backgrounds of children with emphasis on meaning making in the world now and in the future. Groupings for student learning in the classroom vary from day to day dependent on a number of factors. Learning experiences and assignments might be carried out by an individual student, in pairs, in small or whole-class

groups where teachers and students work and learn together (Lieberman, 1992; Dewey, 1900/1990). In recent times, theories of multiple intelligence (Gardner, 1983), developmental and cognitive psychology, structural and sociohistorical constructivism, the ideas of learning readiness and differentiated instructional strategies underpin the idea that purely teacher-directed/centered approaches to teaching and learning may not be in the best interest of human beings (Bruner, 1960/2006; Gardner, 1983/2004; Myers, 2004; Oakes, 1995; Vygotsky, 1934/1986). Ensuing research based on the theories of Dewey (1900/1990), Vygotsky and Piaget (1955; Myers, 2004, p. 143-150) suggests support for a child-centered-constructivist or semi constructivist approach to education often found in present day *learning communities* approaches to teaching and learning (Bielaczyc & Collins, 1999; Brown & Campione, 1996; Rogoff, Turkianis, & Bartlett, 2001). Teacher-directed and child-centered movements in teaching have for the most part been influenced by political events and social movements in the United States (Mark, 1996). Since neither approach, when applied in the strictest sense of each, has necessarily proven successful in providing all the answers to school ills, new designs are desired; those that perhaps build on the theories of the past while incorporating the present and future (Resnick & Rusk, 1996; Scardamalia & Bereiter, 1993). A flexible approach to teaching and learning that provides a balance between and blend of the two approaches with possible modifications, depending on the educational goals that need to be accomplished, might better serve students and teachers. In this study, the control group was taught in a somewhat flexible teacher-directed approach to classroom learning. The experimental group was taught in the same way during the initial delivery of curriculum content. During the composing activities, the classroom environment resembled a modified child-centered and constructivist approach to classroom

learning. Therefore, the experimental group received a balance between the two described instructional approaches to classroom learning.

Dewey, Piaget and Vygotsky:

Child-Centered/Constructivism and Schema Theory: a Brief Background

The design of the present study was influenced in part by the ideas and writings of Dewey (1900/1990; 1916/1967) (child-centered learning), Piaget (1955; Cole and Wertsch, 1996; Myers, 2004, 143 – 150) (constructivism) and Vygotsky (1934/1986) (sociocultural constructivism). When the experimental group was engaged in learning the same curriculum material as the control group, teaching and learning was teacher-directed/centered. During the composing, improvising and other creative activities, the teaching and learning included aspects of a child-centered or constructivist approach to teaching and learning. This seemed to facilitate the student's composing process for the applied creative assignments. The children were given choices: they could work alone or with others, they could move to another area of the room to work with a classmate or to ask questions of the teacher/researcher, teacher or classmates without having to raise their hands. A full description is given in Chapter IV.

In many ways, one sees a blend of Dewey's (1900/1990) and Vygotsky's (1934/1986) and Piaget's (Myers, 2004, p. 143 - 150) theories in present day child-centered constructivist – often realized in the learning communities – approaches to teaching and learning. All three men believed that learning is socially and culturally situated; that it was dependent on what humans had learned and experienced previously; that the blend of former knowledge and new knowledge was transformed through the experience of actively constructing knowledge that at times required the assistance of knowledgeable others to guide learning in the direction of new

understandings. One of the most important aspects of Dewey's legacy was the emphasis he placed on the learning environment and the importance of the child's interaction with that environment. The school should be a community of inquirers where each voice had equal value and where the individual was allowed to pursue his interests and capabilities. A review of Dewey's list of the child's four learning interests is given: (1) that of conversation or communication; (2) that of inquiry; (3) of construction or making things; (4) of artistic expression that should follow as a natural expression and outgrowth of their experiences (1900/1990, p 47). It was the school's responsibility to provide the kind of learning environment in which these interests could be realized. In addition, the school was responsible for simplifying information in the environment to the degree that the child could grasp it; for determining what knowledge should and should not be transmitted from the past and "balance the various elements in the school environment to see that each individual gets an opportunity to escape from the limitations under which he was born." (1916/1967, p. 20)

Part of Vygotsky's (1934/1986) influence on education was a *sociohistorical* understanding of cognition: the child's thought processes in the blend of what Vygotsky called general or spontaneous concepts (understandings acquired informally through lived experience) and scientific concepts (learned knowledge or understandings that are culturally situated). Children came to school with formed mental understandings (or schemas) of spontaneous concepts that they had acquired through informal experience. In school, they were introduced to scientific (formal) concepts. Systematic reasoning was acquired in the realm of scientific concepts. In the child's thinking process, scientific concepts and systematic reasoning interacted with the existing system(s) of informal concepts in a transformational process to form new

knowledge that over time was assimilated into the general knowledge or spontaneous conceptual systems of the child. These learnings took place in a sociohistorical cultural context in which the child was engaged in conceptual constructions between formal (scientific) and informal (spontaneous) systems of knowledge; tools, objects and people of the culture that were agents in the development of thinking (Bransford et al., 2000; Cole, 1996; Vygotsky, 1934/1986, p. 171-174). To Vygotsky, “Social interactions were a critical vehicle whereby natural processes in cognitive development were redirected by social and historical influences” (Saxe, 1991, p.10).

Vygotsky (Moran & John-Steiner, 2003) believed that human creativity was also developed through social process, mediated by cultural tools and signs within an environment conducive to collaboration (Moran & John Steiner, 2003). The development happened over time changing the creator through the lived process. The potential of creative development was inherent in all people (p.72). This view of creativity directly relates to the idea put forth in this study that the process of applied creative work can have an effect on students’ learning.

Vygotsky (1934/1986), like Dewey (1916/1967), felt that children needed the guidance of more knowledgeable others to help them in developing sophisticated levels of understanding and to move learning forward. The child needed guidance when knowledge was outside of his own making of knowledge through experience. At these points in the cognitive process called *zones of proximal development (ZPD)*, learning took place with a more knowledgeable other giving guidance that would steer the child in the right direction (Saxe, 1991; Vygotsky, 1934/1986). It was during social interactions in which the zones of proximal development were created that most learning occurred. Applying this principle to teaching, sensitive teachers were able to assess the conceptual level or zone of proximal development a student might have in a particular

area and effectively help them to progress toward their potential by asking questions, listening to responses, and observing and evaluating the student's work. This kind of sensitive scaffolding interaction was found to have importance when engaging children in composing (Younker, 1997). Too much scaffolding could have an effect on student learning, motivation to learn, creativity and the ideas and concepts they developed in regard to composing music (Hickey, 2003; Wiggins, 1999; Younker, 1997). An example is a study by Gromko (1996) where her scaffolding was a distraction to the children during their composing. Gromko engineered the instructional session to the assignment in such a way that the children were well prepared to work on their own.⁴ In this study, scaffolding was applied where needed during the experimental group's composing activities.

The Child in Classroom Sociocultural Contexts: Wisdom from the Social Psychologists

Both Piaget (1955) and Vygotsky (1934/1986) recognized the interaction of thought and language as paramount to human understanding and learning. To Vygotsky, the *sign using activity* of spoken language was at the heart of human intellectual development. In *sign forms*, humans learned during social interactions with peers and others (Saxe, 1991). The relationship between human agent and objects of the environment was mediated by cultural means: tools, signs and products of prior generations. Culture was the medium within which the active child and active environment interacted (Cole & Wertsch, 1996). Learning took place within a context: not in isolated study of objects and events, but in connection with a greater contextual whole. Human activity involved various divisions of understanding and experience. No two members of a cultural group internalized the same parts from the whole (Cole, 1996).

⁴ See the section in this chapter on convergent and divergent thinking for a description of Gromko's study

In Cole's discussion of schemas (1996) he proposed that human experience is mediated by cognitive schemas which channel individual thinking by structuring selection, retention, and use of information: a context-specific kind of schematic thinking he referred to as *event schemas* or *scripts*. An event schema (script) such as the ongoing events of classrooms included the people who were involved in the interactive event; the social/psychological roles they played. The script provided a basic understanding in the hierarchy of relations and representative plans, goals, and themes and served as guides to action. As participants gained an inkling of the appropriate actions associated with the script, they could enter with partial knowledge and through the act of participating, learn. If understandings were at times narrowly conceived where valuable perceptions could be overlooked thus influencing cognition, scaffolding from teachers or knowledgeable others was necessary. For example, if a child were not able to grasp that a quarter note is one beat only in time signatures where the quarter note receives the value of the beat, they might need help from knowledgeable others to discover or learn the information. Cole's (1996) considerations, all related to cultural mediation, imply that past and present human activities lead to human development, for it is only through human interactions that development occurs.

Applied to composing music with students in general music classrooms, due to varying levels of musicianship, students may or may not understand a teacher's whole class introduction to a creative assignment or how to go about fulfilling the task. When teachers give students opportunities to work in groups he or she is allowing for peer-peer interactions and for other possible ways for learning to occur. Inactivity on the part of a student could be a sign for the teacher that the child needs scaffolding from the teacher. When a group of students is not

productive might mean that their interactions are taking place outside of class learnings and without teacher intervention, the work will remain within the students' capacity. A good example of this was given by Webster (2003) in a discussion on compositional revision. In the example he gave, when a group of students had reached a block in their composing and needed scaffolding to develop and expand on their compositional ideas and thereby enter into another level of understanding about the process, the teacher's questions regarding length, dynamics and other considerations provided enough scaffolding for the students to generate ideas to make this happen.

In the present study, situations of this kind were ongoing with both groups but more often in the experimental group in this study providing many "learning moments" in interaction between students and students and teacher and students. Examples of interactions are given in subsequent chapters.

Relationship to the Present Study

In regard to the present study, there are some important things to think about when viewed through these lenses. One can think of musical understandings, concepts, sounds, notation, form, orchestration and many additional aspects of composing and improvising music in particular styles as artifacts of cultural systems. Children come to school with formed schemas of musical understanding according to the informal (and in some cases formal) musical experiences of their cultural and social pasts (Wiggins, 2001). Children come from diverse backgrounds: they are part of a large sociocultural environment (country, geographical area where the child is born and perhaps several smaller sociocultural environments (race, ethnicity, family cultural, region, neighborhood, school, etc.). The music of the child's culture is the

grounding; the point of reference in learning all additional styles of music. Most likely, the children have sound schemas or mental sound libraries in the making from these informal experiences. It is the educator's task to build on these, relating new musical experiences and learning to the child's existing schemas. Many listening experiences and explorations in sound on available instruments are necessary for children to build mental libraries of sound for future creating and understanding in music. Hickey advised that children keep a "sound log" for reference (Hickey, 2003). In addition, developing the understanding for using various artifacts such as theoretical concepts, notation, form, and so on must be ongoing activities in order to move learning forward and support creative music making and thinking.

Implications of Expert and Novice Levels of Understandings to Composing Music

Expert and Novice Relationships: Composing in a Collaborative, General Music Environment

Thus far in Chapter II, several ideas of importance to children's learning in music education classrooms have been presented: cognition and creativity are developmental and cumulative and occur within sociocultural contexts; students need a balance of experiences that build conceptual understandings and skills, and opportunities to apply their learning in creative, imaginative ways; the process of creative application might have an effect on learning; a balance in teaching approaches might be better for students' learning than a strict adherence to either a teacher or child-centered approach to teaching and learning; scaffolding and learning can take place in a collaborative environment where scaffolding might be given or received by either a teacher or a peer. Another important ingredient in a collaborative classroom environment is the

interactions that occur between *experts* and *novices*. A brief description of experts is given below.

1. Experts notice features and meaningful patterns of information that are not noticed by novices.
2. Experts have acquired a great deal of content knowledge that is organized in ways that reflect a deep understanding of their subject matter.
3. Experts' knowledge cannot be reduced to sets of isolated facts or propositions, but instead, reflects contexts of applicability: that is, the knowledge is "conditionalized" on a set of circumstances.
4. Experts are able to flexibly retrieve important aspects of their knowledge with little intentional effort.
5. Though experts know their disciplines thoroughly, this does not guarantee that they are able to teach others.
6. Experts have varying levels of flexibility in their approach to new situations. (Bransford et al., 2000, p. 31)

In any group of individuals there exist multiple levels of understanding on any number of subjects. In collaborative learning environments, when children need scaffolding in order to move their learning forward, that scaffolding might come from the teacher or a peer *expert* who has a more advanced level of understanding. Experts learn through the process of doing and explaining what they know. Teachers also learn when at times a child or the children have more knowledge in a particular matter than does the teacher. Vygotsky (1934/1986), Piaget (Myers, 2004, p. 143-150) and Dewey (1900/1990) believed that human beings learn from different kinds of social interactions; some of these are the interactions between experts and novices that are in the normal mix of classrooms.

Levels of Conceptual Knowledge and Skills in Expert and Novice Abilities to Compose

Another consideration in expert and novice levels of understandings is that knowledge is essential in completing various creative tasks. Students might learn from explorations in sound and composing, but acquired knowledge and skills makes a difference in fulfilling particular creative tasks. In teacher-directed learning environments, the teacher-expert is usually able to decide what knowledge is most important to learn regarding a particular subject and how to introduce that knowledge in ways that make sense. Classroom experiences of this type can facilitate students' building of convergent knowledge schemas that are necessary for divergent thinking. Studies in expert and novice levels of composing suggest that individuals who have expert levels of understanding in the domain of music approach composing tasks in a different way than novices. As applied to musical understanding through composing in music classrooms, in a study with expert and novice adult and high school composers, Younker and Smith (1996) sought to gain understanding into composers' ways of thinking during the process of composing and to investigate possible developmental patterns if any emerged.

Experts and Novices: Three Examples Applied to Music Education

Younker and Smith

By use of a questionnaire procedure Younker and Smith (1996) determined that several high school students qualified for their study: i.e., the students who participated in the study had enough understanding of music theory to complete the creative tasks designed to gain understanding into composers' ways of thinking while they were composing. A specific

parameter was given for the task: the subjects were to talk aloud their thoughts while they wrote a 14-measure tonal melody that began in C major and modulated to A major. A rhythm framework was given and the subjects were asked to create their pieces within the specified parameters. Protocol analyses of the subjects were recorded during the process and music played on a midi keyboard was recorded. Written notation and all drafts were recorded on manuscript paper. All data were transcribed to protocols and the professional composer's protocol was distributed into categories of goal structures. A model was created and the other three groups of protocols by novices were analyzed according to these categories. The results showed a gradual progression in approach from the high school novice's note by note approach in composing to the adult expert's holistic approach. Other findings gave rise to the differences in approach based on age, compositional experience, kinds of approach (visual, tactile, aural) and exposure to music (Younker & Smith). This study reinforces Serafine's (1988) claim that music cognition is cumulative.

Banton, Colley and Pither

In another study that applied to expert and novice levels of understanding Banton, Colley and Pither (1992) addressed questions as to how to go about determining the rules for creative work. They rationalized that a composer works within restraints, solving problems that are either self-styled or imposed. This required the ability to identify and apply constraints; the understanding of rules whether superimposed by style or created by the composer; and a knowledge base in the domain in order to accomplish tasks. Their subjects were asked to write several bars that would complete a Bach chorale. The composer (expert) had no trouble completing the task in the correct style but the novices could not complete it. The expert

approached the problem from a broad point of view with a variety of strategies. The novices worked more on particulars (as was the case in the Smith and Younker study). Thus, the results reinforce the idea that knowledge and experience are necessary for sophisticated creative tasks; in this case a highly specific one. Banton, Colley and Pither's findings support the idea that students should have balance between consistent opportunities to develop skills and understandings as well as opportunities for applied creative musical experiences: an idea put forth in the present study.

Campbell

Campbell (1995) found expert and novice relationships in young garage band rock musicians. The band leader (expert) used modeling and other strategies in the teaching of new chords and songs to his peers (novices) in the way a teacher would use scaffolding in working with students. In application of Campbell's findings to classroom contexts, it might serve a useful purpose to periodically give novices and experts the opportunities to work together in constructivist settings.

The ideas put forth in the three studies above stem from Vygotsky's theories of teaching and learning (1934/1986). The ideas underpin the design of the sequentially organized learning materials for the present study and a mixed approach to teaching and learning music including an applied, semi-collaborative approach to teaching and learning music composition with emphasis on inquiry as a scaffolding strategy. Inquiry as a teaching strategy was used for both groups. Western music notation and theory, sight-reading, and playing solo and ensemble pieces on the soprano recorder would fall into the category of Vygotsky's formal concepts learned at school.

Developmental Considerations and Music Cognition

Piaget and Child Development

Like Vygotsky (1934/1986) and Dewey (1900/1990), Piaget (1955) has had a significant impact on music education and research in music (Serafine, 1980). Associated with the learning theory of constructivism, Piaget (1955; Saxe, 1991, p.5) observed children's play, language and social life in the natural setting of their school in order to gain insight into the kinds of understandings children developed as a result of the interactions between thought and language. From his observations and research, Piaget determined that human beings construct new knowledge from their experiences: learning by doing. As human beings develop, frameworks of understanding, so called schemas, are formed in the mind. New information is assimilated into conceptual frameworks of understanding through accommodation. The mind works to accommodate the new information into existing understandings resulting in new understandings. Piaget believed that forms of knowledge were in part developmentally driven. His four stages of development are as follows: 1. Sensorimotor stage: from birth to age 2; Preoperational stage: from age 2-7; 3. Concrete operational stage: from age 7-11; 4. Formal operational stage: from age 11 on. Children learned best when in situations of social interaction (Myers, 2004, p.143-150).

Piagetian Influences of Child Development in Music Education Research

Serafine's Overview of Piagetian Influenced Research in Music Education

Serafine (1980) categorized the Piagetian-influenced work in music research under two areas: studies related to Piaget's developmental stages, i.e., how do children develop musical abilities and studies related to the nature, source and capacities of musical thought. At the time of Serafine's writing in 1980, most Piagetian-influenced studies in music had addressed areas related to child development. According to Piaget's theory of stages, structures of preoperational thought always preceded operational thought and together they preceded formal thought. Within this sequence of thought processing, each stage might have variants or sub-stages. While general characteristics applied for each stage, developmental abilities might differ from child to child dependent on a number of factors. The theory of stages led to three groups of generalizations from the data collected from the Piagetian influenced studies (1) since stage of development is considered an important variable, results from one study are not generalized to another study of subjects in a different stage; (2) longitudinal study designs of different ages and stages and cross-age designs are the most desirable for developmental research (3) results from studies that sought age related variables are not enough for determining the stages of musical development as invariant sequence is a consideration for supposing stages (Serafine, 1980, p. 2). Piaget's theory of stages is important to music education and composing with children because of what his stage theory implies when applied to learning in notational systems and using formal notation systems with children to create music.

Piaget's theory of structuralism has also influenced research in music. In basic terms, structuralism is the construction of structures of knowledge (schemas) that form over an

individual's life time and govern thought (Serafine, 1980, p. 2). Piaget formalized concrete operational structures into age or stage related groupings.

Pflederer-Zimmerman

Pflederer (1964/2001, pp. 35-56) sought to apply Piaget's theory of development in order to determine whether or not his principle of conservation applied to learning in music. On tasks involving conservation of meter, melody and deformation of durational values, Pflederer found differences in abilities between preoperational stage children of 5 years in age, and operational stage children of 8 years in age. The 8 year olds out scored the younger children on correct answers in each category. Thus, her findings corresponded to Piaget's findings on his principle of conservation.

Pflederer-Zimmerman & Sechrest

In a subsequent 5-part experimental study involving 5-13 years old, Pflederer-Zimmerman & Sechrest (1968/2001, pp. 83-100; Serafine, 1980, p. 7) conducted a more comprehensive examination of the conservation principle. Some conclusions by the authors from the resulting data included: task performance improved with age; training was most effective at ages 5 and 7; a plateau of conservation was observed by fourth grade; and the teaching of musical structure should be given through familiar examples (Serafine, 1980, p. 8). Although the findings supported the idea that conservation and non conservation did exist, many questions followed this work: Can the measurement of conservation be obscured by performance factors such as perception and memory? Is the finding regarding the relationship between age and task

performance enough evidence to apply stage theory to musical learning? Were the musical tasks employed for the study analogous to Piaget's? (Serafine, 1980, p. 9)

Serafine

Perhaps, in an attempt to clarify some of the issues surrounding Pfledederer – Zimmerman & Sechrest's (1968/2001, pp. 83-100) study, Serafine (1980) also conducted research that examined the principle of conservation. As applied to music learning, Serafine (1980) designed a measure of conservation in meter with the intent that the musical tasks would be theoretically analogous to Piaget's conservation tasks. Through listening, subjects were asked to determine the steadiness of clicks: whether or not they changed to faster or slower or stayed the same. Various rhythms in changed versions – augmented and diminished – were superimposed on the clicks during the listening experience and a second test added a visual aspect: a blinking light. Serafine's three hypotheses were confirmed: (1) success on the tasks was related to age, (2) success on the tasks was positively related to Piaget's conservation tasks of space, number, substance etc., and (3) improvement on the task was resistant to pre-operational aged children (Serafine, 1980, p. 13). Through pretesting, Serafine assigned 103 subjects determined to be non conservationists to two groups: an experimental group and control group. The experimental group received a conservation training session before completing the conservation listening test. Results showed that success on the tasks correlated more positively to the children's scores on Piaget's conservation tasks than they did to age. Only one training session was administered so the effects of training on the task were questionable.

Relevance of Piaget's Theories and the Principle of Conservation to the Present Study

While conclusive information on the application of Piaget's stage theory to musical development is non-existent, results from research provide general considerations that are useful for music education (Serafine, 1980; Pflederer (1964/2001, pp. 35-56) As applied to the present study, the three studies in conservation principle were noted because of the relationship of the principle of conservation to music composition and improvisation.

Conservation is related to composing and improvising in that the two processes involve the manipulation of ideas, motives, and themes in ways of additions, expansions, and changes. Skill in compositional strategies of this nature that are related to the idea of conservation – variation, retrograde, augmentation, diminution and so on – can be discovered through analyzing and constructing music and/or learned in both direct or indirect ways of instruction. When teachers give students parameters for composition assignments they might include instructions to vary a theme using a number of strategies in order to help the child learn the strategy. For the present study, perhaps the most important question in regard to Piaget's theory of stages and his conservation principle as applied to music composition relates to task design. Should task designs that a teacher imposes on children for composing music adhere to Piaget's stage theory? Should tasks vary across ages or are these decisions simply a matter of the quantity of learning experiences children encounter instead of the kind and quality? Should certain kinds of activities be given to various aged children and should some be avoided? Are there task assignments that should be avoided for particular age or stage groupings of children? Because of the sequential invariant variable, should all learning be differentiated in order to meet the particular behavioral and cognitive development of each child in the classroom? General answers to these questions

are recorded in the literature on Piagetian theories and music education research (Pfleiderer-Zimmerman 2001).

In another study influenced by Piaget's theories Serafine sought to gain understanding into the source and unfolding of musical thought in humans.

Serafine and Music as Cognition

Like Piaget, Serafine (1988) found developmental factors to be a predictor in children's ability to perform various tasks reflective of children's musical cognitive development. In an experimental study, Serafine sought to "map the developmental pattern from early childhood to preadolescence and adulthood that pertained to temporal and non temporal processes of musical thinking: temporal – those musical thinking processes that involve the ability to hear and understand successive musical events and musical events that occurred simultaneously; non-temporal – musical thinking processes that involve the ability to hear and understand musical events of closure, transformation, abstraction, and hierarchic levels of structure. The subjects for the study were individuals aged 5, 6, 8, 10, 11 and adulthood: 15 in each age group. The subjects were given sixteen identical tasks during informal, individual interviews. The musical examples for the tasks were the same (albeit the instructions for the task were given in an age appropriate way). Serafine found that there were differences in children's ability to perform tasks in accordance with their age. The 5 and 6 year olds consistently scored considerably lower on tasks than 10 and 11 year old children. The 8 year olds showed a marked improvement in their ability to perform the tasks over the 5 and 6 year olds. For the most part, the adults were able to perform all of the tasks. Serafine hypothesized that there are generic cognitive processes – pan stylistic cognitive processes possibly related to age development and day to day exposure to and

experience with music. There are also specific cognitive processes that are culturally situated and learned such as the Western idiomatic tradition. Serafine found that temporal cognitive processes that required close attention to the music like listening for successive musical events or simultaneous occurrences of melodies and harmonies as found in texture were acquired at an older age than non-temporal processes that required analysis and recognition of transformations, closures and hierarchical musical construction. This finding suggests either a human developmental reason, for which there are general stages of development, a musical developmental reason resultant of lived exposure to music and educational experience or a combination of both.

Important to the present study, Serafine (1988) found that intensive instrumental training did not have an affect on children's ability to perform the tasks over children with no private lesson training unless the children had reached an advanced stage of instrumental study. The abilities most affected by training were those that required memory, pitch discrimination and those that required knowledge in the Western musical idiom. Normal musical experiences over time such as those found in school in combination with the child's age were more significant factors in the development of musical understanding. Understanding of the temporal relations that are necessary to informed music listening, took time to develop in children.

Thus, based on the results of her experiment, Serafine (1988) argued that music was an internal process based on internal mental processes. The child hears what he hears according to the development of his music cognition. There is no difference in the hearing apparatus between children and adults but rather the difference lies in their cognitive development that makes them hear the piece differently.

Serafine (1988) claimed that there are universal abilities common to everyone: walking, talking, enjoying music, etc. but individual differences and propensities to various abilities are varied. Music cognition is not an environmental or hereditary trait but rather it results from normal cognitive growth and experience with music: however, learning is limited in narrowly designed experiences such as those that emphasize almost exclusively learning to perform existing pieces on an instrument.

Serafine's Research in Music Cognition as Applied to the Present Study

As applied to this study, the researcher taught the children in the control group using a narrower approach to teaching and learning for 100% of the class time. The experimental group received this kind of teaching approximately 50% of the time. During the control group's activities, the researcher-teacher's instructional focus was teaching the children to learn how to play the soprano recorder and how to read Western music notation. As is the practice in some intense approaches to instrument playing, the control group reinforced their learning through repeated practice and multiple sight-reading experiences of pre-created music pieces at the same level as the pieces they had already learned and practiced, at each stage of their sequentially organized learning experiences. These activities in music learning almost exclusively required temporal music processing. In many approaches to music education, including the long existing tradition of ensemble performance in the American schools, a "practice makes perfect" stance has often been taken. This was the experience of the control group's class activities in reinforcement of the curriculum. The experimental group on the other hand had balance in their learning experiences: some required temporal and others non temporal musical processing. Like the control group, the experimental group learned how to play the recorder and learned to play

the same pieces as did the control group although the amount of time spent in practicing of the pieces was considerably less than the control group. Nor did they sight read additional pre-created pieces that were the same level of difficulty as the pieces both groups learned. Instead, the experimental group creatively applied their learning in ways that required transformations; decisions about closure; abstractions and with some children, hierarchy of musical ideas. Improvising and composing involves both temporal and non temporal cognitive processing. The experimental group also engaged in some sight-reading in this way: The children sight read each others pieces in both small and whole group playing.

In many cultures it is desirable for children to learn how to read and/or play music in the specific practices and processes of their culture. This is true in the United States where one of the democratic aims of education is to provide equal educational opportunities for all children. In consideration of Serafine's (1988) findings, a curriculum that includes ways to develop both temporal and non temporal musical processing would seem to be one where over time children would develop musical understanding and skill. For this study, in order to answer the research questions, the children were evaluated on tasks that required temporal processing skills. The experimental group spent almost 50% less time on these tasks than the control group and yet the control group's class activities encompassed training for the kind of evaluation that was given: designed to measure temporal skills. What if the evaluations had been on the children's compositions instead? In other words, the experimental group was evaluated in an identical manner as was the control group with evaluative measures designed to measure the kinds of learning that took place 100% of the time in the control group – even though the experimental group spent approximately 50% less time working in the kind of learning experiences that the

control group had. If the tables were turned, and following the study the control group and the experimental group had been evaluated on a task that reflected the kind of learning the experimental group had experienced during 50% of class time devoted to composing and improvising, would the control group do as well as the experimental group on that task? For example, both groups could have been given an identical composition task (identical parameter). Would an evaluation of the products the children created show similar growth in musical maturity, understanding, complexity, creativity, originality, and musical organization? Future research studies can be designed to examine this provocative question.

Serafine (1988) found that the level of cognitive understanding, availability of mental mechanisms, and storehouse of mental processes determined how the child would perceive incoming information. Experiences in composing and improvising with particular processes should give rise to a development of broader understandings in music because they involve several temporal and non temporal musical cognitive processes. Serafine also found that children experienced a spurt in understanding between age 10 and 11. If that is the case across all populations, the fifth-graders were an excellent, developmental age for this study that combined temporal and non temporal learning processes (in the experimental group only). In many schools, second semester third graders learn the soprano recorder. Serafine's findings on the differences in ability to perform temporal tasks between 8 year olds and 10 and 11 year olds suggest that perhaps fourth or fifth-grade age might be better for learning soprano recorder playing and sight-reading.

Studies in Musical Development and Children's Composing

Swanwick and Tillman

Swanwick & Tillman (1986) also found an unfolding of musical development in stages related to age. Swanwick and Tillman examined over 700 compositions of children for possible trends in the children's behaviors and abilities at various ages that might be reflected in their compositional products. In Swanwick and Tillman's stages of musical development, in the first stage, birth to age 4, the child learned to explore and *master* the sounds of his environment often finding delight in his or her discoveries. Between age 4 and 9, musical development increased in the child through the child's continued exploration and *imitation* of perhaps songs, sounds, and expressive gestures in his or her environment. In a third stage – *imagination*, the understandings the child had made in the earlier stages of exploration and imitation were assimilated into the child's understanding for use in full *imaginative play*. Swanwick and Tillman found the understandings in this developmental stage of children age 10-15 to be structural in nature: convergent knowledge and understandings gained in the earlier stages that made divergent thinking or imaginative play possible. A fourth stage began at around age 15. In this stage, individuals were able to engage in metacognitive thinking and greater manipulation of materials.

Swanwick and Tillman (1986) translated their findings to a four-level development model. Each stage of the model included sub stages of interest in (1) sounds; (2) expressive character; (3) structure, and (4) meaning in music. Swanwick and Tillman pointed to the cyclical nature of the stages: mastery of sound, imitation, imagination and manipulation. Each time new instruments or concepts were introduced to children, the earlier stages were revisited. The child first sought to master the instrument, then engaged in imitations of sounds and gestures he or she

had experienced previously thus leading to full imaginative freedom and subsequent manipulation of sound and expression.

Swanwick and Tillman (1986) made the point that unfortunately in many school or home situations, children received little reinforcement of and exposure to new music and musical concepts and skill development in the imitative development stage with subsequent opportunities and guidance for developing the imaginative uses of what they learned. Swanwick and Tillman's model emphasized the importance of exploration and mastery over sound and the understanding of concepts as a basis for imaginative and metacognitive thinking. The children were given a variety of composing tasks within flexible allocation of time to complete them. When they had finished a composition they were asked to perform it twice. It was from the children's recorded products that Swanwick and Tillman made their analysis and subsequent results. From their analysis, they determined that it is especially critical that children have consistent early development in both conceptual knowledge and opportunities to develop imagination.

Swanwick and Tillman's findings are in the line of reasoning that brought about the research questions for the present study. The purpose of the present study was to examine the effects of creative work on children's learning in music when there is consistently a balance in curriculum offerings in both the development of conceptual understanding and skills with opportunities to apply imaginative and creative thinking. An unstated purpose of the study was to add understanding surrounding the many considerations facing music educators in current practice as put forth earlier and to generate ideas as to how to address them. Swanwick and Tillman's reported results support the notion that neither a creative environment without the discipline of a sequentially designed curriculum nor a narrowly performance focused curriculum

may be effective in preparing students for holistic, comprehensive and open views of music and music learning.

Kratus

Kratus (1989) found developmental differences in the way children of different ages approached compositional problem solving. He asked 7, 9, and 11 year old children to compose a melody in ten minutes on the white keys of a small keyboard. The children were given the same parameter for the assignment in order to help them get started.

The 7 year old children spent most of their time exploring; the 9 year olds spent less time exploring than the 7 year olds and the 11 year olds spent the least amount of time exploring and progressed quickly to the development stages of the composing producing final products that reflected their ability to logically distribute their time in order to accomplish the task. The findings from these two examples are telling because they give educators some idea as to what kinds of compositional activities to engage children at different ages. Like Serafine's (1988) findings, the younger children approached the task in a completely different way than the older children and had less success in completing the task. These studies raise questions for educators. Are the developmental differences demonstrated by the children due to biological, cognitive/psychological factors, exposure to and experience in music in lived, real time or all three? What kind of development is meant by musical development and does the term mean something different to different educators? In subsequent research, it might be interesting to examine the causes for the development. Performing music whether by instrument playing, singing or moving to music is dependent on physical/motor development as well as cognitive

development. If musical cognition is cumulative (Serafine, 1988) throughout life, then the number of lived, real-time musical experiences will also have an effect on student learning.

Convergent and Divergent Thinking in the Teaching of Music Composition and Improvisation

Much of the literature surrounding the study of creative thinking in music emphasizes the importance of the interplay between convergent thinking and divergent thinking, that is, “the importance of divergency of thought and imagination in context with the more convergent thinking that often involves just plain hard work” (Webster, 2002, p. 23). Webster believed creative thinking to be a “dynamic process of alternation between convergent and divergent thinking, moving in stages over time, enabled by certain skills (both innate and learned) and by certain conditions, all resulting in a final product” (p. 26). Enabling conditions are various conditions in the environment such as working conditions, motivation for a particular task; and innate propensities to certain personality traits (Webster, 1990b, p. 24).

Similarly, in her *Componential Theory of Creativity*, Amabile (1996) used different language in expressing the importance of the interplay between innate abilities, and learned knowledge that she called Domain Relevant Skills and creative tendencies and abilities termed as Creativity Relevant Skills i.e., those that require divergent thinking such as flexibility, fluency, originality and motivation (Task Motivation). Amabile also conveyed the importance of learned knowledge, or Domain Relevant Skills, as necessary in all levels of creative endeavors within a domain. “Clearly, it is only possible to be creative in nuclear physics if one knows something (and probably a great deal) about nuclear physics” (p. 86). According to Amabile (1996), products are creative as so deemed by the consensus of experts in a domain (1996). It is in the

Task Motivation stage of Amabile's model of creativity, as applied to music education that social influences and task parameters become crucial issues in regard to children's meaning making through music composition. Social interactions with peers and teachers and the way tasks are designed have a large effect on students' learning. The learning of many contextually situated facts or the assignment of tasks within strict guidelines may restrict creativity and global understandings of music and creative work while the teaching for large principles, and assignments that are semi-structured and open-ended wherein there remain areas of problem solving may be better for most individuals and effect both the learning and the meaning making of students (Amabile, 1996; Hickey, 2003; Kennedy, 2004; Strand, 2006).

Hickey (2003) adapted Amabile's componential model of creativity to musical creativity involved in composing music. Amabile's Model is given with each adaptation by Hickey immediately following:

- (1) Task Identification – Compose music; (2) Preparation – Explore on Synthesizer, practice ideas; (3) Response Generation – Generate possible ideas; search memory, environment; (4) Response Validation – Test response—seek feedback; (5) Outcome – (Save composition [end the process]) or (throw out composition [end the process]) or (revise composition [return to 1,2,3, or 4]); (6) Task Motivation – Intrinsic, extrinsic; reward; task parameters; (7) Domain Relevant Skills – Music aptitude, experience, and achievement; (8) Creativity-Relevant Processes – fluency, flexibility, originality (p. 39).

In Hickey's adaptation, the Task Identification and Task Motivation areas were especially crucial to composing music. The first because it could involve influences of the social environment and either self-determined or self-imposed tasks and task designs by others. The Task Motivation

area was also very important to the composing process because it could involve intrinsic and extrinsic motivations in the way of rewards and grades that required adherence to following task rules to “make the grade.”

In a study that compared the attributes, activities, and performances of divergent, convergent and combination thinkers, Brophy (2000-2001) found that combination thinkers, i.e., those who seemed to possess a balance in convergent and divergent thinking to be perhaps the most creative individuals. He questioned the emphasis on divergent thinking as closely related to creative thinking when his findings suggested that alteration between divergent thinking – generating varied ideas – and convergent thinking that involved evaluation and prior knowledge in determining the best of solutions were necessary for creative problem solving. As applied to music teaching and learning, this supports the idea that students must have a balance in learning that is structured in order to acquire domain specific skills and understanding, and the opportunity to work with this knowledge in ideating for improvisation and music composition. Nachmanovitch (1990) wrote that for artistic improvisation in music one must learn technique but we create *through* the technique, not *with* it (p. 21).

In a chapter on teaching music composition, Barrett (2003) pointed out the inadequacies in approaches to teaching music composition that are either extreme in freedom or are too structured, i.e., between an approach that requires no guidelines or structure, no technical mastery, no parameters and encourages students’ complete freedom of expression and one that dictates by rule and model contextually situated understandings of music in step by step processes as parameters for creative work (2003, p. 6). Over emphasis on self-expression gave students little in technical skills and understanding to create work that had meaning and value

within the context of a domain while the other approach could result in the stifling of students' creativity, a manipulation of materials rather than divergent exploration, and highly predictable products. It was important to understand the processes, products and mental representations that support creative thinking and the social and cultural contexts in which these take place as creative works must be deemed both novel and useful within the accepted understandings of a domain (Amabile, 1996; Barrett, 2003; Hickey, 2003). Therefore, students needed to learn domain relevant information in order to support creative work.

Barrett (2003) reminded us of the responsibility that educators have in determining the reasons why certain curricula are deemed necessary in the education of human beings. What are the reasons for teaching composition and what do educators mean by composition and creativity? In addressing these questions, she used Wallas' (1926, p. 80) model of creativity – preparation, incubation, illumination and verification – as an overarching framework to discuss the idea of constraints and freedoms in teaching music composition (Barrett, 2003). In reflecting on the first step of the model, preparation, she discussed the relationship of the theories of the social psychologists mentioned previously, namely Vygotsky (1934/1986), Cole and Wertsch (1996), finding the theories of these scholars helpful as applied to the teaching and learning of music composition and improvisation.

As Barrett (2003) saw it, under Vygotsky's (1934/1986) notion of cognition, i.e., schema theory and social constructivism, schemas of understanding are formed during social interactions. The artifacts and tools of culture (theoretical learning, instruments, etc.) and sign systems such as language and musical notation mediated the process (Cole, 1999; Moran & John-Steiner, 2003). Learning was situated in the context of the artifacts, tools, signs, attitudes

and understandings that had evolved in any given culture (Cole & Wertsch, 1996). The sociocultural influences were intertwined with the development of cognition thus music improvisation and composition were culturally mediated forms of meaning making (Barrett, 2003, p. 10). This meant that a teacher's choices of materials and pedagogy could become the guidelines/models by which different choices were judged both constraining (reducing the creative possibilities) and enabling students (by providing them with tools to create). As applied to Wallas' (1926) model, cultural psychology and constructivism were a part of the human incubation stage in creative work; the time period in which convergent skills and understandings were acquired within "socially formulated, context-dependent, goal-directed, and tool-mediated action (p.10). As culturally situated meanings were internalized – similar to the social conditions under Task Motivation in Amabile and referred to as enabling conditions in Webster as mentioned earlier – schemas of formal understanding were formed. In Webster, the idea is given as understandings in convergent knowledge and in Amabile, Domain Relevant Skills. Schemas of problem solving and attitudes regarding creative work – termed Creativity-Relevant Processes in Amabile and divergent thinking in Webster – were developed and the inner dialogical process of thinking required for creative work took place; illumination occurred as meanings were made and new schemas of understanding and learning were formulated in the mind. Amabile and Webster referred to these as creative thinking, domain specific learning and resulting products. Finally, in the verification stage, children demonstrated their musical understanding and ability to negotiate between the formal and informal musical schemas they had developed that directly influenced their decisions in creative work. In Amabile's terms, the negotiations were between Domain Relevant Skills and Creativity Relevant Skills under the influences of the social

conditions that influenced intrinsic and extrinsic qualities of tasks; In Webster, during the interplay between convergent and divergent thinking that occurred under the influence of enabling conditions. The process was ongoing and interactive. To Barrett (2003), children both “construct meaning from their worlds and construct their worlds in meaningful ways” (p. 10).

In synthesizing of the theories of Webster (1987; 1990b; 2002), and Amabile (1996) with Barrett’s (2003) synthesis of Wallas (1926) and the social psychologists, and applying the results of the synthesis to the teaching of music composition and improvisation, there are some important things to consider. One can think of notation as a sign system and musical understandings, concepts, sounds, form, orchestration and many additional aspects of composing and improvising music as tools and in some cases, artifacts of culture within the domain of music in whatever culture a child is born. When children first come to school, they have already formed schemas in their minds according to the musical experiences of their cultural and social pasts (Wiggins, 2001). In the development of new schemas of understanding, an interaction between the child’s informal schemas and formal learning schemas occurs (Vygotsky, 1934/1986). In order for this to take place, there must be a balance in the learning environment between guided exposure to these artifacts and the opportunity to explore them in creative ways through various social interactions: with peers; through individual interaction with experts (teachers and more knowledgeable peers); through independent work in which the social interaction is internalized for dialogic problem solving by the individual.

*Three Examples of the Importance of Convergent and Divergent Thinking
to Improvising and Composing with Children*

The preceding synthesis demonstrates the relatedness of these powerful theories surrounding human learning and creativity, mutually supportive one to the others, and all having a bearing on the research questions for this study. The synthesis also reflects the complexity of learning environments and the many considerations that are part of teachers' and administrator's ongoing decisions regarding human learning, teaching, scheduling, curriculum, materials, and the classroom environment. Three excellent examples that reflect the importance of acquired understandings through informal and formal learning in the interplay between convergent thinking and divergent thinking for composing and improvising are given below: Studies by Burnard (2000), Gromko (1996), and Barrett (2003) represent convergent and divergent thinking as applied to improvisation and composition in music education.

Gromko: In a Child's Voice

Gromko (1996) skillfully engineered music learning activities with children that allowed them to acquire understandings that were crucial to the interaction of convergent and divergent thinking in order to complete an assigned creative task.

Gromko's purpose "was to capture in the voice of children their understanding of inversion, retrograde and retrograde inversion techniques used by composers to transform or transpose musical ideas" (p.37). First she gave the children a framework for learning these concepts through convergent learning activities followed by the opportunity to apply the knowledge to a divergent thinking task – a composition. In preparation for the composing task in which she asked the children to apply the compositional strategies of retrograde, inversion and

retrograde inversion, Gromko worked one on one with each child in the following way: Both Gromko and the child had identical matrixes and colored disks. Through modeling and inquiry techniques, Gromko helped each child discover and learn how to use the aforementioned compositional strategies. The matrix served as both an *enactive* – the children were able to model Gromko and also to answer her questions by physically moving the colored disks in the matrix, and *iconic* – the disks and matrix were a visual representation of the compositional strategies: the means for children to reach understanding. Later, when Gromko gave the children a five-note row to work with in demonstrating the strategies through original composition, the visual and verbal concepts they had experienced in the process became aids in direction and structure for exploration. However to finish the product, it was the resulting explorations and improvisations in sound that influenced the children’s musical decisions for the composition. In the last step of the process, the students notated their work in traditional Western musical notation. The working out of the new concepts by way of the interactive “matrixing” as well as teacher inquiry and scaffolding procedures provided the structure for the students’ creative work.

This study points to several important aspects of teaching composition. Through this experience, the children reached another level of compositional development: they acquired new skills and understanding and they had the opportunity to apply new concepts in creative exploration. The newly acquired conceptual knowledge gave them the freedom to explore music composition in relation to these concepts and the understanding of these concepts opened a vein of creative opportunities for them. The carrying out of the assignment, that is, the problem solving process of creating music from applying the compositional strategies to the tone row not only reinforced the concepts but added another dimension to the learning and level of

sophistication in the composing process. Composing music was a part of the learning process for the children. Gromko found that her attempts at scaffolding, once the children were engaged in the composing, were a disruption for them. This suggests that when preparations to teach new learning concepts are carefully designed (convergent knowledge) divergent tasks can follow without much help from the teacher. The teacher need not interrupt or influence the creative intent of the child. Asking the children to raise their hands if they need help is enough. A fringe benefit of Gromko's assigned task: The students' ability to writing Western notation was surely reinforced as well in the last step of the process.

Burnard: How Children Ascribe Meaning to Improvisation and Composition:

Rethinking Pedagogy in Music Education

A good example of background experience as a factor in the kinds of musical understandings individuals develop for creative work is a study by Burnard (2000) who examined how children ascribe meaning to improvisation and composition. Burnard wrote about three of the children in her study. In each case, the ways in which the children approached composing and improvising were directly related to their previous experiences with music which had formed their convergent knowledge base from which they worked and influenced their capacity for and understanding of divergent thinking in creative music making. Their attitudes about creative music making also reflected their experiences.

Diane (interviewee #1) came from a home environment that was rich in listening experiences and musical role modeling: Her father was a song writer. In addition, she had had private instruction on two instruments and enjoyed exploring new instruments and creating her

own music. She viewed her school musical experiences with both positive and negative feelings: At school she had opportunities to engage in group composition.

At the time of the study Diane was 12 years old. She felt a personal ownership in her music making activities and had reached a level of proficiency in skills that gave her confidence in approaching new endeavors. Diane's background, one in which development in both convergent knowledge and opportunities for divergent thinking in music were available to her in either direct or indirect ways (very possibly her song-writer father had an influence on her attitudes about music learning or served as a role model for her) had shaped her ability and attitudes about creative work. Her periodic negative feelings about school composing efforts could possibly have been because she had reached a level of personal identity and satisfaction with her work resultant of a higher level of sophistication for creating music than most of her peers. Other than the social rewards from the group composing, the group work might have held her back from what she was capable and desiring to do with her composing. Diane's interviews revealed that she saw improvisation as a dynamic, real time, continuous process whereas composition involves planning, working out of ideas, rehearsing ideas, reflecting and making decisions. At age 12, her past experiences with music that have involved ongoing creative work and the influences of creative role models are reflected in an uninhibited and somewhat sophisticated understanding of improvisation and composition. The acquiring of convergent knowledge has included opportunities for divergent thinking resulting in personal expression and personal meaning making through musical creation.

A second child highlighted in Burnard's (2000) study, was Tim. Tim had a strong background in traditional private piano lessons that included graded test-competitions and

performance, a class for young musicians offered outside of school, group percussion lessons, and participation in his school choir and string orchestra. His mother was a professional piano teacher and his father was an amateur musician who played a number of instruments. His home was rich in musical resources.

In Tim's musical experiences, the emphasis on competition, achievement and learning to perfection pre-created pieces and styles of music shaped his meaning making in improvisation and composition. The convergent knowledge base, years of practicing particular pieces and emphasis on skill and competition shaped and formed the character of his creative work. In an image-based, draw and talk interview technique employed by Burnard (2000) for this study in which the children were asked to convey aspects of what it was to improvise and compose, Tim's image and talk revealed that to him, the processes were interrelated. If he were engaged in improvisation or composition he would begin with a mental, global idea of what a proper piece or composition should be and would use improvisation in service to the creation of that end. He would begin his improvisatory efforts with a pattern he had played before and improvise additions and expansions of the idea until a final product satisfied his idea of a proper musical composition. Thus, the kinds of convergent musical knowledge Tim acquired and the way he acquired it influenced his understanding of improvisation and composition and how to go about the process of creating music.

Sidin, the third child in Burnford's (2000) study had no formal training on an instrument and no instruments on which to explore at home. Like many children in the schools, she had an interest and desire to learn how to make music however her lack of background resulted in self-consciousness about her abilities and talent in music and her perception of improvisation and

composition. Not having as broad a convergent base of knowledge with which to work as Diane and Tim, to Sidin, the processes of improvisation and composition were similar. She was able to use divergent thinking for her improvising and composing but her inexperience had not provided her with enough convergent knowledge to employ decision making that was necessary in composing a product and improvising in real time. Other byproducts of her inexperience were an inhibition to engage in music making outside of the security of her home and an unrealistic view of musicianship. She viewed musicianship as linked to talent and achievement rather than to experience and education. The social experience and support from friends in group composing and playing provided a non threatening situation in which she could develop both musically and in confidence to participate musically.

Barrett: Freedoms and Constraints:

Constructing Musical Worlds through the Dialogue of Composition

In addition to informal and formal convergent backgrounds and social context, teachers' and parents' attitudes and preferences have a large bearing on how and with what children approach their tasks. Barrett (2003) interviewed two children who had received the same introductory lesson preceding an assigned composing task. The introductory lesson served as a point of departure for divergent thinking. However, the children used their convergent knowledge (knowledge of how to play particular instruments and the music theory they had learned thus far) in their backgrounds in order to compose the assigned piece. The introductory lesson included guidelines from the teacher and a listening experience of the orchestral piece *The Selfish Giant* (1996). The piece served as a model for the assignment providing the children with

additional convergent knowledge such as ideas for form, dynamics, musical gestures and ideas for instrumentation. Both of the children interviewed by Barrett used the knowledge they had gained in their private music studies of guitar playing and flute playing respectively in order to complete the composing task as well as their previous musical experiences. Barrett concludes that the children's compositions were responses to their social environment within the context of their culture and through which they made meaning (p. 23).

All of the above examples reinforced the idea that children need a balance in music learning experiences: opportunities to develop convergent skills and conceptual understanding and opportunities to apply what they are learning in the classroom in creative ways.

Parameters as Structure

Parameters in Composing with Children: a Discussion

Parameters can serve as convergent starting points for students' divergent ideas. Loane (1984) gave students suggestions for beginning their pieces that he called "launching pads." Parameters can be very specific: "Compose a new melody in d minor to the melody rhythm of Jingle Bells." Or, they can be very open-ended: "Create a piece with sounds you can make with objects you find in the classroom."

There exists some ambiguity in the literature surrounding the use of parameters when engaging children in composing. A common argument is that use of parameters takes the problem solving out of the tasks (Hickey, 2003, p. 34). Although she believed that it was possible to design effective parameters for composing, Wiggins (1999) warned that some

parameter designs could stifle student's "ability to initiate and develop musical ideas" (p.30).

These concerns may very well be true when assignments are highly structured and leave little to no room for creative exploration. Others have found students to be disinterested or overwhelmed when they have no guidance in how to approach creative work (Eaton, 1992) and Regelski (2004) promoted the use of particular guidelines when given within a "*practicum* of lessons that [*build on each other*], not as free standing [activities]. (p. 26)

Students vary in their tolerance to structured or open-ended assignments due to both personality and level of domain relevant understandings and skills they have acquired in order to accomplish tasks. Students should have a variety of experiences in varying levels of structured, semi-structured to unstructured assignments (Hickey, 2003; Smith, 2004).

Hickey (2003) wrote on the use of parameters, i.e., structured task assignments, in, and their effects on nurturing music composition in children as related to theories on problem finding and problem solving (Getzels and Csikszentmihalyi, 1976). A common argument is that use of parameters takes the problem solving out of the tasks (Hickey, 2003, p. 34). Like Loane (1984), Paynter (2000) saw an idea or parameter as a starting point for the composing process and Webster (1987) argued for a balance in nurturing both musicianship skills and creative thinking skills for enabling students in the composing process. "It is impossible to expect individuals to think creatively if nothing is there to think creatively with – a common error in creative teaching strategy" (1987, p. 166). One must take care in designing curricula keeping the children's natural curiosity in mind. It is very important to nurture both enabling skills and divergent thinking in the music classroom (Webster, 1987).

Parameters Designed for the Present Study

The parameters designed for this study were for specific learning purposes therefore, Regelski's (2004) idea of structured assignments within a practicum of lessons where students learn through applying their musicianship is related to the design of the composing tasks given to the children (p. 72). According to Regelski, "Practice activities that are [playful] yet apply skills in practicums that approximate the eventual holistic act." (p. 288) Webster's (1987, pp. 164-168) idea of balance and Torrance's (1963, p. 16) idea that students can engage in the development of skills and creative thinking at the same time and all of the theories presented here are reflected in some way in the design of the study, the approach to teaching and learning and the use of instructional materials. In this study, the children were given parameters for their composing directly related to their learning of curriculum content. However, the parameters were open-ended to leave room for unlimited, diverse musical answers. The parameters were open-ended in another way: Children who had more musical knowledge and experience in their background were given the freedom to expand on the assignment or to compose a second piece for the assignment: one of greater complexity or that was generated by a self-constructed parameter or ideas. A description of the composing sessions is given in the methodology chapter. Sample pages from the instructional materials are given in Appendix A. The materials were created in order to support student learning in the following ways: Concept and skill learning was immediately reinforced in musical experiences in ensemble playing.

The experimental group completed the *Creative Corner* assignments that like the recorder music pieces the children learned to play reinforced the concepts, new tones, note symbols and other Western music symbols and fingerings the children had learned to play. The

objective was to have the students develop solo and ensemble playing skills, the ability to read music, and that the composing process would not only give the children experience in composing and how to go about composing music for the merits of composing, but the process would reinforce the learning of concepts, playing ability and sight-reading ability. Although some symphonic or other listening examples were occasionally given to the students preceding their composing and playing, the ensemble experience provided constant, interactive listening experiences for the children. Each of the more than 20 pieces the children learned had piano accompaniments. Some had vocal or additional instrument parts as well. The teacher/researcher improvised piano accompaniments for the children's compositions during the whole class sight-reading of their pieces. In accordance with theories on learning readiness, all of the lessons were designed sequentially building on previous lessons. Each lesson was divided into six sections:

1. Technique and Fingering
2. Music Lesson (introduction of concepts and notation)
3. Lesson Pieces (in support of new notes and concepts learned in the lesson)
4. Creative Corner (creative application assignments, composing and other, directly related to the concepts in the "Music Lesson" portion)
5. Theory and Terms
6. Assignment

Lesson I is found in Appendix A as is *Little Bird*, the favorite piece of several of the children in the control group. All six of the Creative Treatment Assignments are included in Appendix B.

The study was conducted in a parochial school hence the inclusion of sacred materials. The students completed six lessons/chapters in their entirety during the 18 weeks of instruction.

For the holiday concert, the researcher arranged additional Christmas pieces that exactly reinforced the conceptual and skill levels of playing and sight-reading that the children had experienced to that point. During the study, children were not given the opportunity to take their recorders home or to practice outside of class in order to minimize the possibility of increased practicing by some students as an extraneous variable in the results.

Implications for Lesson Design

The materials were designed to nurture the development of convergent and divergent thinking skills in music by attempting to create balance between structured activities and students' opportunities to apply their learning in creative ways.

Conclusion

Chapter Two presented the theoretical considerations that underlie the interest for the present study, the research questions asked, the design of the instructional materials, the learning environment and design of the curriculum learning experiences inclusive of composing and improvising activities. The results of studies related to the discussion were incorporated into the discussion as examples. Chapter Three presents a discussion of studies directly related to answering the research question: Is there an effect on student learning in music when improvisation and composition are part of the curriculum and consistently incorporated into class learning?

CHAPTER III

STUDIES IN THE EFFECTS OF COMPOSING AND IMPROVISING ON STUDENT LEARNING

The process of skill learning and the act of musical creation are closely connected,
even in some sense identical.
-Loane (1984, p 205)

Introduction

In an essay on teaching composition in the schools, Stephens (2003) wrote that the nurturing of imagination, creative thinking and problem solving could transform education to higher levels (Stephens, 2003). Stephens was writing here for educators on the importance of balance in the curriculum. For many years, music education curriculum programs in the schools have been driven by narrow, economy minded performance focused programs. Stephens advised that a broad understanding of knowledge was better suited to the information-driven age and interdisciplinary nature of contemporary life. However, composing in the music classroom should not threaten the performance focused tradition of music education in the United States but rather it should enhance it. The present study addresses this claim of Stephens by evaluating and comparing the performance and sight-reading products of two groups of children: one that has been taught in a performance-focused way and the other with the inclusion of composing and improvising.

Loane (1984) wrote that each composition was a learning experience and Stauffer (2001), and Wiggins (2001) that students' former knowledge and ideas were blended with explorations

and applications in new formal learnings. As in Vygotsky's and Piaget's understanding of how people learn noted in Chapters I and II, the process of composing should result not only in a product (composition) but a new level of understanding and knowledge. New understandings could then be applied to new compositions in gradually more sophisticated ways. Over time, consistent experience in composing should result in increased learning (Paynter, 2000; Stauffer, 2001).

This study investigated the effectiveness of an approach to music education where opportunities for creative work – in this case, music composition and improvisation – were embedded into the curriculum. This was evaluated quantitatively by examining scores on measures of music performance and music theory understanding. Other researchers have investigated or discovered relationships between the process of composing and learning in music. Some investigations have used qualitative designs and others have used quantitative approaches. Results from studies in both paradigms that are pertinent to the present study are given in this chapter. The chapter begins with an overview of early studies, prior to 1980. The results from more recent qualitative and quantitative work follows. The chapter ends with a summary of these results and their role in forming the present study.

Pioneers in Creative Music Making with Children: Early Studies

Satis Coleman

A contemporary of John Dewey, Satis Coleman's (1922, 1926, 1931) child-centered approach to music education reflected many of the theoretical underpinnings of progressive

education. Leading the way in creative music teaching with children, Satis Coleman developed her ideas over time as the music teacher in Lincoln School, the laboratory school for Columbia Teacher's College in New York. Satis Coleman conducted "experiments" with the children that involved them in making and learning to play their own created instruments and music composed on these instruments. While these experiments were not possible under strict laboratory methods and the experimental methodologies of her time, their yield of information to educational practice was as valuable as research conducted under strict experimental conditions. "Laboratory techniques have their place in education, but compared with the vision, the imagination, and the insight which motivate an enterprise of this kind, they may be inconsequential" (Newlon, 1931, p. v.). Newlon was referring here to an experiment/project Coleman conducted with her students where they wrote and played a symphony in Classical style and form for instruments they had created themselves.

Coleman (1931) referred to her work with her students as experiments that had come about as a result of dissatisfaction with the then current methods of music instruction (p. 3). The composing of a symphony was an outgrowth of several experiments Coleman had conducted with her students over a period of a few years. Earlier experiments involved researching instruments of various cultures through fieldtrip visits to museums, such as the Metropolitan Museum, the National Museum in Washington and other places. The instruments became models for inventing new instruments that the children could employ in the creating and playing of music. The museum instruments chosen for model replication had to fit three qualifications: (1) they must be easily played by children; (2) they must be such that the playing of the instruments would contribute to the child's musical growth and facilitate expression through music; (3) that

the creating and playing of the instruments would contribute to the children's appreciation of musical forms outside of their informal musical experience (p. 14). Coleman engaged the children in sound explorations of materials to discover potential instruments: flower pots, various sized bowls, spoons, dinner forks and more. One such instrument that resulted from these explorations was a set of drinking glasses of the same size that could be pitched and tuned in the conventional tuning system by adding particular amounts of fluid to the glass. The children played and composed music for this instrument and for many other devised instruments (Coleman, 1926, 1931, p. 15). The instrument-making and the simple-instrument playing projects took place from 1915-1918 in Washington, D.C.; the experiments in Coleman's private studio during the next few years that followed. The story is retold in *Creative Music for Children* (1922). In 1919 Coleman began to adapt these methods to classroom teaching at the Lincoln School. Three questions guided her first experiment with the students: (1) would children in large groups be interested in making instruments; (2) could the work be made practical and not take too much from the rest of the program; (3) would the children find the studies meaningful to their musical understanding and musical expression (p. 16). The first class to receive the instrument making studies was a sixth grade class that met twice a week for 30 minutes (1931, p. 16 - 17). The students responded with enthusiasm and focused attention to the project so the program grew and each year more classes were added to the project. According to Coleman, it was a natural progression that in time more sophisticated understandings resulted, class orchestras developed, ensemble playing became more refined and the eventuality of the creation of an entire symphony by the children would come into being (p. 17). Coleman drew the following conclusions from the experiments:

- (1) The making and using of simple instruments added greatly to children's interest in music, intimacy with the art and made their musical experiences more meaningful.
- (2) The experiences of making and playing musical instruments added much to the children's musical understanding and appreciation.
- (3) The making and playing of simple instruments gave all children the opportunity to engage in musical experience at their own level of capacity.
- (4) The differentiation of instrument types allowed for the choosing of instruments best suited to the child's interest and physical capacity to play the instrument.
- (5) Instrument making gave constructive direction to some children who would otherwise have behavior difficulties.
- (6) The making of simple instruments opened the door of interest for learning other areas of study such as acoustics.
- (7) Instrument making stimulated creativeness in musical expression.
- (8) The use of simple instruments for creative expression was advantaged over traditional instruments that require much practice before musical expression is possible.
- (9) The use of many instruments insured musical growth and spontaneity without specialization at too young an age.
- (10) The use of simple instruments aided children's singing especially when they sang and played at the same time.
- (11) The children develop a sense of tone quality, refined pitch recognition and aesthetic appreciation from the making of instruments.
- (12) The use of simple instruments made possible ensemble playing experiences for everyone.
- (13) The use of simple instruments often aroused innate tendencies for music that might otherwise remain dormant (p. 20 - 22).

Coleman gave the following drawbacks to the program:

- (1) The emphasis on instrument making and playing could not take the place of developing the singing voice, specialized development in music or the values obtained from a comprehensive approach to music education.
- (2) Children who had developed to more advanced levels of playing and musical understanding would require additional music education.

- (3) While instrument making and playing in the younger grades was possible, Coleman believed that the ensemble playing should not begin before third grade.
- (4) It was impractical to try to make instruments in large classes of children in the primary grades; fourth grade was early enough.
- (5) Instrument making is most valuable to the child when he or she is capable of both making and playing an instrument that will add to his or her musical growth; the readiness for the experience depends not only on age but on experience with music.
- (6) Since music classes receive so little time during the school day, time for instrument making should be limited and not outweigh time spent on actually playing the instruments and engagement in musical experience.
- (7) The use of simple instruments in class must lead to musical growth not simply a noisy activity otherwise it could not be classified as an educational musical activity (p. 22 – 25).

Satis Coleman's work (1922, 1926, 1931) contained an underlying belief that all human beings have creative and musical potential and that it should be nurtured in everyone. Coleman gave children ways to discover and construct their learning through creatively applied, experimental learning activities rather than strictly content-centered learning (Coleman, 1922). However, curriculum content was also present in the organization of Coleman's classroom activities. Many of Coleman's creative activities were organized and designed by her as preparation for reading and notating in the Western notation system. An example of this is found in the organized figural and numerical system she gave to students in order for them to easily notate their original compositions (1926). While not written in current uses of educational terminology, Coleman understood the merits of differentiated teaching strategies and the natural teaching and learning flexibility that are embedded in assignments in improvisation and composition that are an outgrowth of class learnings. Coleman was one, if not perhaps the first teacher to employ a methodological approach to music education for nurturing creativity and creative thinking in children for the purposes of their musical development and enjoyment. Not

only was her work successful but her ideas were implemented successfully elsewhere (Richardson, 1982).

Dorothea Doig

Doig (1941, 1942a, 1942b) engaged children in composing for the purposes of providing them with supplemental music learning opportunities that at that time were not available to them elsewhere. The first of her experiments engaged the children in creating a melody from a text of their choosing; the second experiment engaged them in creating a melody on a given subject and the third on a musical problem. Even though Doig notated the music for the children, the creative decisions were left to the children's discretion and this early effort at composing with children yielded important information for the profession. In Doig's words, "Just as the study of development of language concepts at different age levels may have aided in the modification of methods of teaching reading, so may the analysis of musical concepts of children serve as a basis for a new evaluation of problems of teaching music and for more effective remedial work in music" (p. 279).

Doig (1941, 1942a, 1942b) wanted to encourage children's musical expression through composing and to develop children's musical understanding. "Furnishing the opportunity to compose music has been considered a practical aid in developing a keener understanding of music." (p. 263) Similar to (Serafine (1980), Swanwick and Tillman (1986), and Pflederer (1964/2001), Doig found that the younger children in her study demonstrated more freedom in their melodic composing and had a consciousness of tonal groupings and relationships. The older children's compositions reflected the influence of cultural norms: scales, and choral harmonies that they had had a longer time to assimilate from their environment. All of the children (aged 6

to 16) in Doig's experiments were interested in composing and especially enjoyed singing the songs they created. Doig found that the children's learning was affected in a positive way through the engagement in creative composing tasks.

Moorhead and Pond

Moorhead and Pond (1941; 1942, 1944; 1945/1978) pioneered the work in observational methods of children's musical characteristics and abilities. Under the guiding principles and funding put forth by the Pillsbury Foundation, the purpose of their study was "to discover the principles which govern children's relationship to music" (Wilson, 1981, p. 13). The aim of the school was to learn how to encourage the development of musical creativity. The teachers were to provide an environment that would be nurturing to children's creative play and often engage in it with them (Wilson, 1981).

In the naturalistic environment of their preschool at the Pillsbury Foundation School, children were allowed to explore a wide variety of traditional and world instruments at any time of the day. Under the double environmental context of available resources and educational philosophy conducive to nurturing children's creativity, the children engaged in individual and self-created group music creating and playing and sound manipulation without suggestion from their teachers. Moorhead and Pond found children to have an innate proclivity to sound and music. Children needed time to engage in many musical experiences before the restrictive influences of formal symbol systems were imposed on them. Moorhead and Pond's approach to music education was such a new concept to educational practices during the 1940s that the findings from the study received little attention when it was first published.

In the year of the second publishing of the study, Pond (1981) reflecting on his experiences at the school, wrote that children have an innate childlike relationship with sound reflective of the innate musicality and creativeness of all human beings. He considered the discovery of sound as essential for children and reasoned that “unless instruction and pedagogical disciplines could be creatively related to the emergent needs that the children’s discovery of sound brought to light, there was no possibility that anything could be accomplished other than rote learning conducted in a vacuum, unrelated to the life-giving reality of music.” (p. 4).

Pond (1981), a composer by profession and the designated music director for the Pillsbury School wondered how much involvement he should have in helping children with their music making, without interfering, to carry out their creative intentions. He also wondered how, progressively, without inhibiting spontaneity and damaging or even destroying the children’s innate musicality, the children could be introduced, at the proper time, to skills, techniques, and knowledge that would enhance their musicianship, while remaining always in line with their personal musical understandings and their ways of making music.

Pond (1981) helped children to develop in their musicianship by calling the children’s attention to things that they had done intuitively. Conscious attention to what the children had created would possibly allow for continued application of their work in deliberate ways in subsequent work. Pond used this strategy as a way to nurture the children’s musical development without demanding anything in particular. He further accomplished this by engaging children in game-like procedures that allowed children freedom to explore, experiment with and compare sounds. In regard to scaffolding techniques, Pond addressed the structure and form of a child’s

piece not the content or meaning. Pond found music to be a communal activity, essential in the process of creative music making that needed little organization from the teacher.

Pond (1981) concluded that research was necessary to find out how his findings could be made “operative” within the restrictions of public schools. He had no doubts that it was possible but surmised that it would take much dedicated research and creative imagination to accomplish it.

Subsequent to the closing of the Pillsbury School, Wilson (1981), the curator of the MENC historical center reported that the largest finding of the project was “children possess innate musicality which assumes coherent form through the natural activities of childhood.” (p.13). Earlier traditions of music education in the United States had not recognized that children had the ability to create music. Wilson felt that the findings of Pond and Moorhead (1941, 1942, 1944, 1951/1978) at the school were ahead of their time and a possible reason why little research was immediately generated as follow up to their findings and implications for music education in the schools.

Since the closing of the Pillsbury School in the 1950’s, researchers have often referenced the study as a pioneering qualitative study in the naturalistic creative music making tendencies of children. Much has been written on the free, creative play in which the children engaged; their spontaneous song making and experiments and explorations with instruments. Moorhead and Pond’s (1941, 1942, 1944, 1951/1978) findings have informed the profession in numerous ways in matters surrounding musical creativity and the enterprise of teaching and learning in music. Less is written about Moorhead and Pond’s efforts to teach traditional cultural musical practices

to children. They believed that adventures in sound and creative sound making should precede all formal instructions in music that the child might encounter.

Moorhead and Pond (1944) saw the acquiring of music reading as analogous to learning to read words. However, in word reading, children had the advantage of having in their conceptual understanding a large vocabulary of sound words before having to learn the associated symbols. In music reading, children were traditionally expected to learn the sound and symbol simultaneously: a process that was considerably more difficult. In learning to read and write words, children had usually experienced the use of speech in sentences, story form, nursery rhymes such as developed in the child a holistic understanding of how the use of words might take form on a printed page. Children did not necessarily have as much experience in musical sound forms or a large, mental, musical sound library to reference when they were expected to learn the symbol system of Western music notation.

To address this problem, Moorhead and Pond (1944) drew from the child's level of musical sound experience in order to teach the corresponding symbols and introduce music reading. They made sure that many sound experiences in the children's lives had preceded the introduction of symbols for sound. To introduce rhythm reading, a rhythm was used, determined as most familiar to the children's sound experiences. This was chosen to represent the symbol in the children's first rhythm reading experience. When the children realized that the symbols represented durations, they experimented in making their own creations with the symbols similar to early writing attempts with words that children create before they have full understanding of the relationships of words in grammatically arranged sentence structures, paragraphs, and whole manuscripts. At this point in the learning process, no attempt was made to introduce musical

phrasing or meter and other formal organizational concepts to the children. The children were interested to hear how their creations sounded and asked to have their rhythm creations played.

The second step in the notational process was a cutting up of the rhythm pattern the children had learned – in their presence – so they could use the disparate parts and gain the understanding that these could become tools for use in creating new rhythms and subsequently, the children could play the new rhythms on instruments. In time, more same-duration notes were added to lengthen or change the pattern. The creative rearrangement of the symbols for conceptual learning and understanding in Pond and Moorhead's procedure of teaching notation is apparent. While the entire processes cannot be given here, many ensuing games were added and in each one was embedded another conceptual step in the process of learning to read rhythm in the traditional symbol system of the children's culture namely, Western music notation. Melodic notation was introduced in a similar way as was the rhythmic notation. In this sequential, creative, sound before symbol, game-like introduction to notation, over a five-month period of time, 5 and 6 year old children earned to read and write elementary level rhythms, diatonic melodies and were able to recognize several intervals. Moorhead and Pond emphasized the fact that the children were ready for this learning because of their rich past experience in sound, sound creating and music listening at the school. The strategy of interaction between discovery, instruction and creative application that Moorhead and Pond employed to teach the children how to read notation was very effective.

Pond (1981) wondered how his findings at the Pillsbury School on children in their musical development and learning would be able to take shape and form in music teaching in the

schools. The following studies represent the serious undertaking of music educator-researchers who addressed this concern.

The Effects of Applied Improvisation and/or Composing on Learning: Qualitative Studies

Loane

Loane (1984) believed that regardless of his students' levels of sophistication in musical understanding, their explorations in sound and resulting compositions were subject to the students' attentive listening and decision making. He engaged his students, of all levels of ability, in group composing by giving them open-ended composing assignments as part of their general music curriculum. For the sake of example, Loane wrote about a group of 11-12 year old students in a remedial class who were asked to create some music about animals. The students created a piece called *Crazy Horses* for drum, xylophone and vocal declamations that to Loane, depicted not just some music about animals but that the students' creation of driving, loud and wild rhythms, with vocal declamations carefully layered into the rhythmic scheme, and created under the controlled decision making process that composing involves, resulted in an expression of the students' experiences or possible experience that the students' had in their conscious. Composing, or the act of thinking in sound, made possible the expression and communication of the inner conscious. As was the case with any piece of music, the sound metaphor of the students' experience was universal as well as personal and could be communicated to others. Loane found that with sensitive examination of the children's compositions, he realized that the children were expressing conscious and subconscious feelings about their existence. This, to

Loane was a crucial point in understanding the merits of including composition in the curriculum: the idea that even within the simplicity of their technical achievements and musical development and understandings at any point in time, students' composing involved profound meaning making.

Loane (1984) found the process of composing to have an impact on children's musical understanding, skill development and motivation. During his small-group work with students who had 3-4 one hour composing sessions per week, Loane often found that: "Students stumble onto techniques that are appropriate to their compositions but beyond their theoretical exposure and understanding." (p. 211) By observing his students, Loane recognized the close relationship and connection that the act of creation has to skill and theory learning in music. His students drew on previously acquired skills and the composing experience resultant of each composition they had created in the past to move towards increasingly more complex and sophisticated creations. As in the work of professional composers, Loane believed the students' compositions were expressions of their human experience portrayed through metaphorical, symbolic arrangements of sounds and sound systems. In order to help students begin their work, Loane made suggestions to his students that served as starting points for their composing activities. Loane referred to this as the "launching pad" for students' creative work (p. 222).

Loane (1984) experienced that often his students' work went beyond his expectations. It was during the composing process that both teachers and students could be enlightened as to what the child understood about music and the composing process and where there were challenges in the students' learning that required additional explanation. Loane found this mutual enlightenment of teacher and student as necessary to a student's ability to assimilate theoretical

ideas into their learning in such a way that they could become technical skills or compositional strategies for subsequent composing experiences.

Loane's research suggested that when students are given opportunities to apply what they are learning in creative ways it might facilitate students' understandings and skills in a better way than when they have learned through lecture or the modeling of behaviors. "Certainly, many will take the view that imaginative application is the whole point of learning skills anyway!" (Loane, 1984, p. 223)

Loane, found that the open-endedness of the assignment allowed room for exploration in which students, often by accident, came upon new understandings. When this occurred at various places in the students' work the teacher could address the incident; attending to the musical features of the discovery in order to make the occurrence a deliberately conscious one and thereby help to move the students' learning forward. "Success of musical achievement transcends any verbal account of it." (Loane, 1984, p. 228) Loane often used suggestions as a scaffolding strategy. Sometimes his students adapted the suggestions to their work and sometimes they did not.

To Loane (1984), one of the most crucial reasons for inclusion of music in the school curriculum and the inclusion of improvisation and composition in the music curriculum was because engagement in music was thinking in sound; a way for human beings to understand reality and themselves. The exploration of sounds in order to express meaning, and the arrangement of those sounds (form, manipulation, etc) made possible understandings and illuminations that might not otherwise be realized. Just as the writing of words helped one to realize, clarify, organize and even discover thoughts and ideas, so did the experimentation,

exploration, manipulation and organization of sounds help to realize, clarify, organize and discover thoughts, ideas and feelings of human conscious life (Loane, 1984, p. 213). Loane found that students not only developed musical understanding through composition but insight and meaning making in human life.

Loane's experiences as a teacher of composition in music classes led him to believe that "Whatever children are able to express in music is inseparable from the extension of their compositional technique which embodies it." (p. 217) Loane's claim is directly related to the research questions asked in the present study and the educational considerations surrounding the inclusion of both the development of conceptual understanding and skills in music in support of creative work as well as opportunities to create: that the application of creative work reinforces learning and understanding. It is a reciprocal process: the interplay of convergent and divergent thinking.

Bunting

In a case study involving two of his high school music students, Bunting (1987) discussed the important role of the teacher as facilitator and guide in helping students to develop musical understanding, value and purpose through and in composing. He argued that when composing with inexperienced school students neither a strictly teacher-directed model for nurturing students' ability in which the teacher defined technical and expressive aims nor a completely unguided, open model for nurturing ability in which students were given complete freedom to compose were effective ways to generate compositional thinking and musical understanding in students. Bunting suggested a model that included both freedom and guidance or scaffolding for the student when they needed it: of "interplay" between the viewpoints of

teacher and pupil as students actively engaged in the process of composing. (p. 26) The model was based on the development of musical understanding and musicianship through listening, composing and performing.

Bunting (1987) initiated the learning process with the two boys in keyboard instruction and in the case of one of the boys, instruction in bass guitar. Bunting drew from the pieces the boys had learned to play in order to design assignments for their creative work: harmonic patterns and riffs and the composing of new melodies for these. The learning environment was such that the boys could collaborate in playing their compositions to hear how they sounded.

In order to make the boys aware that there were alternatives in compositional decision making, Bunting (1987) would ask the boys to transpose a riff or chord progression or change the tonality from major to minor. These initial experiences in instrument playing and exercises in composing served as a convergent base for subsequent composing experiences that gave the boys more freedom to employ divergent thinking.

After the beginning composing experiences, Bunting (1987) assigned an extended composition project to the boys wherein the boys were able to have more freedom in choosing the ideas for their pieces and the subsequent development of the material. During the composing, Bunting was attentive to his students' thinking processes so he could give scaffolding when necessary but he left the ultimate decisions about the boys' pieces to them. Throughout the composing process, the boys continued to work at their playing skills so they to play their pieces.

A third significant strategy that Bunting (1987) used in the teaching and learning process of composing was the alignment of composing exercises with listening examples. Mussorgsky's

Gnomus from the orchestral version of *Pictures at an Exhibition* by Ravel had a substantial effect on the originality of the boys subsequent composing.

From the experience of working closely with his students during their learning process, Bunting (1987) learned that the technical achievements and musical developments the boys made were resultant of the combined, interactive learning experiences in listening, performing and composing and the culmination of all of they had learned through class studies and their informal learning outside of school. Both boys grew in understanding that allowed them to create increasingly more complex pieces. Bunting was able to move the boys' learning forward through strategies of inquiry: by "asking questions and planting seeds' related to their composing efforts. He assigned exercises related to their work that facilitated technical craftsmanship and musical understanding. By designing teaching strategies derived from and around his students' created work, in particular a harmonic progression one of the boys had composed, Bunting was able to teach compositional strategies in a similar manner as if he had taught composition per se to the boys. The implications of Bunting's approach to meaning making, learning in music, and validity in musical experience informed his practice for future, planned syllabi in which conceptual understandings in music could be taught in a similar way.

Important to the present study, Bunting's (1984) experience emphasized the importance of deriving music learning experiences for the students from their own creative work, from their present level of musical understanding and skill in performing, and the critical role of inquiry in that process as a way to move students' learning forward. Ultimately, composing had an effect on the students' learning. At the end of the second term, the students had developed musical understanding to support a new and somewhat more complex level of musical experiences.

DeLorenzo

In a study with sixth grade children, DeLorenzo (1989) studied the creative problem-solving processes of the children during their general music classes. Through methods of direct observation and video taping, De Lorenzo observed general music teachers and their students on days that the music teachers involved the children in creative problem-solving activities. An adherence to the teachers' normal curriculum was requested. Under the guidelines of their schools, the teachers in each school had freedom to choose and implement creative experiences for their students. Eight different activities at four different sites were observed. Seven of the observed activities were for small groups and one was an assignment for individual problem-solving. From her observations, two issues emerged as important to the problem solving process: the structure of the creative task and teacher-directed activities as related to the children's creative efforts. Three kinds of task assignments were given to the children: sound compositions, compositions based on an event or story, compositions focused around a specific music concept. The assignments were given as a culmination to a unit or as an outgrowth of composition exercises given previously to the students.

DeLorenzo (1989) created a series of questions as an observational tool to aid in consistency in analysis procedures. Such questions as: "How do students approach and/or finish the project?" "Does the character of exploration change in the creating process?" (p. 191) The use of video tape provided a way of cross-checking of behavior events, musical events and as trends emerged, it was possible to go back and view earlier tapes to validate assumptions.

At first the students appeared to be different in the way they approached problem-solving but over time, it was clear that students with similar levels of decision making exhibited similar

behaviors. Four characteristics of creative musical problem solving emerged. DeLorenzo used these as a framework to interpret students' musical decision making processes (p. 193). The characteristics follow:

- (a) perception of the problem structure – the openness with which the students perceived the creating task; (b) the search for musical form – the degree to which students allowed the musical events to determine the form of the music; (c) capacity to sense musical possibilities – the depth to which students developed and shaped musical events; and (d) degree of personal investment – the level of absorption and intensity with which students engaged in the creating process (p. 193).

The framework facilitated the describing and comparing of students' creative problem solving processes.

DeLorenzo (1989) found that the way students perceived the problem solving task that was embedded in the assignment had an effect on the originality of the product and the child's engagement in the creative thinking task. Students who perceived few choices in the creative musical decision process were not as attentive to the task; their products employed isolated musical ideas with much repetition. Students who perceived many choices in the musical problem solving task explored the possibilities and the possible developments of the ideas. Students in this category of musical problem solving became more involved and excited as the project neared a completion. Formal organization of their pieces emerged resultant of the development of their musical ideas.

DeLorenzo (1989) observed that the children's music teachers encouraged the children's creative and original thinking and ideas but gave little guidance in showing the children how to

develop their original musical ideas. She also determined that children needed guidance through constant monitoring by way of inquiry scaffolding techniques from the teacher regarding the children's work especially in the areas of musical context and formal balance.

DeLorenzo's (1989) findings suggest that students need to know and understand the ways of thinking about how to create music as much as simply how to engage in creative music making. As in Strand's (2005) findings, children needed instruction in the actual thinking processes and strategies that were involved in composing: not just assignments in creating music. DeLorenzo advised that structured exploratory experiences accompanied by discussion could facilitate students' understanding in music and ability to think creatively in music. Students needed exploratory experiences that took into consideration both the developmental aspects of creative thinking and the kinds of thinking that were appropriate for particular creative projects; however, structuring devices that were narrowly conceived might restrict the emergence of form and originality that would otherwise be possible as a result of student's exploration within the musical context of the students' generated ideas.

Relevance to the present study is DeLorenzo's (1989) emphasis in developing students' creative thinking knowhow: how to approach creative tasks; how to go about generating ideas and ways to look at those ideas that enable students to generate, develop, expand and explore them. In other words, DeLorenzo recommends teaching children how to compose along with or instead of simply teaching them how to create. Ultimately, students learned from the composing process but more understanding would result if specific attention as to how to go about the composing process were included in the teaching and learning process of composing.

Levi

In an eight-week study, Levi (1991) investigated the role of consistent composing experiences for second grade children as they composed on an Orff instrument in the natural setting of their classroom. A work station for the activity was set up with a xylophone. The children could go to the “Music Center” and explore the possibilities of the instrument for their creative work. The children were asked to improvise and create a piece that the researcher could play. When the children felt they had finished their piece, and could play it through twice, they were asked to create a score for the piece. Levi thought there would be time for the 22 participants to have six composing sessions each: However he found that eight weeks was not enough time for the children to improvise, compose and notate their pieces. No time limit was set for the children for the composing sessions and notating proved to be a time consuming process. An added component to the study came from the children themselves when they asked if they could share their pieces with classmates by performing them in groups.

Several questions drove the design of Levi’s (1991) study: What kinds of scores do children provide when asked to give a written account of their piece? Is the writing necessary? Does the writing down of the piece interfere in the composing process? What musical understandings are revealed in the created scores? (p. 123).

Levi (1991) found that from the first composing experiences to the last, the children grew in their understanding and composing of melodic motives and inversions of melodic motives. In their weekly sharing, listening/performing experiences, the children progressively became more aware of patterns in the music composed by their classmates.

The children composed in a variety of invented notations; many were notated in numbers or letters with indications as to higher or lower same name notes. The writing down of their pieces became an accepted activity and did not seem to hinder the creativity of the children. A more sophisticated level of musical notation usually was an indication that the child had had more formal musical experience.

In examining the children's notations over the course of the study, Levi saw indications that the children had grown in their musical understanding as a result of the process of composing and notating and as revealed in the pieces they composed earlier in the study compared with the ones created later in the study. He found that the process of notating did not obstruct their composing process and that opportunities to prepare for learning in traditional notation arose from the students' work.

Bamberger

Bamberger (1991) worked on tune-building tasks over a six month period of time with Jeff, an eight year old child. Bamberger traced Jeff's development beginning with tune building activities using a computer and then moved to the use of Montessori bells for the task. Jeff's subsequent development in the construction of sound in his mind changed the way he notated his work. Jeff was one child of many that Bamberger engaged in composing and notating their work.

In her work with Jeff and other children in music education classrooms, Bamberger (1991) found children to have "powerful intuitions" that they brought to their beginning studies and different ways of hearing music: some children (and adults) heard music in organizations of musical gestures – figurally; others heard the organization of music metrically, i.e., formally. Bamberger discovered the difference when she asked some students to write down a way to

remember a piece the children had composed in a group collaborative effort. The invented notations that the children created were different from each other but all were verifiable representations that revealed the way in which they heard the music. Bamberger argued that the way humans hear music is as an active process of thinking and meaning making: a construction between what is known – what the mind is capable of thinking at any point in time – and incoming new information that will change the understandings of the individual. She believed that the point of teaching for musical development was to help individuals learn to perceive through multi-dimensional understandings that they can reference and focus on at will, and through free, selective choosing, determine what they want to do with the information. New understandings served as building blocks in cumulative levels of understanding: not simply as more complex replacements of former understandings. Repeated hearings and exposure to music examples would allow individuals to concentrate on different features over time thus making possible multi-dimensional understandings.

Bamberger (1991, 1999) attested that hearing music is both a creative and responsive activity of the mind: a conversation back and forth between the material that is presented (heard) and the hearer who shapes the meaning of what is heard in a particular way.

While engaging her students in constructing melodies with Montessori tone bells and non traditional kinds of notation, Bamberger (1991, 1999) realized that children approached the tasks in different ways. Some were *pathmakers* and others were *mapmakers*. Pathmakers' understandings were dependent on musical gestural figures and mapmakers' understandings on organizations of systems they created similar to conventional norms. Bamberger argued that individuals heard music under the influence of the conventions they had been taught. When

children were taught a notational system early in their musical development it possibly jeopardized their intuitive ways of constructing hearing experiences; meaning making and when they engaged in notating, the understandings they would derive from the negotiations that would arise from the visual sense making they made of their experience. She found children's meaning making through invented notations and notations that were similar to their gestural intuitive know how and experimentation with musical materials to be especially rich in developing students' conceptual understandings in musical structure and perception. How were teachers to allow for the development of meaning making through experiences in notating according to the individual student's hearing of music and at the same time help children learn the musical conventions of their culture? Bamberger felt that the answer could be in developing ways to bridge the gap between figural and formal representations of knowledge. She believed that the crucial teaching moments were embedded in the negotiable areas of understandings between the student's informal understandings and the teacher's formal understanding. In line with Vygotsky's theory of zones of proximal positioning, Bamberger felt that a sensitive teacher could recognize when a child's "network of organizing constraints" was in the tension of pending change and could grab onto the moment to move a child's learning forward. These moments were signaled at times by the child's demonstration of awareness of new features or objects in their learning and the ability to differentiate between what was the same and different between their own understanding and that which the teacher presented. Through scaffolding strategies of inquiry and differentiated teaching, the child and teacher could make progress together.

As applied to this study, many important points are raised here in regard to composing with children as an outgrowth of the curriculum and the effects of this on children's musical development. First, simply like the other researchers whose work is cited in this chapter, Bamberger found that students' notated creations provided a means for musical development. When students were able to view notations by their peers, it opened up another kind of musical understanding: possible, multiple ways of hearing and making sense of musical structures. The metaphor Bamberger gives of hearing music as being both a creative and responsive conversational process between the hearer and the materials can be aptly applied to composing as well. It is in this conversational process involving critical and creative thinking that allows students to use what they have learned in new ways, to make decisions and to move their learning forward. In the present study, the question is, when that conversation includes new conceptual understandings is composition an effective way to help students develop musically?

Bamberger emphasized the importance of engaging students in inventing their own notations and non traditional ways of notating intuitive understandings before the introduction to culturally imposed systems of notation. She also recognized the importance of students' eventually learning the notational system of their culture.

Upitis

Upitis (1992) noticed the similarity between whole language/process writing approaches and children's invented notations for composing music. Like Bamberger (1991, 1999) Upitis viewed children's invented notations as part of their developmental process towards understanding established notational systems. She recommended that children have opportunities to invent their own figural systems of notation before they were taught or expected to create

music within formal cultural systems of notation. Like Bamberger, she believed that the process of creating personal, figural systems of notation led students to understanding in and recognition of the benefits of formal systems of notation that have become refined and efficient for use over time.

Bissex (1992) believed that creating meaning through symbolic representation was a basic human activity (p. ix). In the foreword to Uptis' book *Can I Play You My Song?* Bissex argued that the purpose of education was to help students learn and understand the symbol systems of their culture and world. In order to accomplish this, children needed opportunities to learn how to read and write in various symbolic systems. Uptis' insight into how to go about the process was invaluable to those who taught children music (Bissex, 1992).

In verification of Bissex's claims, Uptis (1992) extolled the importance of relating notations to instruments when teaching children how to notate music. Making and playing instruments was inextricably linked with natural development of music notations. "One wonders how they ever became separated in the traditional teaching practice where notation and music theory were taught in the absence of an instrument." (Uptis, 1992, p.4)

Uptis (1992) emphasized the importance of establishing a safe classroom environment for creative music making and learning where students felt that experimentation, exploration, trial and error were regarded as part of the normal learning process. Uptis offered the following: "It is important to create a classroom environment where students know they are "free to mess around with instruments, and where their compositions and notations will be appreciated, honored, and developed. This is more important than teaching notation explicitly." (Uptis, 1992,

p.4) A learning communities environment and differentiated scaffolding adapted to the students' levels of understanding the assignment made this possible.

Upitis' (1992) composing experiences with children reinforced the mindset that led to the research questions and design of the present study. "Given that the ways of knowing are complex, and embedded in the social experience, how, then, do we learn? And learn new ways of knowing?" (p. 157) In answer to these questions, Upitis gives the following: "in building knowledge, humans make extensive use of tools and symbols." (p. 157) "learning is more likely to occur at particular times and in specific contexts and circumstances." (p.157). By way of exploratory play and creation, symbols take on meaning and with the additional coupling of play and practice, symbols can become tools for musical experience in performing, improvising and composing.

Upitis' findings support the idea put forth in the present study that children's learning in symbol systems can be reinforced through creative work. Opportunities for creative play and exploration offered alongside of learning to play an instrument and a notational system helps students to learn.

Christensen

Christensen (1992) found that students' understanding in music, awareness of the metacognitive processes in composing and notating, the interrelationship between the two processes, and students' meaning making in music increased over time resultant of engaging them in collaborative creative composing projects. Christensen questioned traditional music education practices that were narrowly focused on skill development and affect without the

inclusion of teaching for the development of musical thinking in children. She sought a means whereby to engage children in music learning experiences that would allow them to create their own schematic understandings and sense making of music. Christensen used a 3-part model for teaching and learning in music that involved the components of perception, production and reflection as taken from the literature on artistry-based learning in the arts recommended by Gardner (1983). Fourth grade subjects participated in the study in the natural setting of their general music classroom.

The purpose of Christensen's study was to develop a protocol for assessing students' musical cognitive understanding: specifically, it examined what happened to students who participated in a music composition project where the students collaboratively created and performed sound compositions, invented visual representations for notating their pieces and reflected in writing and orally about themselves as musicians, about their products and their process. Christensen's descriptive field study was informed by teacher observations, student self-reports, notational sketches and portfolios. The data were analyzed according to a coding scheme from a pilot project Christensen had conducted and from data generated during the study.

The results of the study indicated that the process of composing music, which in Christensen's study involved invented notations and reflection, was a "powerful tool" for developing musical understanding and metacognition of the composing process and the students' ability to engage in collaborative learning (p. iii). From the results, Christensen argued for musical experiences that involved students in three necessary processes for optimal music learning: listening, performing, and composing.

Christensen (1992) promoted the idea that music learning must be like making music in real life. Students must have opportunities to construct their own knowledge through engagement in real life musical tasks. Composing made this possible. It gave children a more comprehensive understanding of music and opportunities to construct their own musical understanding and meaning. Composing engaged students in the musical processes of thinking and acting as musicians act to express ideas in musically ordered ways; to understand what musicians do and how they do it; in learning to pay attention to musical constructs; to hold in mind the consideration of performers and audiences during the creation of products; and in thinking musically. Reflection was a very important part of the process. She observed four stages in her students' composing process: exploration of sounds; sharing of ideas; organization of sounds into structure; and polishing and revising the product.

Christensen examined the development of musical understanding from four perspectives. Musical understanding developed through (1) the learner; (2) education; (3) composition as a learning tool; (4) assessment of understanding. She found that human development is unique for music; sequential in nature and can be accelerated through instruction and experience. Even though the child could gain some understandings by way of transmission of knowledge, direct involvement in the arts was a powerful way to development musical understanding: in particular, music composition was effective in developing musical understanding because the process involved listening, performing, creating, analyzing, evaluating, synthesizing, and an ability to draw on former knowledge. Christensen found that the child's learning involved more than just receiving. Children needed to be engaged their own sense making processes in order to develop musical thinking.

Wiggins

Wiggins (1993) conducted an action research study with fifth-grade students where she examined the musical thought processes of the children, the nature of the representation of their musical ideas, their interaction with music and their interactions with their teacher and peers. Wiggins engaged children in listening experiences in forms related to the composing tasks. She found that students' composing processes began with a holistic idea of the product followed by a composing process focused towards the resulting whole product. The process involved little random exploration. Very possibly the listening experience provided a model for the students' creative work; hence the initial holistic idea for the project. Wiggins video taped 20 classes and focused on the work of two students for data analysis.

In subsequent writing on composing, Wiggins (2007) noted the fundamental commonalities researchers have found in the composing process with children and how each researcher's model includes a recursive patterning of events. In basic terms, similar to Levi (1991) and Christensen (1992) given elsewhere in this chapter, the composing process involved a holistic idea of the product; an exploration phase to generate ideas; a development making phase; a replaying, listening and decision making phase; and finally, a reflection, revision, and polishing phase. According to Wiggins, ideas that were generated in the composing process – true to both student and professional composers – were immediately contextualized into the purposes of the whole picture, i.e., a vision of the product. When students entered into group composing, ideas that were accepted or rejected were done so in accordance with the holistic idea of the piece they had formed or negotiated through intersubjectivity: shared, unspoken

understandings of the piece. In her discussion of the way composing affects personal agency, mention is made of the effects of composing music on musical growth.

Hargreaves

The purpose of Hargreaves (1999) study was to investigate the effects of changing the mode of stimulus transformation on children's performance leading to an explanation of two issues of the Piagetian model of musical development: the implications of the sociocultural perspective, and the study of musical creativity (p. 22). Through a detailed analysis of a blues improvisation between Hargreaves and his two preschool children, he developed a concept of improvisational thinking as a key source for informal, everyday creativity.

Similar to Davis' (1999) theory of creative consciousness whereby an individual becomes aware of his capacity to be creative and learns to engage in creative thinking as a normal way of thinking and life, Hargreaves discussed improvisation as a constant and normal occurrence of everyday life and the benefits of developing abilities to improvise music as a way to develop a conscious awareness and use of improvisation. He commented on the lack of emphasis on improvisation in Western music education: a result from over emphasis on notation and performance. He suggested that improvisation might be regarded as music composition in real time; spontaneous; generated ideas on the spot but perhaps a better definition was "the process of generating new ideas in music without any censorship or editing" (29). Ideas that were refined and worked out constituted a composition.

Hargreaves viewed improvisational thinking as a source of creativity; very social in nature and ongoing in the normal interactions of daily life in which everyone engaged. Everyday creativity was a social and collaborative activity just as a conversation was a social and

collaborative activity that required ongoing improvisational thinking. He demonstrated this point in describing a family activity where he and his wife improvised a 12-bar blues song with their two preschool aged children. The social, collaborative activity involved understandings in social norms; collaborative roles of leadership and ownership adapted by the participants; and cultural framing for the activity by using the blues structural form for the activity. Thus, the importance of sociocultural context on musical development was illustrated in this example of Hargreaves' own children who are growing up in a home where they hear particular styles of music and engage in music making as a family. Even Hargreaves marveled in objective reflection on the embedded understanding of the blues form, learned through informal means, already obviously inherent in his preschoolers so that they were able to engage successfully in the family collaboration.

Hargreaves (1999) advised that music improvisation involved a balance between structure – such as the blues form employed by his family for their family enjoyment – and freedom to think arbitrarily and freely within the structures of cultural norms resultant in creative products. He felt that “the successful negotiation of this balance between constraint and freedom is at the heart of creativity” (32). He emphasized the importance of social context to creative thinking and new ways to structure learning environments that would be conducive to the social activity of improvisational thinking.

Hargreaves' (1999) findings point to an important aspect of this study. Hargreaves children were able to participate in the improvisation in 12-bar blues form because they had been exposed to it in their environment and had had nurturing to engage in the activity with periodic consistency. A sound schema for the form existed in their minds even if the verbal explanation or

description of the form would be difficult if not impossible for them to describe in traditional terms at their point in development. In school classrooms, is the exposure to cultural forms and nurturing such that children are able to enter into improvisational musical dialogues? Is the conceptual substance of the curriculum and corresponding activities such that it supports students' creative work in improvisation and composition as did Hargreaves use of the 12-bar blues form with his children? These are important questions for music education. Hargreaves' study points to the importance of nurturing both convergent and divergent thinking for musical development and creativity.

Miller

Miller (2004) found that giving her students in elementary general music classes composition assignments allowed her to observe what each of her students understood conceptually from class learning in curriculum content. Composing engaged each child in personal accountability for showing what he or she knew by way of the natural process of completing the assignment. Miller conducted an action research study where she was the teacher/researcher. As in the present research study, she had a maximum of 40 minutes per week with her students for teaching the many areas of the music curriculum. Miller found that composing assignments allowed her students to work at their own level of understanding more than any other music learning activity that was part of class studies. Through consistent composing experiences from year to year based on students' former learning experiences in music, the children were able to grow in their musical development and understanding. Miller emphasized the importance of teaching for conceptual understanding in the elements of music in order to

enable creative thinkers with tools for their work. Both sequential organization of curriculum materials and developmental stages of learners were important considerations in her design.

Miller's (2004) emphasis on sequential curricular design; considerations in children's development; the recognition for balance in nurturing both conceptual understandings and skills alongside of opportunities for creative thinking through composing and improvising; and the importance of the effects of applied creative task engagement on students' musical development and understanding support the research questions and considerations surrounding the interest and design of the present study.

Stauffer

In order to inform teaching practices, Stauffer (2001) sought to gain insight into children's musical development and cognitive thought processes by observing children during their composing sessions and examining their composed products. Participants in the study were twenty-one volunteers – six to eleven years of age, from a local elementary school. The children composed their pieces in thirty-minute sessions after school, once per week, in the university lab using a composing program for children by Subotnick (1995), *Making Music*. The program included iconic representations of sound, the capacity for several compositional strategies (augmentation, diminution, retrograde etc.) and additional functions such as copying and pasting of parts or whole pieces. The program was conducive to sound exploration, manipulation, experimentation, extension and creative music making. Children were able to compose music by drawing with the mouse. Notational understandings and performance skill on an instrument were not necessary prerequisites for composing with *Making Music*. Other than instruction in how to use the program or occasional problems that would arise, the children did not receive any

instruction in how to compose nor did they receive an assignment. A premise of the study was that children composed on their own with their own ideas and within their own levels of development when tools and resources were available to them.

During the first year of the study, Stauffer (2001) collected and transcribed data from observations, field notes, memos, video tapes and the children's work. A primary observer was assigned to each child for both consistency in field note collecting and for the children's well being. Stauffer noticed that the children progressed through stages similar to those noted by Kratus (1989) and Levi (1991) beginning with exploration followed by a development stage that might include editing, repetition and rehearsal. Both age and musical experience seemed to affect the children's ability to compose music. Experiences made with the children during the first year of the study led Stauffer to a number of questions: (1) How do children get started with their compositions? (2) What does the process of composing look like among children? (3) Do any patterns of composing develop over time? (4) What evidence is there that student composers are thinking in sound? (p. 4)

During the second year of the study Stauffer (2001) followed the composing sessions of Meg, an 8 year old third-grade child who volunteered for the program. As observed in studies on children and composing by Kratus (1989) and Webster (1987), Stauffer found that Meg began her composing session with experimenting and exploring: However, over time, the nature of Meg's exploring changed. Meg's early explorations were tool oriented rather than tune centered suggesting that familiarity with the medium possibly influenced her early creative products and the beginning stages of exploration. As Meg became more experienced with the medium, the way she began her pieces changed. She created a fragment and either changed or developed the

idea thus reflecting a process of starting a piece by concentrating on the musical aspects of sound and gesture that ultimately resulted in a finished piece. Her musical thinking process developed in another way. Through greater familiarity with the program and her process of writing and listening immediately to what she had written, Meg began to use various strategies in her composing: adding texture, altering pitches within the original idea, changing the tone color of the theme thus demonstrating a continued progression in the development to think in sound including, in time, evidence that her composing generated a priori planning and intent. This ability to plan ahead with intentionality when composing was gained through experience and was indicative of the ability to think in sound. Another indication that Meg was learning to think in sound was that Meg listened to the accumulated library of compositions she had made and generated ideas from them; applying the ideas or modifications of the ideas elsewhere in subsequent compositions.

Stauffer (2001) used inquiry as a strategy in her scaffolding techniques in order to help Meg reflect on her music and to inform herself (Stauffer) of Meg's thinking processes. Meg's intensity in her composing grew as did her success and understanding. Her success appeared to motivate her for subsequent composing. Stauffer's findings indicated that composing had an effect on her students' musical understanding and development when they were provided with enough time, the tools, and either from instruction or discovery had developed enough technical ability to support their creative work. Composing was an interactive process of time, tool and technique. Stauffer emphasized the importance of consistency in opportunity for composing within adequate time frames.

Strand

Strand (2005) developed a field tested curriculum based on transfer theories and research on children and composing in general music classrooms. The purpose of her curriculum was to facilitate transfer in learning from listening and performing to students' ability to compose in small groups. Like the present study, the curriculum included direct and indirect instruction in concepts and composing strategies. Strand gave instruction in collaborative learning as well.

As teacher-researcher for the study, Strand (2005) used action research methodology to answer the research questions in a four-part reflective teacher-researcher design: (1) plan; (2) act; (3) observe; (4) reflect. The model design was such that she was able to reflect on her findings after the teaching of a unit and make plans accordingly for the next one. Reflective analysis with expert observers – two experienced general music teachers – gave rise to more questions, subsequent research and modifications of the curriculum and teaching strategies.

Data were collected and included written lesson plans, video recordings of daily lessons, daily field notes, students' written work during the lessons, audio recordings of students' work during transfer composing tasks and their resulting products and observations from expert observers. Teacher-created data were transcribed according to a coding scheme of instructional categories; a second level of coding for each category of the first level was organized into teaching strategies. These provided a means for examining both what was taught and how it was taught. Another level of coding provided a way to examine factors in the students' composing behaviors: composing strategies; collaboration strategies; interaction with the teacher and peers; off task behavior; rehearsal. Strand's goal was to "teach for [positive vertical highroad transfer] in which the students would intentionally seek novel opportunities to correctly transfer concepts

to transfer composing tasks” (p. 20). Additional goals resultant of the first were to teach for students’ ultimate independent uses of their experience i.e., that they would develop the ability to make creative decisions based on what they had learned during the instruction.

In her literature review on transfer learning, Strand (2005) found three conditions that had to be met for successful transfer: (1) students had to have adequate conceptual understanding derived from their learning (students should be able to define and describe the characteristics of concepts such as meter) Direct and guided discovery instruction strategies were suggested in the literature for teaching concepts. (2) students must have acquired strategies to accomplish tasks; (3) the instructional environment must be conducive to high road transfer.

Similar to her findings in the literature, Strand (2005) found that in order to facilitate students’ understandings in the composing process, developmental considerations, modeling, direct instruction and sometimes lecture were beneficial ways to give students foundational understanding in the concepts they would need for composing. Guided instruction through inquiry and problem solving tasks facilitated by a learning communities environment were important ingredients for facilitating students’ success. Strand found that her students were not able to immediately reflect on their composing experiences. They needed to be taught how to articulate their feelings and encouraged to compose. Strand came up with a list of procedures that were involved in composing and posted it in the classroom. Procedures were grouped into three categories: (1) a coming up with ideas category; (2) revising category; and (3) working together category. Like Younker (1997) and Stauffer (2001) Strand used inquiry to help her students generate ideas and to work through composing blocks. She found that task repetition became an important ingredient in her students’ successful ability to compose. Strand also found that

students were able to revise their pieces and used transfer after she gave them instruction in how to revise a piece. Likewise, they gained in their ability to engage in cooperative work after a session on cooperative learning. Before Strand gave instruction to her students in composing, revision, and group cooperation, she found little evidence of transfer of concepts from the first week of instruction to the second week. After the instruction, students made “high road” transfers: the students were able to transcend the learning they had received and Strand saw evidence of transfer in their products. Strand encouraged the students’ ability to make transfer of concepts where she saw evidence of this and found that the students’ work informed her ability to plan what should be taught next.

Strand (2005) analyzed the data for emerging trends. Her findings supported the literature that instruction in concepts, the composing process and collaborative learning is very important to successful composing with children in classrooms.

Strand (2005) found that her students’ success in concept transfer was dependent on both direct instruction and guided discovery strategies of teaching. Teaching the children how to compose rather than just taking them through the steps of the process allowed the students to make high road transfers from their performing and listening experiences and former composing experiences to new compositions. The students’ progress in collaborative learning supported a plan for use with potential new classes of students.

Strand’s (2005) findings are important to the present study in several ways. While not specifically stated in the research questions of the present study however stated in Chapter I is the idea of providing students with a balance of learning activities in the general music classroom: some that foster convergent kinds of knowledge through direct instruction in the

learning of concepts and curriculum content and those that foster the interplay of divergent and convergent thinking through opportunities to apply learnings in creative ways such as are necessary in the composing process. In the present study, the idea of balance applies in both the larger curriculum design and to the component of the curriculum that is composing.

Ultimately, Strand (2005) advised that action-research, empirical studies that examine the effects of particular strategies on positive and high road transfer are necessary in the profession. This study is an empirical study with a similar purpose to Strand's. Students' ability to transfer knowledge to new situations is an important part of learning and understanding. The composing process facilitated students' learning but as in Christensen's findings, Strand found that direct instruction in how to go about the composing process facilitated students ability to transfer their understandings to new contexts.

Davies

Davies (2005) examined the musical processes of a three-member rock band, their roles within the group, and considered how they constructed musical meaning. She found ensuing musical growth to be one of the most salient features of the young men's ongoing collaborative engagement in a rock band. She also found that musical enculturation played a prominent role in the compositional development of the young musicians. The rock band members came to the experience with a mental sound library derived from their culture: stored information about song structures that had become a part of their rock musicians' musical understandings that served to generate ideas for new songs. Similar to Wiggins' students who composed music related to listening experiences in various musical forms, the rock musicians' creations of songs based on songs they had heard previously provided compositional building blocks for future original

songs. In the collaborative environment of the rock band, Davis wrote that members of rock bands were often simultaneously engaged in the roles of composer, arranger, performer, teacher, creator and learner.

Data were collected in the naturalistic settings of the band members' homes. By means of video and audio recorders, Davis (2005) collected data from the initial first rehearsal of the group until the time of their first gig. Field notes with detailed description of the environment were collected as well as data from a combined interview of the group upon completion of the observation period. Davis also kept a personal, reflective log. Triangulation for trustworthiness and credibility resulted from the multiple data sources. All video and audio data were transcribed by the researcher; transcripts from these, field notes and other transcripts from data sources were analyzed for emergent themes. Selected video clips were made into movie excerpts using the iMovie software and Davis shared these with the group in order to facilitate question and answer sessions.

After an initial jam session to generate ideas on a new song, Davis found the rehearsals to consist of "rich peer teaching and collaboration" (p. 10). All members seemed to share a holistic picture of the end product in their decision making process of the song they were composing.

Davis (2005) realized from her experience that the "most salient findings that emerged from this study lay at the intersections of musical growth, musical enculturation, and musical meaning. She further realized the rich understandings that occur from playing and learning music by ear. While she appreciated the merits of being able to read music in Western notation, her experience made her realize that perhaps too much emphasis was placed on the learning of formal notation in music education settings: there were other ways to experience music that

could be of value to students and the public at large that could receive emphasis in schools. Educators needed to find ways to bring the feelings of ownership and passion into formal music learning in the schools.

The Effects of Applied Improvisation and/or Composing on Learning: Quantitative Studies

Hickey

Hickey (1995) conducted a study in which she examined the processes and products of children's composing efforts employing a mixed method research design. While the purpose of her study was not to determine whether composing music had an effect on learning and performing in music, she reported that students gained in music learning from the experience and that students with a larger experience in performance did not necessarily perform better on composing tasks than children with less experience.

Hickey (1995) employed quantitative and qualitative methods in both data collection and in analyzing the relationship between creative musical thought processes of children and the creative craftsmanship qualities of their compositions (p. 84). Webster's *Measures of Creative Thinking in Music II* and a researcher-constructed computer program *Music Mania* were used to collect data. The *Musicshop* sequencing program was used to analyze quantifiable data. Qualitative analyses "consisted of subjective description of the aural and visual MIDI data based on inductive inquiry" (Hickey, 1995, p. 107). The MIDI data files were comprised of students' original work with the *Music Mania* program generated while working in the three sections of the program: an Introduction stage of generation, an Exploration stage and a Composition stage.

Hickey's (1995) mixed method approach included the examination of possible connections between students' thought processes and resulting products with other aspects of the children's musical and creative ability.

Hickey (1995) found that the use of combined data analyses yielded rich information that would not have been possible if either method had been used singly. The qualitative profiles of both the high creative and high craftsmanship groups in her study looked similar but the quantitative profiles did not. The quantitative results showed a similarity on some of the process variables between the high and low groups: the low craftsmanship group looked similar to the high creativity groups in behaviors that demonstrated flexibility and fluency in composing.

McPherson

In this study, McPherson (1999) administered a self-report questionnaire to 190 pianists before they undertook a graded performance test. He wanted to see if there were correlations between the quality of practice and anxiety felt before entering the exam. He also examined various types of cognitive engagement students used in practicing, how this affected both their success as players and their motivation to practice. McPherson found that students who engaged in high amounts of both formal (exercises, technique, etc.) and informal (improvisation, playing by ear, etc.) led to greater success in playing ability. Furthermore, those who engaged in informal practicing had more success with retention and motivation to practice. The highest achieving students were able to find the right balance between disciplined formal practice and the freedom of informal practice activities. Students who spent more time in formal practice habits tended to have higher anxiety before the exam than the students who incorporated freer, creative activities into their practice routine.

Creative work, in this case improvisation, had a positive effect on McPherson's (1999) students' learning. His findings are important to the present study and have implications for both private teaching and teaching of performance driven ensembles.

Azzara

Azzara (1993) investigated the effect of improvisation study on the music achievement of fifth-grade wind and percussion students, and the effects of various levels of aptitude on the music achievement of the same group of students. Sixty-six students who received instruction with emphasis on improvisation were able to outperform students who did not receive the instruction in improvisation.

Azzara (1993) hypothesized that since improvisation was a manifestation of acquired thinking skills – musical thinking, and skills in the ability to express musical thoughts and ideas, that to teach students to improvise music would result in increased ability to mentally manipulate the structures of music with purpose and meaning. Azzara sought to determine if the effects of improvisation study would have an effect on students' music achievement in music reading and the effects of different levels of aptitude on the music reading performance achievement of fifth-grade instrumental music students who received improvisation study as part of the instrumental music instruction.

At the onset of the study, all of the students received the Gordon (1988) Musical Aptitude Profile as a measure of musical aptitude. From the results of the MAP, students were grouped into three groups: high, moderate and low aptitude students and randomly assigned to an experimental or control group. Homogeneous instrumental groups were established as subset groups from the two experimental groups. The students were taught in groups of 3-7 children and

received one 30-minute class of instruction per week. In addition, all of the children had one ensemble class per week. At the onset of the study, the children had had one year of instruction in instrumental music.

At the conclusion of the study, each student's achievement was measured by their individual performances on three etudes written by the researcher. The teacher-researcher recorded the students' performance exams on audiotape for subsequent evaluations by four, university, music-student judges who independently evaluated the students' performance recordings. The judges were familiar with the kind of rating scale used to measure the students' performances. On the recordings, the students were identified by number. The rating scale was comprised of three 5-point continuous criteria dimensions: one for tonal, one for rhythmic and a third for expression to measure the student's playing ability on the etudes created by the researcher. A description of the etudes follows: (1) a piece prepared by the student (2) a piece prepared by the student with the help of the teacher; (3) a piece that was sight read. Two pilot studies were conducted to test the interjudge reliability of the measure. Modifications to the measure were made according to the results of the pilot studies.

Two elementary schools, two teachers and a total of 66 students participated in the study. Each school had an experimental group and a control group. The data were analyzed for teacher effect. To control for teacher effect, each teacher taught both an experimental and a control group. The teachers compared in teaching experience and the researcher engaged the teachers in joint preparatory sessions for implementing and teaching the improvisation curriculum. Both the control and the experimental group received instruction with identical materials. Instructional methods were also replicated as identically as possible. However, the experimental group

improvised for 10-15 minutes of their 30-minute weekly group lesson designed by the researcher. They also received a follow up cassette tape in improvising related to the instructional materials they received in class for the purposes of reinforcing their learning in improvisation. Over the 27 week study, 16 lessons in improvisation were completed by the experimental groups.

Interjudge reliability among the four independent judges was determined for each of the instrumental achievement dimensions of the rating scale by the alpha factor analysis (Cronbach's alpha). A two-dimensional treatment by levels design (improvisation and aptitude) was used to determine how type of instrumental instruction and music aptitude contributed to instrumental music achievement between fifth-grade students. Group mean differences of measured performance for students in the three aptitude groupings who received two different types of instruction were analyzed using a two-way analysis of variance procedure (Azzara, 1993, p. 337). Among the results of the study, no significant interaction was found between type of instruction and level of music aptitude. There was a main effect for both type of instruction and for music aptitude. Students who received the improvisation instruction were found to have significantly higher composite performance scores for Etude #2 (teacher assisted in the learning) and Etude #3 (sight read) than the students in the control groups. Azzara concluded that the initial findings from this study suggest that improvising had a positive effect on students' ability to sight read and perform music.

Azzara's (1993) study is similar to the present study in a number of ways and the results of his study, that improvisation did have a positive effect on students' learning, answer research questions one and two in the affirmative. One important difference between Azzara's study and

the present is the variable of the follow up cassette tape. While the procedure for the two studies was similar, in the present study the experimental and control groups had the same amount of time for class. In order to control for ability levels of playing and sight-reading that could result if the students were unequal in the amount of practice time they made, the recorders were kept at school and no extra help was given to students outside of class in either group. Another difference was that for the present study, students were not grouped homogeneously but heterogeneously and all statistical procedures and analyses were resultant of the heterogeneous grouping.

Summary of Findings

Many themes emerge from the studies presented here. The researchers generally found improvising and/or composing to have an effect on students' learning in a very positive way. Most found composition to be a powerful tool in the development of musical understanding and learning in music.

Other emergent themes from the studies presented in Chapter III that are relevant to the present study were as follows:

- all children are capable of engagement in creative work and composing
- children are able to compose on their own without guidance
- children's engagement in composing tasks and the quality of their products can be effected by teaching them how to compose, i.e., composing strategies that are part of the process of composing

- age and experience affect the way children compose and notate their compositions
- children should experience sound before engagement in symbol making to represent sound
- familiarity with the composing medium might affect students ability to compose and the quality of their products
- the learning environment, flexibility in assigned tasks, time constraints and scaffolding strategies all effect the composing process with children in classroom settings
- teaching moments can be derived from the students' work to move their learning forward
- convergent knowledge provides conceptual tools that aid children in their composing efforts
- composing experiences engage children in interactive recursive cycles of the composing process that involves the interplay of convergent and divergent thinking

Chapter IV follows with a description of the methodology for the present study.

CHAPTER IV

METHODOLOGY

This study examined the effectiveness of creative-based activities on music learning and the development of skills when students were given opportunities to apply, in creative ways, what they were taught through teacher-directed classroom instruction and activities. The purpose of this study was to determine whether certain strategies of teaching fifth-grade general music that incorporate music improvisation and composition into the curriculum as assignments related to and reinforcing of curriculum content would have an effect on: (1) the level of quality in playing the soprano recorder (including sight-reading traditional music notation); and (2) the recognition and understanding of applied functions of signs and symbols as found in Western musical practices. The following questions were posed:

1. Is there is a significant difference in scores on a measure of sight-reading music notation between a group of fifth-grade students who have experienced the embedding of improvisation and composition experiences in instruction versus another group of fifth grade students who have experienced the embedding of more traditional, practice-based experiences?
2. Is there a difference in scores on a measure of soprano recorder playing ability on a prepared piece between these two classes?
3. Is there a difference in scores on a researcher-designed measure of written music understanding as found in Western music practices between these two classes?

After a brief discussion on the importance of quantitative research for this topic, the chapter begins with a discussion of a pilot study conducted in order to test the viability of the materials and approach to instruction for the main study. Although based on the same purpose and method, the design and statistical procedures were similar but not an exact replication of the

main study. A description of the statistical procedures used for the two studies precedes the account of the studies.

After the pilot study is presented and an account of what was learned from it, a description of the sample and subjects of the main study follows. Also included is an explanation of the research site, the selection process of the sample, and a description of the research protocol, procedure, data collection, and, data analysis for the present study.

A Quantitative Paradigm

Many researchers today are interested in the middle ground between scientific and interpretive models of inquiry as they see studies in culture and education increasingly hybrid in nature (Page, 2000). While educators might find qualitative results more meaningful and applicable to teaching, quantitative evidence is more directly related to the dollars and cents of running schools. Both qualitative and quantitative research methods are needed in music education (Reimer, 2006). In recent years, qualitative studies outnumber quantitative studies in music education research because they are related to musical outcomes and instructional validity (Colwell, 2006).

Quantitative data and results are also important for teachers. Quantitative measures have come under much criticism due to the aesthetic and multifaceted natures of music and music education. However, numbers add precision to the study of phenomena and are useful in answering specific questions. Quantitative data are often more closely related to issues of assessment and program evaluation. In the current educational climate with emphasis on standards, it is the quantitative data, the test scores, graduation rates, number of participants, and

so on that influence change (Asmus & Rodocy, 2006; Colwell, 2006). Bresler and Stake (2006) find a need for both quantitative and qualitative research in music education as questions can be investigated in a number of ways. “In music education, we have need for formal generalizations and need for experiential understandings of particular situations. We need high quality research, both quantitative and qualitative.” (Bresler and Stake, 2006, p. 278)

In this study, three evaluation tools were designed in order to place a dependent variable measurement on the extent of student learning: a sight-reading measurement for soprano recorder, a playing measure for soprano recorder, and a measurement of written music understanding (theory). The three tools were reflective of the curriculum content the students received during instruction. A post-study questionnaire of closed and open-ended questions that required a written response was given to the students to attain some idea of the students’ attitudes and feelings about their learning during the study. The post-study questionnaire was not part of the statistical analysis or results to answer the research questions however the results are recorded in Appendix O.

As discussed in the opening chapters, researchers have examined several issues regarding composing with children through qualitative or mixed methods of inquiry. In addition to those already discussed, in another place Gromko (2003) wrote of using meta-narratives for insight into student learning. According to Gromko, it is easy to assume that students are learning when they perform particular tasks. Meta-narratives give researchers and teachers a better idea of students’ learning; where there might be misconceptions or where they might be missing information that is important to their understanding. Gromko also saw composing with children

as a means to embrace diversity. Children were given freedom to express themselves through invented symbolic systems that reflect their own experiences and cultural past.

Stauffer (2003) observed children composing and examined evidences of children's identity and voice as found in their compositions and Moorhead and Pond (1941, 1942, 1944, 1951/1978) observed children's natural musical development through manipulations of sounds found in their environment and collaborative, creative music making during the social interactions of their day-care environment. Hickey (1995) and Smith (2004) examined the processes and products of composing with children and the influences of task design on creative thinking and creative products. Burnard (2000) examined how children ascribe meaning to their improvising and composing and Miller (2004) wrote qualitatively on the design of compositional tasks for elementary classrooms and students' learning when composing was nurtured along with the acquisition of formal skills and understanding.

Few researchers, however, other than Azzara (1993) have conducted experimental studies that examine the effectiveness of creative work such as improvising and composing on student learning and skill development. Quantified results from experimental research are needed to support the many qualitative findings of past researchers (Burnard, 2000; Chistensen, 1992; Davis, 2005; Gromko, 1996; Levi, 1991; Miller, 2004; Stauffer, 2001; Strand, 2005; Wiggins, 1993). This research sought to add support to the body of qualitative research on composing and learning in music through quantitative findings.

Pilot Study

In preparation for the main study, a pilot study was conducted to test the viability of the instructional procedures and materials. The pilot study sought to determine whether methods of teaching that incorporate creative application in the learning of concepts had an effect on learning and attitude. Specifically, the pilot study addressed the following research question: Does creative application of music theory and recorder playing have an effect on students' attitudes about recorder playing and learning of music theory? Two null hypotheses were posed for the pilot study.

#1 There will be no difference in learning between groups when one receives an independent treatment variable of creative application of learning.

#2 There will be no difference in attitude between groups when one receives an independent treatment variable of creative application of learning.

The definitions of terms described in Chapter One applied to the pilot work.

Procedure of Pilot Study

Forty third-grade children, twenty per class, drawn from a suburban public elementary school north of Chicago, Illinois were the subjects for the pilot study. A five-point rating scale designed with graphic representations of facial expressions was used as a pretest and posttest for the dependent measure of attitude. Word descriptions were written underneath the corresponding facial expression: very, very much; very much; O.K.; not much; and, do not like. The attitude score was computed by assigning values, 5 to 1, to the chosen points on the scale. The scale was designed to determine individual student attitudes about recorder playing before and after the study. A test of written music understanding (theory) comprised of thirty-five beginning music

notation signs, symbols and expressive markings important to music reading was given to the children on the first and last days of the study.⁵ These measures were used as dependent variables in the pilot.

The two classes received the same instruction in recorder playing, music reading and learning of signs and symbols taught by the researcher. One class (the experimental class) received opportunities for creative application of what they were learning: improvised playing using newly learned tones/notes and fingerings on the soprano recorder; music composition assignments using newly learned notes and notational signs and symbols; sight-reading and playing of each others pieces. The control group received the same amount of instruction time as the experimental group; however, instead of receiving opportunities to creatively apply what they were learning, they reinforced their learning in the same manner as they had learned it: by practicing teacher-created notated exercises and pieces that contained the new notes and fingerings; by modeling the teacher in the practicing of fingerings on the soprano recorder; and by visual and verbal identification of notational signs and symbols. The posttest for musical understanding was given on the last day of the experiment. Data were collected from the students during their regular class time on the first (pretest) and sixth (posttest) days of the experiment.

Results of the Pilot Study

A two-way analysis of variance for repeated measures was used to test the two null hypotheses. The creative application was the independent variable in the analysis and the dependent measures of analyses were the scores of the pretests and posttests. The alpha level was set *a priori* at .05. Results showed a significant difference in favor of the experimental group for

⁵ The identical theory test was used to measure written music understanding in the main study.

the music theory dependent variable. A similar analysis for the attitude measure did not show a significant difference.

Discussion of the Pilot

The results indicated that improvement in music theory was significant in both the control and the experimental group however the experimental group's gain was greater than the control group's. On the theory pretest, the experimental group had scored lower than the control group but on the posttest the experimental group scored higher than the control group. In attitude, there was not a significant statistical difference between the two groups. Therefore, the first null hypothesis of the study/experiment was rejected and the second null hypothesis was not rejected. Many of the students in both groups had responded on the pretest with positive levels of attitude. On the posttest, they responded in the same way. Therefore, it was not possible to measure whether or not their attitude had improved only that it had not decreased.

These results seemed to indicate that engaging students in creative learning activities, especially those of improvisation and composition, had a greater effect on learning than did the more traditional approach to teaching the same material. Since the rating scale was ineffective in measuring students' attitudes, it was determined that in subsequent studies a different measure of attitude was necessary. For example, in the design of the main study, it was decided to only evaluate attitude informally as part of the final debriefing with students and not make it part of the main research questions.

In order to gain additional understanding into the subjects' and teachers' experiences during the study and to keep track of how much curriculum content was covered in each class on a daily basis, the researcher kept a log of classroom activities, students' behaviors, questions,

comments, difficulties, and responses to assignments that arose during the teaching. Charts were made for clear tracking of specific learning tasks accomplished by either group to facilitate comparisons in a visual way. The researcher, in the role of a participant observer/teacher, engaged in short conversations with the classroom teachers regarding students' reported reactions to the music classes. The researcher and school music teacher had short, daily, reflective conversations regarding the teaching and learning that had transpired during the classes. Interactions with the teachers were periodic. At the completion of the study, the researcher and school music teacher met for the purpose of reflection, discussion, and for the researcher to obtain an assessment of the effectiveness of the study from the school music teacher's point of view. The school music teacher assisted with the musical activities and was an observer to the study. The teacher/researcher returned to the site after completion of the study for a sharing performance initiated and requested by the students in which the two classes that participated in the study performed for each other and together. The researcher also examined the compositions generated by the students. All of these measures gave the researcher a more comprehensive view of the study and ideas for future research: including the main study.

Pilot Study Summary

The results of the pilot study indicated that incorporating creative learning activities into the curriculum, especially those of improvisation and composition, had as much if not more of an effect on students' learning as did an approach to the curriculum that did not include composition and improvisation. In the pilot study, the experimental group showed a more significant gain in learning than did the control group that followed up their learning with practicing. Since the students in both groups had a positive reaction to their class studies it was not possible to

determine what affected the students' attitudes. None of the children in the two groups had had any studies in recorder playing and music notation in school so they could have been enthused because the activities were new. The opportunities to play and perform their music for each other and the aesthetic enjoyment derived from the ensemble music experience could have affected the children. The enthusiasm of the researcher and school music teacher over the activities and shared music making in both classes most likely had an affect on all the children. As would be normally the case in any classroom, the researcher made an effort to make class learning as enjoyable and meaningful as possible for the children in both groups. With these variables in mind, the researcher determined that if a measure of attitude was used in future research studies, a different measure of attitude was necessary: one that would control ambiguity and yield a clearer indication of attitude. Since the children in both groups were engaged in learning to play the recorder, learning to play new pieces, and sight-reading new pieces each day – although the sight-reading in the experimental group was comprised of the pieces the students had composed, not pre-created pieces as was the case in the control group – it was determined that in addition to the evaluation of the students' written understanding of music theory, playing and sight-reading evaluations would be given to the students in the main study. The results of such a study would possibly yield important implications for music education as music teachers are often concerned that performance skills and other areas of the music curriculum will suffer if time is taken for composing and improvising (Strand, 2006).

Another factor in the design of the main study that received much consideration was the decision of teaching approaches to employ with the two groups. In order to control for extraneous variables, it was determined that a strict adherence to teacher-directed instruction in

delivery of curriculum content be given in as much the same way as possible to the two groups in the main study and a strict adherence to each respective approach for the follow up to delivery of curriculum content. During the pilot study, creative teaching strategies were part of all activities in the experimental group and no creative teaching or learning strategies were employed for the control group.

The identical curriculum materials were used for the pilot study as for the main study. This was possible because the curriculum materials were designed for beginners in soprano recorder playing and music reading in Western music notation. Although different in age, the children in both studies were beginners in these areas of music education. How the content was taught was according to age appropriateness. The children in the pilot study completed two lessons and part of Lesson 3. The children in the main study completed six lessons.

Main Study Design

Description and Selection of Subjects

During the summer of 2007, an application to obtain human subjects research was submitted to the Northwestern University Institutional Review Board, Office for the Protection of Research Subjects in Evanston, Illinois (IRB). Permission to conduct research was granted in August. During the spring of 2007, permission for the study, dependent upon approval from the IRB at Northwestern University, was obtained from the principal of a parochial, K-8th elementary school to pursue the project and necessary procedures for implementation in the fall

of 2007. After approval from the Northwestern University IRB, the necessary documents were obtained from the school principal to conduct research in the fall of 2007.

Setting and Participants

The school where the study was conducted was a K-8 private school in one of the farthest outlying suburbs of Chicago. The school is part of a greater Illinois district serving an area of approximately 40,000 people. Although the economic majority of the area is upper middle class, all of the schools including the research site have socioeconomic mixed populations. More than 95% of the adults in this area have obtained a high school degree: 53.7 % a Bachelor's degree. The single parent household percentage is 5.5% and the average age group for the area is 20-44 years old. The community is predominately white; 0.8% Black; 5.4% Hispanic; 4.8% Asian/Pacific Islander. All schools in the district score above the educational national averages on standardized tests.⁶

The school population of the research site is approximately 500 students. In the elementary school, approximately 70% of the students are White and 30% are students of color. In the middle school, the percentages are 97% white and 3% students of color. Religious education, family, country, community and school values are taught. The majority of the classes are 25-30 students in size. The school received a "No Child Left Behind Blue Ribbon Award" during the fall of 2007. Academics are a high priority. Arts classes are offered twice a week for 40 minutes through fourth grade and 40 minutes once per week beginning in fifth-grade. The Spanish language is taught to all children.

⁶ The information on percentages for the school was obtained from the school district's website

There is a feeling of community and pride demonstrated by many of the students and families. Many parents help out at the school after undergoing a strict background check and mandatory workshop and training in the protection of children. The value of education is highly regarded by the administration, staff, faculty, parents and students.

The subjects were two intact, heterogeneously grouped classes of fifth-grade students (24 students in one class and 22 students in the other class). One of the classes was randomly selected as the control. The children who participated in the study were enthusiastic about the project: they demonstrated varied academic and musical ability. According to school scheduling and curriculum planning, the children had had general music class twice a week through their fourth-grade year. Curricular emphasis had been placed on development of the singing voice and musical ear. Prior to the study, the children's music class studies had not included learning Western music notation. The students had many rote singing experiences in their background in which they had experienced a variety of melodic and rhythmic patterns, songs, as well as music listening experiences in a variety of musical styles. Their age and past musical experiences made them likely candidates for learning the primary music notation system of their culture.

The size of the group was also a determining factor as space was a consideration for the number of students involved in composing at one time. While the classroom could have accommodated up to thirty children sitting in rows of chairs, twenty-three or four students per class was better for working in pairs or groups during the composing activities; for movement within the space when children circulated in order to play and share their finished pieces with peers and teachers in the room; and there was less build up of sound when many students were simultaneously improvising and experimenting with patterns and phrases to compose their

pieces. The fifth-grade classes were smaller in size than the third or fourth grade classes at the school.

The final consideration during the planning of the research study and search for a site came from the former school music teacher who had suggested that the then fourth graders, who later comprised the two classes of fifth-graders for the study, be given the opportunity to learn Western music reading and soprano recorder playing as they had not had any studies in this area in school. The soprano recorder was chosen as the instructional instrument as it is easy to learn how to play the instrument; it is economical when purchasing for groups; it has flexibility for playing and creating melody pieces in numerous styles; it is an easy instrument to incorporate into class ensemble singing and; it works well for adjusting to students' playing and creating abilities by way of differentiated teaching strategies.

Procedure Details

Prior to the onset of the study, the following documents were prepared in accordance with the Institutional Review Board at Northwestern University in Evanston, Illinois:

A letter of authorization to the principal of the school to conduct research (Appendix D)

Student letter and consent form (Appendix E)

Letter to Parents (Appendix F)

Research procedure and parent consent form (Appendix G)

After the initial meeting and discussion with the principal as to the purpose and procedure of the research, a letter of authorization was sent to and signed by the principal. In order for the children to become accustomed to the researcher before the research began, the researcher visited each class (group) in the study and taught lessons in solfège, singing, listening and historical

background of recorder instruments however nothing related to the curriculum content in music reading, playing, theory or composing for the upcoming research study was introduced. The instruction for the introductory lessons was the same for the two groups. The introduction lessons were possible because the principal and school music teacher approved of the plan. During the preliminary days of the study, the researcher read the student letter and consent form aloud to the students and gave them the opportunity to ask questions. Letters with the description of the research protocol and procedure and a consent form were sent to parents, signed and returned before the onset of the study.

The instructional portion of study was conducted for eighteen weeks – a total of eighteen class sessions per class. In order to ensure similarity in musical aptitude across subjects, a musical aptitude measure – the *Intermediate Measures of Music Audiation* (IMMA) by Edwin Gordon was given to all the students during the music class prior to the first day of instruction. A written questionnaire regarding each student's background in private music studies and ensemble experience was also given prior to the first day of instruction (See Appendix H). The results showed that the groups were equivalent in music aptitude and background experience. This is reflected in Table IV-1.

Table IV-1

Gordon IMMA Scores

Gordon IMMA	Experimental Group				Control Group			
	Mean	STD	Mode	Median	Mean	STD	Mode	Median
Raw Score	71.50	3.27	72	72	71.80	3.09	74	72

Table IV-2

Prior Experience in Music Instruction Outside of General Music Class

Prior Experience	Experimental Group				Control Group			
	None	0-1 yr	1-3 yrs	3+ yrs	None	0-1 yr	1-3 yrs	3+ yrs
Private Instrument	5	8	8	3	5	6	8	3
Chorus	10	4	8	2	13	2	5	2
Band	15	8	1	0	12	10	0	0
Orchestra	24	0	0	0	22	0	0	0

Out of the 46 subjects in the study, one child in each class had previously received instruction in soprano recorder playing. One child in the control group left the school in the early days of the study. Three transfer students were added to the control group's class activities during the second half of the study but not to the research protocol and data collection for the research. The transfer students were blended into class activities as they would have been under normal circumstances. The children were given the option to participate in the evaluations at the end of the study but the results were not collected and recorded as data.

After distribution of the recorders on the first day of class in each of the respective groups, the recorders were kept in large containers in the classroom. The children knew they were to find their recorder in the container (the recorder cases had their names on them in large black print) as soon as they arrived for class. They could warm up on their instruments on their own until everyone had arrived. Pairs of children shared a textbook and music stand. The

experimental group was given trays, pencils and paper for notating their compositions. When the assignment required students to notate on the staff, staff paper was provided.

Curriculum Content

The curriculum content for both groups and the creative, applied assignments for the experimental group were determined before the first day of instruction and were based on a researcher-created text (Guderian, 2002; 2007). The first six lessons or chapters of the text were the instructional materials/curricular content for both groups. For the experimental group, improvisation activities preceded composition assignments as related to class studies. The assignments in music composition and creative application of learning were an outgrowth of the curriculum content given in varied levels of structure and open-endedness. The instructional approach and content are described later in this chapter. The curriculum content is given in Appendix N. In general terms, the students learned the following.

- 1) 35 symbols found in Western music notation
- 2) Instruction in music reading in Western notation
- 3) 11 theoretical musical concepts
- 4) Instruction in soprano recorder playing encompassing the learning of fingerings for tones in one octave (beginning on middle C and ascending) plus three notes and their corresponding note symbols on the staff
- 5) 6 note values
- 6) 24 soprano recorder pieces with piano accompaniment in support of the notes, note values and concepts learned
- 7) Technique in soprano recorder playing

Teacher/Researcher and Teachers Working Together

In order to control for style of teaching variables, the researcher taught all of the classes. The regular school music teacher was in the room and assisted in room set up, video taping, distribution of instruments, children's needs outside of class activities, and sometimes as accompanist for the recorder and piano ensemble pieces. The school music teacher and the researcher engaged in planning sessions preceding classes, and reflective discussions after the teaching. Email dialogue was ongoing to make sure things ran smoothly. A friendly, mutually-helpful relationship developed between the two teachers and many conversations pertinent to music education outside of the discussion of the research study were also ongoing. Before each class, the researcher sent an email to the school music teacher with plans and a list of the equipment and materials that they would need for the upcoming classes' activities. An email example is given below.

Hi __ (School Music Specialist) __,

Plans for tomorrow:

I will arrive at about 9:40 to set up the room and to make copies of the staff paper for next week.

The kids will need:

Stands (one per two children)
Recorder books (one per two children)
Recorders
One sheet of plain (not staff) paper
Pencils

We will review everything we learned last week:

How to correctly hold the recorder and blow into the recorder
The fingerings for notes G, A, and B
Half notes and quarter notes
The pieces we learned in Lesson One

Both classes will finish Lesson One this week. There is one more piece to learn. The Bs will then engage in their first composing assignment tomorrow as applied creative follow up to Lesson One. On Friday, the As will follow up Lesson One by practicing all of the pieces in the lesson. If time allows, they will learn one or two new pieces that are at the very same level as the others in Lesson One.

See you soon!

Lois

The two fifth-grade classroom teachers were extremely flexible and supportive during the study. On a few occasions such as vacation days, school assemblies or other special events at the school, the occasion occurred on the one day of the week each respective class had music class. One group had class on Wednesday and the other group on Friday. In order to keep the students in the two classes at as near the same point in the curriculum as possible for the linear teaching, the fifth-grade teachers adjusted their schedules so the children could have music class in their regular classroom on a different day of the week. On a few occasions the teachers met with the researcher in order to work out evaluation schedules and other matters that would affect the schedule.

The members of the staff and administration at the school were also very helpful in order to assist a smooth running experimental design and control for as few extraneous variables as possible.

Treatment Conditions/Curriculum

All the children in both classes received classroom instruction in playing the soprano recorder and Western music reading and notation. The instructional materials were created and taught by the researcher. It was determined that the children in both groups would be taught during their usual music class time of 40 minutes, one time per week, for the full length of the

class each week as the school schedule allowed. The groups received the same style of instruction during the presentation and following activities of curriculum content for the study. Teaching style and curriculum content were determined prior to the onset of the study.

Both groups received instruction in the same concepts, recorder learning and playing, and musical pieces in support of these. The teacher/researcher delivered the aforementioned curriculum content to the two groups in an identical teaching strategy – whole group and linear – in as much the same way as possible. Curriculum content included: (a) learning the fingerings for tones on the soprano recorder and eventually the corresponding note name and symbol on the staff; (b) technique for recorder playing; (c) echo phrases played on the soprano recorder in which the students modeled the musical phrase played by the researcher; (d) learning of note values; (e) pieces for recorder playing that reinforced the new concepts and new tones/notes learned; (f) ensemble pieces for recorder playing that included piano accompaniment and sometimes singing and a second recorder part; and (g) signs and symbols in the Western music notation system. This content was delivered in a linear way to both classes usually during the first half of each weekly scheduled class. Without notation, a question and answer echo phrase activity followed the learning of fingerings for tones on the recorder and was the warm-up and review activity at the start of each class as well. In addition to the echo phrase activity given to both groups, the experimental group was given the opportunity to improvise music question and answer phrases. The researcher played a “question” and the children in the experimental group improvised (created) an answer. The curriculum content and format for the six lessons covered by both groups during the study is given in Appendix N. For the most part, the order of teaching and learning events was the same, i.e., the children began the class with: (1) a short warm up on

the recorder and review of recently learned concepts and previously learned pieces; (2) technique for recorder playing and learning of new fingerings for tones; (3) introduction of new musical concepts and notes; (4) the learning of new pieces. A description of how the curriculum was implemented and how the children were taught is given in the following sections. The assignment section of the curriculum was completed as review during class time: usually the following class. The students were not given an assignment outside of the 40 minute class they had at school.

Control Group Tasks

The students in the control group reinforced their learnings by repeated practicing of what they had learned. After each new segment of curricular content was delivered through instruction and engagement in learning activities, the control group reinforced their learning through drill and practice techniques common to music education practices. These included whole group practicing of newly learned pieces 2-4 times each; sight-reading and learning of new pieces that reinforced the same level of playing as the pieces that both groups had already learned; additional echo phrase playing with the teacher; occasional split-group performances or a solo performance; reinforcement of music signs and symbols through verbal questions and answers. As in the pilot study, students reinforced their learning in the same manner as they learned it, i.e., by practicing teacher-created notated exercises and pieces that contained the new notes and fingerings; by modeling the teacher in the practicing of fingerings on the soprano recorder; and by visual and verbal identification of notational signs and symbols. Thus, the control group further reinforced the concepts learned by reviewing and practicing the literature they had already learned and sometimes new pieces – not given to the experimental group – that

required identical knowledge and acquired level of skills, i.e., the new pieces reinforced the concepts and skills learned in previous classes during the study.

In subsequent classes after the study was completed, the researcher introduced composing to the control group so that the children could also have the opportunity to compose music.

Experimental Group Tasks

After the students received the linear style instruction in curriculum content and engagement in learning activities, the experimental group was given assignments in improvisation and composition that were directly related to the curriculum content, i.e., they were given opportunities to apply what they learned in creative ways as a follow up to the linear instruction that both groups received. The children were given open-ended assignments to write short pieces. The creative assignment was in the form of a framework of suggestions that related directly to the curriculum content they had received in class instruction, such as using the new fingerings for tones/notes, new symbols and conceptual ideas in the music they created. The ensemble pieces that both groups learned to play also served as a listening and composing model for the students although in a subliminal way. For example, the students were asked to create pieces with the first three tones/notes they learned to play on the recorder. The first ensemble pieces given in the text that the children learned to play were written using the same three tones/notes. At times, the researcher drew the children's attention to this point so they could understand that something musical and fun to play could be created from only three tones/notes. The six Creative Task Assignments are given in the Appendix B.

During the composing and improvising activities the children were allowed to move about the room and ask for help from either the teacher or peers. Some assignments required

individual work, others paired and in one case, Creative Assignment Four, in groups of their configuring. These were flexible guidelines as long as each student completed the required written work. Sometimes a piece had two names on the paper although Creative Assignment I and II required at least one piece per individual student.

The students were encouraged to experiment on their recorders by creating patterns and phrases or whole pieces before trying to fulfill the assignment and before they wrote anything. However, if a child had a hard time starting the assignment and he or she felt more comfortable in creating a written piece without first employing sound exploration, the child was encouraged to write something and then to play their piece or to have the researcher or a friend play it so they could listen to their piece, hear what they had written and thereby decide whether or not he or she wanted to keep it that way or change it in some way. This process helped to engage a few of the children in the sound creating and manipulation process of composing. As they realized the sound of their notation through playing it, they realized that they could change or manipulate it to have a different sound. This helped to build their confidence in exploring sound and creating original music; confidence in approaching new composition assignments and it helped them to develop understanding in music for subsequent composition assignments.

If a child wanted to create a more complex piece he or she could do so although the child was advised to write two pieces if he or she wanted to share with classmates: one piece that he or she was sure everyone in class could play and a second one based completely on their own ideas and decisions that perhaps advanced recorder players could play. In this way, the children were not restricted to the parameters of an assignment if they had developed a more advanced level of

musical knowledge than some of the other children through past experiences outside of school and if the child wanted to incorporate this knowledge into their composing.

To make sure everyone was able to successfully complete the first assignment, the first composition assignment given to the students asked that they create a composition with notes/tones G, A and B quarter and half notes only, and without the use of the staff. The reasoning for the decision was to engage students in making music immediately while gradually building conceptual understanding of music and skills for playing, reading and writing music. Coleman (1926), Moorhead and Pond (1945) used similar techniques. To preserve, nurture and develop children's natural creativity, Coleman and Moorhead and Pond gradually introduced Western notation in small portions in order to develop students' understanding in the usage of Western notation only after the students had had many sound experiences and explorations in creating and notating music without the influence of a system of notation. For instance, Moorhead and Pond introduced notation to the children by beginning with the rhythmic notation for the aural rhythmic pattern most well known to the children. They did not begin with a long explanation of note values, meter, and placement of pitches on the staff. Coleman used a system of numbers to denote pitches and note values simply circling two numbers at a time when the eighth note value was desired.

In the class that followed the first representation of the students' compositions, the second assignment required of the students to play this same piece, revise it if they wished, and to write their piece on the Treble Clef staff they had learned about in class studies. During composing activities, students who finished earlier than others were always encouraged to write a second piece or to find classmates to play their pieces for or with them. The researcher also

engaged in this activity and circulated in the classroom scaffolding to students' needs. For the most part, the researcher used an inquiry approach to scaffolding whenever possible, i.e., asking the children about their pieces or answering a question with another question in order to engage them in thinking about and discovering their own answers or solutions. Because time was so limited, the researcher collected the students' compositions each day and wrote scaffolding kinds of questions or comments on their papers. For example, in order to refrain from giving students too much influence in the beginning stages of their composing process, many times a comment was simply, "Excellent start on your composition." Other times the student's work gave the researcher an opportunity for moving their learning forward. "I see you have five beats in some of your measures and four beats of music in other measures. Did you plan it this way? You may certainly change meter if you like but since you have no indication of the change in your piece I am not sure that you planned it this way. Listen to the sound of it the way you have notated it and that may help you to decide." During class, the researcher would play what the student had written and possibly make a comment on how interesting the piece sounded with the change in meter. In these ways, the teacher/researcher was at times able to provide students with individual attention.

The students received copies of the pieces written by each student in class. In order to use less paper for the 24 copies of each piece, the researcher wrote down the students' compositions just as they had written them and compiled them to 3-4 sheets of paper and made 24 copies of these so the whole class could sight read each student-generated piece.

By assigning applied creative tasks such as music composition, the researcher found that she was better able to gain an understanding of where the students were in their understanding of

class studies and could tap into individual student's work for teaching and learning experiences giving help where needed. The composing activities were thus conducive to a variety of groupings and levels of learning and instruction.

About midway during the 18-week study, a particular composition assignment (Creative Treatment Three) required additional instruction. In examining the children's compositions, the researcher noticed that almost all of the students were in need of more instruction and clarification on the concept of meter in music. A benchmark lesson (See Appendix C) was given to the whole group using a few of the students' composition examples in a positive way to explain the concept. The students were given their papers and asked to revise their pieces if they wanted to revise them and to finish their pieces if they were not complete. Many of the revised pieces and in some cases the addition of new pieces reflected the understandings gained from the benchmark lesson.

As mentioned earlier, the students in the control group often learned and/or sight read additional new pieces, not learned by the experimental group that required the same level of understanding and skill as the pieces the children had learned previously as part of the study. The experimental group also had sight-reading experiences but these involved the sight-reading of their own created compositions and their fellow classmates' compositions. This sharing and playing of pieces was an enjoyable activity for the students and added a layer of meaning to their studies as from this experience, the students realized that everyone could learn and play their pieces just as they could learn and play the pieces in the text or in any book with recorder pieces. Because time was restricted to 40 minute music classes, the compositions created under the assignment Creative Treatment Four were performed after the study was finished. Creative

Treatment Four was more time consuming in preparations for class sharing because students created ensemble pieces in small groups. These required a set up of instruments for the composing, and set up for group practicing after the composition was completed. Clean-up of the instruments after both of the activities was also necessary. After the completion of the study, performances of the compositions created as a result of the Creative Assignment Four were given by each group.

In December, the two classes gave a combined recorder performance of two Christmas pieces during the all-school Christmas concert. The pieces were an outgrowth of their classroom activities in the research study.

Evaluation of Teaching Consistency

The principal of the school observed the fourteenth day of class in each group and evaluated the researcher for style of teaching and other contaminant variables. In addition, the school music teacher who observed all of the classes evaluated the researcher for style of teaching and contaminant variables independent of the principal's evaluation. The examiners received a measurement (Appendix I) for this task in which teaching style, researcher enthusiasm, and delivery of curriculum content were evaluated for consistency and bias. The evaluators' decisions were independently unanimous: the teaching style was determined as consistent in both groups; no bias was reported; no contaminant variables were reported.

Dependent Measures and Their Construction

Sight-reading (Appendix J) and playing ability (Appendix K) dependent measures were researcher-constructed and evaluated for validity by a panel of music educator experts at

Northwestern University School of Music. The measures were sent in advance of the study and again shortly before their use during the administering of the evaluations for examination and approval. The experts determined that the measures were appropriate for the purposes for which they were designed.

Following the eighteen weeks of classes and instruction, all students were administered the following measures of evaluation:

1. a researcher-created measure of sight-reading – a piece of music not previously seen or heard by the students (Appendix J). Students' sight-reading ability was evaluated in four areas: rhythmic reading accuracy; note reading accuracy; steadiness of beat; and tone quality (Evaluator/judge rating scale is Appendix L). An additional check was given for any observation of dynamic markings.
2. a researcher-prepared measure of playing ability (Appendix K) – six criteria evaluated: facility in playing; fluency in playing; tone quality; pitch reading accuracy; rhythm reading accuracy; steadiness of beat (Evaluator/judge rating scale is Appendix L). An additional check was given for any observation of dynamic markings and expressive quality.
3. a researcher-designed short answer measure of music theory (pretest and posttest) found in Appendix M..
4. Additional data gathered for the study were results from a short, post study questionnaire (Appendix H, second page) for the purpose of gaining insight into students' attitudes and feelings regarding their experience in the study. (Results recorded in Appendix O.)

Dependent Measures Administration

The researcher administrated and recorded the evaluations. The fifth-grade teachers were present during the theory posttests and post study student questionnaire. The playing and sight-reading exams were evaluated by an experienced, retired elementary general music teacher not present during the study and by the researcher and school music teacher. Students were randomly assigned a number, known only to the researcher and the child, to identify their playing exams on the recordings. The students were administered the playing evaluations over three days of time at approximately twelve minute intervals. Students were randomly assigned their playing times from a number scrambler process in the Excel program in order to eliminate any possible argument that might arise surrounding the scheduling of students and any advantage as perceived regarding playing time on any particular day and time over another. Students from both classes were randomly assigned to all three days. In a few cases, a student's scheduled time was changed by the classroom teachers when a child was absent from school or there was a conflict in the child's personal schedule such as having a conflict with a particular reading group they needed to attend. Two children, absent for the exams, made up the playing and theory exams three days after the completion of the exams by the other children in the two groups. Following the exams on the last day of the study, the students were given a questionnaire in order to gain insight into the children's feelings and attitudes regarding their experience.

Playing and Sight-reading Evaluations

The soprano recorder playing and sight-reading evaluations were given after the theory posttests beginning on the same day. An evaluation procedure common to music education evaluation procedures for assessing playing and sight-reading ability was used to evaluate the

subjects' playing and sight-reading exams. The exams were given on the three days immediately following the last day of instruction and theory posttest. For purposes of reliability in research results, three appropriate evaluators, i.e., people who were familiar with the domain and such performance products by children rated the children's exams independently and without knowing from which group the players originated.

Playing and Sight-reading Evaluations: Procedure

Three evaluators assessed the students' exams: The researcher, the school music specialist and a retired, experienced elementary music education specialist. The three evaluators for the playing and sight-reading exams were given CD recordings of all of the students' exams. Three randomly ordered recordings of students' playing exams were prepared for three random recordings. For this purpose, the students' code numbers were scrambled using a number scrambler on the Excel program. Students' code number names were initially, also randomly assigned using a number scrambler on the Excel program $n = 46$. The students were introduced on the recording by their code number in order to protect their privacy. Evaluation forms with a list of criteria for rating the students were given to the judges (Appendix J). The criteria for the playing ability evaluation were: (a) pitch reading and playing accuracy; (b) rhythm reading accuracy; (c) steadiness of beat; (d) tone quality; (e) facility in playing; (f) fluency in playing. The criteria for the sight-reading evaluation were: (a) note reading accuracy; (b) rhythm reading accuracy (c) steadiness of beat; (d) tone quality. Judges were asked to mark from the following ratings from a rating scale for each student: (a) excellent; (b) good; (c) average; (d) poor; (e) unacceptable. The researcher converted the ratings to numbers. A mean score was calculated for a student's overall performance on each test: (1) the sight-reading evaluation and (2) the playing

evaluation. A mean score, i.e., the mean of the mean scores, was calculated for each class. An interjudge reliability measure was calculated using a Pearson Product Correlation Coefficient. The results are given in chapter V.

Additional Data

A questionnaire was given on the first day to the students and the last day of the study. The data from the pre-study questionnaire provided information on each student's past experience in music education. On the last day of the study, the students completed the second page of the questionnaire in order to give the researcher some indication of the children's feelings and attitudes regarding their experiences during the study. In addition, a comparison of results between the two study groups on their music learning and experience during the study, when one received an independent treatment variable of creative application of learning on recorder playing and music reading and the other received traditional instruction in these areas was desired. The children were asked to be completely honest in their responses for the sake of the research and for the sake of music students and teachers in the future; they were assured that their answers would not have an affect on their grade in music class. The researcher read the questions aloud to the students before they completed the form and answered any questions they had. Some of the questions required a "yes" or "no" answer and other questions gave the students the option to add comments. Six interview questions were asked: Did you have a favorite activity that was part of music class activities during the study? If so, what was that activity and why was it your favorite? Did you have a least favorite activity that was part of music class activities during the study? If so, what was that activity and why was it your least

favorite? Have you learned more about music as a result of the study? Do you enjoy playing the recorder as a result of class studies?

The results of the questionnaire were recorded in frequency counts of responses, written description and all of the comments made by students were recorded. Since the results did not have a bearing on answering the research questions, they are given in Appendix O. Sometimes a differentiation was given between “straight yes” and “affirmative” because of students’ choice of words. For example, in the experimental group’s results, an answer for the last question, “Do you enjoy playing the recorder as a result of class studies?” was answered in a variety of ways “I enjoyed playing the recorder, it helped me learn music” by one student. This was counted as an affirmative answer whereas most of the students simply answered “yes.” Because of the age of the participants, the interview was short and the questions were direct in the attempts to control for ambiguity in either question or response. The answers the children gave are interesting; future analysis of their responses might yield fruitful information. More research is needed in the areas of motivation and attitude between groups where one receives a creative treatment as an outgrowth of their learning and the other group does not.

Data Collection and Analysis

Additional data were collected from the students during two of their regularly scheduled music class time on two days before the first day of instruction: a music theory (pretest). A posttest was given after the last class of instruction. The pretest and posttest were identical tests and were administered in the same way on the two test days: the questions were read aloud to the class as the students wrote the answers so that students’ reading ability was not a variable. During the pretests administered to the classes, the school music teacher was in the room. During

the posttests administered to the classes, one of the fifth-grade teachers was in the room. The students were instructed to leave an answer blank if they did not know it. The music theory pretest and posttest were comprised of the convergent content that students learned in class during the study – not previously learned during their school studies in music class. In each class, the students completed and handed in the test at the same time. The raw scores of the theory pretest and posttest were recorded for both groups. There were no pretests given for music performance or sight-reading because only two of the students had experience in recorder playing before the study and their experience was not adequate for testing. None of the students had received formal recorder instrument playing instruction prior to the study. Data analysis mean scores and standard deviations were calculated and recorded for all three dependent measures: (1) the written pretest and posttest; (2) the sight-reading evaluation; and (3) the playing evaluation. In order to answer research question 1, the mean posttest score on the sight-reading evaluation of the experimental group was compared with the mean posttest scores of the control group. In order to answer research question 2, the mean posttest score on the playing evaluation of the experimental group was compared with the mean posttest scores of the control group. To answer research question 3, the mean posttest scores on the written music measure for the experimental group were compared with the mean posttest score of the control group. In addition, the mean scores between the pretest and posttests for written music were compared to study gains. This was done for each of the two groups separately.

Chapter V presents the results of the raw data, statistical analysis and findings.

CHAPTER V

RESULTS AND PRESENTATION OF DATA

In order to answer the three research questions, mean scores and standard deviations were calculated for each of the two groups on each of the three dependent measures at the conclusion of instruction. The three dependent measures were the sight-reading evaluation, the playing ability evaluation, and the music theory measure. The means were compared using independent t tests. In addition, pretest scores on the music theory measure were compared to the posttest scores for each of the groups to determine gains. This was done for each group separately using a correlated t test for each group. The research questions are given again.

1. Is there is a significant difference in scores on a measure of sight-reading music notation between a group of fifth-grade students who have experienced the embedding of improvisation and composition experiences in instruction versus another group of fifth grade students who have experienced the embedding of more traditional, practice-based experiences?
2. Is there a significant difference in scores on a measure of soprano recorder playing ability on a prepared piece between these two classes?
3. Is there a significant difference in scores on a researcher-designed measure of written music understanding as found in Western music practices between these two classes?

The Gordon *Intermediate Measures of Music Audiation* (1982) a well established music aptitude, was given to the children in each group before the first day of instruction. The data are given in Chapter IV. No significant difference in mean scores was found between the two groups so the results on the Gordon measure were not used as a covariate for this study.

The chapter begins with a presentation of the raw scores for each dependent measure; this provides the reader with an overview of the groups' performance. The results of the comparisons of t tests are presented in the next section to help answer the research questions. Comparisons are

made between each of the measures given at the end of the instruction, as well as a comparison of the music theory test scores between pretest and posttest to determine the nature of the gain for that variable.

Raw Scores

Raw Scores for the Sight-reading Measure

The results of the students' sight-reading scores given by each evaluator, the individual mean scores of the students, computed across the three evaluators, and the group mean and standard deviation are presented in Table V-3 for the experimental group and for the control group. Names were randomly assigned for the students. The experimental group children are given names that begin with a B and the control group children are given names beginning with A. The gender of the name corresponds with the gender of the participant. The highest possible score was 16 points.

Table V-3

Evaluator Scores on Experimental and Control Group Sight-reading Measure

Experimental Group					Control Group				
	Evaluator					Evaluator			
	1	2	3			1	2	3	
Name	Composite Scores			Mean	Name	Composite Scores			Mean
Bob	15	15	14	14.67	Amalie	15	15	14	14.67
Barb	16	16	15	15.67	Abby	16	16	16	16.00
Billy	15	15	15	15.00	Abigail	16	16	16	16.00
Betty	15	15	13	14.33	Alexandra	11	12	11	11.33
Ben	11	10	11	10.67	April	15	14	15	14.67
Babs	16	16	15	15.67	Abraham	15	16	15	15.33
Bernard	14	14	10	12.67	Adam	15	16	16	15.67
Bart	15	15	15	15.00	Adrian	15	16	15	15.33
Beatrice	15	12	11	12.67	Alan	15	14	13	14.00
Bruce	15	15	15	15.00	Alain	16	16	16	16.00
Barry	12	10	10	10.67	Alanna	16	16	16	16.00
Belinda	15	15	13	14.33	Addison	16	16	16	16.00
Bela	16	15	13	14.67	Adelle	14	14	14	14.00
Brian	15	16	16	15.67	Alexa	16	15	16	15.67
Bethany	14	14	11	13.00	Alisa	16	16	15	15.67
Buddy	15	16	15	15.33	Aden	11	12	14	12.33
Belle	13	12	12	12.33	Amanda	14	10	10	11.33
Byron	15	15	15	15.00	Alton	16	15	16	15.67
Brooke	16	16	16	16.00	Alfred	15	15	15	15.00
Brielle	13	15	13	13.67	Allison	12	14	13	13.00
Buzz	16	15	15	15.33	Andrew	11	13	8	10.67
Brandy	14	14	13	13.67	Angelo	8	9	5	7.33
Bryanne	14	11	11	12.00					
Becka	16	16	16	16.00					
Mean of Mean				14.13	Mean of Mean				14.17
Standard Deviation				1.59	Standard Deviation				2.28

Raw Scores for the Playing Measure

The results of the students' playing scores given by each evaluator, the individual mean scores of the students, computed across the three evaluators, and the group mean and standard deviation are presented in Table V-4 for the experimental group and for the control group. The identical name is continued for each student. The highest possible score was 24 points.

Table V-4

Evaluator Scores on Experimental and Control Group's Playing Exam

Experimental Group					Control Group				
	Evaluator					Evaluator			
	1	2	3			1	2	3	
Name	Composite Scores			Mean	Name	Composite Scores			Mean
Bob	22	22	23	22.33	Amalie	20	22	19	20.33
Barb	24	24	22	23.33	Abby	22	24	24	23.33
Billy	21	24	22	22.33	Abigail	23	24	23	23.33
Betty	22	23	20	21.67	Alexandra	18	18	17	17.67
Ben	20	20	22	20.67	April	23	24	24	23.67
Babs	21	23	19	21.00	Abraham	24	24	24	24.00
Bernard	19	22	17	19.33	Adam	24	24	20	22.67
Bart	24	24	24	24.00	Adrian	23	24	23	23.33
Beatrice	20	17	18	18.33	Alan	22	23	21	22.00
Bruce	24	23	22	23.00	Alain	24	24	24	24.00
Barry	18	15	13	15.33	Alanna	24	24	24	24.00
Belinda	22	21	23	22.00	Addison	22	24	24	23.33
Bela	23	24	21	22.67	Adelle	24	24	24	24.00
Brian	23	24	23	23.33	Alexa	23	23	23	23.00
Bethany	22	23	20	21.67	Alisa	22	24	22	22.67
Buddy	24	24	24	24.00	Aden	15	16	11	14.00
Belle	16	21	19	18.67	Amanda	22	22	21	21.67
Byron	22	19	21	20.67	Alton	22	24	22	22.67
Brooke	24	24	24	24.00	Alfred	23	23	20	22.00
Brielle	22	24	22	22.67	Allison	22	24	24	23.33
Buzz	24	24	24	24.00	Andrew	12	17	10	13.00
Brandy	21	23	14	19.33	Angelo	9	19	8	12.00
Bryanne	24	24	24	24.00					
Becka	24	23	24	23.67					
Mean of Mean				21.75	Mean of Mean				21.36
Standard Deviation				2.24	Standard Deviation				3.70

Interjudge Reliability

Interjudge reliability for the sight-reading and playing evaluations was calculated by using the Pearson product correlation coefficient. Evaluator 1 was the researcher, Evaluator 2 was the retired music teacher and Evaluator 3 was the school music teacher. Each correlation was found to be significant at the .05 level.

Table V-5

Inter-rater Reliability – Judge X Components (absolute scores)

Sight-reading Exam				Playing Exam			
	Judge 1	Judge 2	Judge 3		Judge 1	Judge 2	Judge 3
Judge 1	–			Judge 1	–		
Judge 2	0.81	–		Judge 2	0.65	–	
Judge 3	0.71	0.82	–	Judge 3	0.72	0.60	–

Raw Scores for Music Theory Pretest and Posttest

A researcher-designed paper and pencil measure of written music understanding, also referred to as music theory in this manuscript, was given to the students on the first and last day of the experiment. This test, the identical pretest and posttest, is found in APPENDIX M. The researcher administered and recorded the scores on the evaluations. Students' raw scores are recorded in Table V-6. The highest possible score was 35 points.

Table V-6

Pretest and Posttest Scores: Written Measure of Music Theory Understanding

Experimental Group			Control Group		
Name	Raw scores		Name	Raw scores	
	Pretest	Posttest		Pretest	Posttest
Bob	10	29	Amalie	5	30
Barb	14	29	Abby	32	35
Billy	0	29	Abigail	24	34
Betty	22	34	Alexandra	15	29
Ben	27	34	April	6	30
Babs	24	32	Abraham	18	33
Bernard	18	32	Adam	5	20
Bart	25	32	Adrian	17	26
Beatrice	32	33	Alan	1	33
Bruce	29	34	Alain	33	35
Barry	15	35	Alanna	28	32
Belinda	28	34	Addison	9	33
Bela	19	35	Adelle	34	34
Brian	6	27	Alexa	27	28
Bethany	4	32	Alisa	22	30
Buddy	13	19	Aden	28	35
Belle	9	29	Amanda	33	34
Byron	7	11	Alton	29	35
Brooke	6	31	Alfred	4	19
Brielle	11	25	Allison	30	31
Buzz	25	33	Andrew	13	32
Brandy	32	32	Angelo	18	30
Bryanne	19	32			
Becka	28	34			
Mean	17.63	30.29	Mean	19.59	30.82
Standard Deviation	9.59	5.48	Standard Deviation	10.97	4.43

Independent and Correlated t Test Comparisons

Mean scores of students' scores on the two tests were calculated and subjected to an independent *t* test in order to determine whether or not there was a significant difference between the two groups in written music understanding. A correlated *t* test for within group significance was conducted on students' scores to determine the gains in written music understanding in each group. The alpha level was set at .05 for all tests. Results for the independent *t* tests are shown in Table V-7; there were no significant differences between the groups on the three measures. For the correlated *t* tests as shown in Table V-8, there were significant within group gains between the pretest and posttest in each group indicating a significant gain in learning.

Table V-7

Independent t Test Comparisons

	Control		Experimental		<i>t</i> Test
	Mean	Std Dev	Mean	Std Dev	
Sight-reading Evaluation	14.17	2.28	14.13	1.59	0.07
Playing Evaluation	21.36	3.70	21.75	2.24	-0.43
Music Theory	30.82	4.43	30.29	5.48	0.36

Table V-8

Music Theory Correlated t Test Comparisons

Control			Experimental		
Pretest Mean	Posttest Mean	<i>t</i> Test	Pretest Mean	Posttest Mean	<i>t</i> Test
19.59	30.82	-4.45	17.63	30.29	-5.62

Results for Research Question 1

1. Is there is a significant difference in scores on a measure of sight-reading music notation between a group of fifth-grade students who have experienced the embedding of improvisation and composition experiences in instruction versus another group of fifth grade students who have experienced the embedding of more traditional, practice-based experiences?

Results indicated that there was very little difference between the two groups on the measure of sight-reading ability therefore the answer to research question #1 is, “no”. However, students in the experimental group scored in a similar way to the control group with no overall loss of sight-reading ability. An examination of the evaluator’s raw score ratings showed similar and often exact consensual agreement by two out of three judges and sometimes by three out of three judges. The judges had a high correlation with each other on the evaluations. Out of the 16 possible points on the test, students’ raw scores in each group indicated that students in both groups completed the exam: All but one student in the control group passed the exam with most students in both groups scoring in the 80 and 90 percentiles. The scores reflect a mixture of abilities as would be expected from a heterogeneous grouping of students.

Results for Research Question 2

2. Is there a difference in scores on a measure of soprano recorder playing ability on a prepared piece between these two classes?

The results indicated that there was no significant difference between the two groups on the measure of playing ability however the creative treatment did have a significant effect on students' learning as did the traditional approach. As was the case in the sight-reading evaluation, the groups' mean scores were remarkably close. Again, an examination of the evaluator's ratings showed similar and often exact consensual agreement by two out of three judges and more often by three out of three judges. The judges had a high correlation with each other on the evaluations. Again, the students' raw scores in each group indicated that students in both groups completed the exam. Out of the 24 possible points on the test, most students in both groups scoring in the 80 and 90 percentiles. The scores reflect a mixture of abilities as would be expected from a heterogeneously grouping of students.

Results for Research Question 3

3. Is there a difference in scores on a researcher-designed measure of written music understanding as found in Western music practices between these two classes?

As in the sight-reading and playing exams, the scores between the two groups of children were very similar. The pretest-posttest comparisons did indicate that both groups improved significantly in their music theory understanding. The experimental group scored slightly lower on the pretest but almost matched the posttest score of the control group indicating that the gain was slightly more in the experimental group. The standard deviations also compare.

Post Study Questionnaire

To compare the feelings and attitudes of the children in the two study groups on their music learning and experience during the study, when one received an independent treatment variable of creative application of learning on recorder playing and music reading and the other received traditional instruction in these areas, the students were given a questionnaire on the last day of the study. Since the results were not analyzed statistically nor were they necessary to answer the research questions, the raw data followed by a discussion are given in Appendix O.

Chapter Summary

The results of the study showed that there was not a significant difference in sight-reading ability, playing ability, and written music understanding between the experimental group and the control group. Student's whose focus was composing during classroom activities did not do better or worse on the evaluations in these areas of music study than did the students whose focus in class activities was the very activities for which all of the students were measured, i.e., sight-reading, playing the recorder and learning in written and conceptual music understanding.

Interesting results from the questionnaire showed that almost all students in both groups felt that they had learned how to play the recorder and they had learned more about music than they had known previously. Most students enjoyed playing the recorder as a result of their learning experiences during the study. The highest response for activity preference in both groups was the activity that most engaged them in active music making: in the control group, that activity was playing of pieces on the recorder; in the experimental group it was the

composing. The implications of all of the above findings to music education are discussed in Chapter VI.

CHAPTER VI

SUMMARY, LIMITATIONS OF THE STUDY, INTERPRETATIONS OF THE RESULTS, IMPLICATIONS FOR MUSIC EDUCATION, DISCUSSION, IMPLICATIONS FOR RESEARCH AND CONCLUSION

This chapter begins with a summary of the study followed by a section on the limitations of the study and interpretation of the results. The next section presents the implications of the findings of this study to music education and a discussion of the relevance of the findings. The implications of the findings of this study to research and a conclusion are projected in the final section.

Summary

This study examined the effectiveness of creative-based activities on music learning and the development of skills when students were given opportunities to apply, in creative ways, what they were taught through teacher-directed classroom instruction and activities. The purpose of this study was to determine whether certain strategies of teaching fifth-grade general music that incorporate music improvisation and composition into the curriculum as assignments related to and reinforcing of curriculum content would have an effect on: (1) the level of quality in playing the soprano recorder (including sight-reading traditional music notation); and (2) the recognition and understanding of applied functions of signs and symbols as found in Western musical practices. Also of interest was to examine and compare students' attitudes and feelings regarding their learning experiences during the study between the two groups.

Related Literature outside of Music Education

During the past three decades in music teaching and learning, a growing awareness as to the importance of nurturing creative thinking and creative potential has come to the forefront of importance. In a review of literature on creativity and music teaching and learning, Richardson (1983) advised that students' creative potentials were often overlooked in the teaching of music; emphasis should be given to the nurturing of creative potential. Webster (1987, 1988, 1990a, 1990b, 1991, 1992, 2002), Hickey (1995, 2001, 2002, 2003), Hickey and Webster (2001), Paynter (2000), Wiggins (1993, 1999, 2001, 2003, 2007) have all written extensively on the importance of nurturing creative thinking and potential through composition. Numerous researchers have written on other aspects of composing and improvising and musical understanding, including, and of special importance to this study, those who found improvising or composing to have an effect on students' development of musical understanding and/or skills (Azzara, 1993; Bamberger, 1991, 1999; Barrett, 2003; Bunting, 1984; Christensen, 1992; Davis, 2005; Gamble, 1984; Levi, 1991; Loane, 1984; Smith, 2004; Stauffer, 2001; Upitis, 1992). In addition, The National Association for Music Education (1994) has published recommended national standards for music education that include the nurturing and teaching of improvisation and composition as part of a comprehensive music education.

Still, with all this support for inclusion of composition and improvisation in the general music classroom, many teachers find the prospect daunting for multiple reasons. Some of the most frequently found reasons for not including improvisation and composing in the curriculum are: lack of time and resources, lack of knowing how to go about incorporating creative music making into the curriculum in a meaningful way that supports students' learning; concern that

the quality of other areas of the music curricula will be comprised; lack of support and understanding from the administration (Byo, 1999; Orman, 2002; Strand, 2006). This study was designed, in part, to examine whether or not support for the inclusion of improvisation and composition in the music curriculum is warranted.

This study reviewed several learning theories, learning environments, developmental considerations and cognitive considerations important to research and curriculum where children are engaged in learning situations designed to foster musical creativity, development of skills and musical understanding. The similarities and differences of Dewey, Piaget and Vygotsky, the influence of the theories of these scholars on current teaching practices and the relevance of these to music education were discussed. Constructivism, arising from Piaget's developmental theories of schema and Vygotsky's sociocultural context as a significant factor in schema theory, claims that humans must construct their own knowledge. Through both informal and formal experiences, the mind is continually assimilating and accommodating new information into new schemas of understanding. The importance of the learning environment as put forth by Dewey is crucial in the mix of schema formation. In the educational environment, allowing children to follow their natural tendencies of social engagement, inquiry and discovery, making things and artistic expression as a natural outgrowth of their experiences is conducive to meaningful learning. When aided by caring facilitators or peers through scaffolding and social interactions, the child is able to construct his or her own knowledge. In this study, the control group experienced teacher-directed instruction. For the experimental group, a balance was sought between a child-centered or constructivist-like approach to music teaching and learning and a teacher-directed approach to instruction in order to provide students with both tools for creative

work through acquisition of convergent kinds of knowledge and opportunities to apply divergent thinking skills in an environment that was conducive to exploration and experimentation and subsequently making things. The evaluations showed that both groups had equally successful results on the sight-reading, playing and written musical understanding. However, through the improvising and composing, the experimental group received another dimension of musical experience and music learning than did the control group.

Torrence's (1963) admonishments that education must consistently involve children in activities to develop creative thinking in even the step by step processes of sequential learning in classrooms was an underlying philosophy in the design of this study. Webster's (1987, 1990b, 2002) theory of convergent and divergent thinking and Amabile's (1982, 1983, 1996) similar conception of creative thinking shed insight on the process of creative thinking and the various conditions that influence it. Webster's and Amabile's theories were synthesized with the work of the social psychologists and creativity theories by Wallas (1926) and Brophy (2000-2001) to give an indication how all of these might simultaneously be occurring in classrooms and especially when engaging students in creative work. Studies in music education were presented in relation to this research by Barrett (2003), Burnard (2000), and Gromko (1996). Included in the section on convergent and divergent thinking was a discussion on the design and use of parameters when engaging children in composing tasks and the relationship of this discussion to the curriculum design and content for the present study.

Related Literature in Music Education

Researchers have examined the effects of composing and improvising on students' learning or reported that, as a result of a study in which they engaged children in such activities

students' learning was impacted in a positive way. Coleman (1921, 1926, 1931), Doig, 1941, 1942a, 1942b), and Moorhead and Pond (1941, 1942, 1944, 1951/1978) were earlier writers on such matters. Although the studies were quite different, all of the researchers found that creative work had a positive effect on students' learning and understanding in music and on the way they felt about their music studies, i.e., attitude. Coleman as well as Moorhead and Pond emphasized the importance of sound before symbol when engaging children in writing down their creative work and an open, nurturing environment that gave students opportunities to explore sound. Doig's more structured approach placed the notating of students' melodies in her hands. Coleman, Doig and Pond all found that children had the desire to share their pieces with their peers and to work collaboratively on composing.

Loane (1984) found that although the level of musical complexity of children's compositions was directly linked to their development of skills and understanding in music, the children's compositions were an expression of their inner thinking and feeling. He found that the process of composing had an impact on children's musical understanding, skill development and motivation to learn in music class. Bunting (1987) suggested the importance of the role of teacher-facilitator, especially in the employment of inquiry strategies when nurturing students' musical understanding through composing, performing and listening. Bunting also advised an approach to the teaching of composition that was balanced between total freedom to compose and teacher-directed instruction.

Levi (1991) engaged second graders in composing under flexible conditions in their classroom. Like Miller (2004), he found the process of creating, reading and playing music interactively beneficial and natural to children's learning. The children were not hindered nor

their creativity stifled by the task of writing their creative work. Both Miller and Levi wrote that children's learning in music increased from their experiences in composing and writing music.

Bamberger (1991) worked closely with students as they participated in tune-building tasks over several months. She was able to follow the children's construction of sound in their minds and how this was reflected in the ways they notated their creative work. The interaction of sense making between sound and symbols in figural and formal ways led to increased musical understanding. New understandings cumulated and over time allowed children to develop multi-dimensional understandings. Like Upitis (1992), Bamberger found that allowing children to invent notations to express their creative work paved the way for understanding in established formal symbol systems of music. Christensen (1992) also commented on the importance of invented notations in composing with children on their musical understanding and metacognition of the composing process. She promoted the idea that music learning must be like making music in real life. Children must have opportunities to construct their own knowledge through engagement in real life tasks. Composing made this possible.

Wiggins (1993, 2007) engaged fifth-grade students in composing tasks linked to curricular listening experiences. These served as formal model guides in students' thinking as they generated ideas for compositions and gave them a holistic mental picture of how the piece would take shape and form. In group collaborations, decision making seemed to fall under the students' combined holistic understanding of the work.

Like many of the researchers discussed here, Stauffer (2001) found composing to impact children's musical understanding that developed over time. The process led to cumulated

understandings and more sophisticated levels of composing. Stauffer discovered that familiarity with composing mediums possibly had an effect on the quality of students' compositions.

Davies (2005) experienced the values in informal, constructivist kinds of learning in music by observing the interactions in music making of a rock band and Gromko (1996) found that thoroughly devised learning experiences in composing strategies set the scene for successful carrying out of a composing assignment: so much so, that her efforts to offer scaffolding through inquiry were more of a distraction to the children than a help.

Hickey (1995) investigated the relationship of the processes of creative musical thinking to the creative and craftsmanship qualities of children's compositions and the relationship of the process analysis and product ratings with subjects' scores on a creative aptitude measure in music, musical experience and ratings of creativity. While not the purpose of her study to determine the effects of composing on learning, Hickey reported that students benefitted in their learning in music from the experience and that children with much experience in performing did not necessarily perform better than other children on the composing tasks.

The Study

The purpose of this study was to determine whether certain strategies of teaching fifth-grade general music that incorporate music improvisation and composition into the curriculum as assignments related to and reinforcing of curriculum content would have an effect on: (1) the level of quality in playing the soprano recorder (including sight-reading traditional music notation); and (2) the recognition and understanding of applied functions of signs and symbols as found in Western musical practices. The following research questions were posed:

1. Is there is a significant difference in scores on a measure of sight-reading music notation between a group of fifth-grade students who have experienced the embedding of improvisation and composition experiences in instruction versus another group of fifth grade students who have experienced the embedding of more traditional, practice-based experiences?
2. Is there a statistically significant difference in scores on a measure of soprano recorder playing ability on a prepared piece between these two classes?
3. Is there a statistically significant difference in scores on a researcher-designed measure of written music understanding as found in Western music practices between these two classes?

Following some pilot work, the main study involved two intact classes of fifth-grade, general music students. Twenty-four students comprised the experimental group and twenty-two comprised the control group. They participated in an 18-week study. The Gordon *Intermediate Measures of Music Audiation* (1982) and a written music theory pretest were administered at the start of the study. Music aptitude mean scores revealed similar musical ability between the two groups.

The researcher was the teacher for both groups. All children received the same curriculum content, supporting materials and style of classroom instruction in playing the soprano recorder and Western music reading and notation. The materials were not age specific but experience specific geared for beginning soprano recorder playing and music reading. The curriculum content for the study was created by the researcher/teacher.

Follow-up to the instruction in curriculum content was very different for the two groups. The experimental group applied their learnings in ways that encouraged creative thinking: through composing and improvising. The control group engaged in teacher-directed drill and practice in order to reinforce curriculum content. The children in both groups were taught during their usual music class time of 40 minutes one time per week.

Children were given identical posttests on written musical understanding: an outgrowth of the curriculum content for the study. In addition, the fifth-grade children were also assessed in sight-reading and playing. The dependent measures for all of the evaluations were researcher-constructed and evaluated for validity by a panel of music educator experts at Northwestern University School of Music.

Data were collected from the students during their regular class time on the day before the first day of instruction and on the last day of the study. All of the data other than the results from the written interview were subjected to statistical analysis.

Limitations of the Study and Contaminant Variables

Limitations of the Study

The pilot study was designed to test the viability of the materials and instructional strategies for the main study. The purpose of the two studies was the same however the main study was not a replication of the pilot study. Changes were made in the procedures and method as improvements to some of the procedures used for the pilot study and some on account of the age of the children. One change was the elimination of the graphic, rating-scale measurement of attitude to the questionnaire to gain insight into students' attitudes. The questionnaire replaced the instrument and was used as a pilot measure in this study for future research. Other slight adjustments had to be made because of what was suitable for the children's age. The use of large charts instead of the multiple, smaller copies of the children's compositions given to the fifth-graders, in order that all children (in both the third and the fifth-grade experimental groups)

would be able to play each others pieces is another example of how the two studies were not exactly the same. A stronger comparison would have been between two studies of fifth-grade students.

The problem of the mass schedule and early dismissal days that affected the amount of time given to each group was a variable unknown to the researcher in the days of finding a research site for the study. Whether or not it actually affected the results is impossible to determine.

The difference in behavior between the two groups also leaves a question to some extent. Both groups were very enthusiastic throughout the length of the study however the experimental group was not as manageable as the control group: a difference noted outside of the music classroom by other teachers and noted before the groups were randomly assigned to control and experimental. At one point during the study, it was necessary for the researcher to begin a class with a benchmark lesson in proper social behaviors for classroom environments that were necessary for group composing. A large chart was created showing the difference between productive noise and behavior that was normal to constructivist-like classroom environments and unproductive noise and behaviors that were not acceptable. A discussion ensued and students' behaviors were improved for a few classes. Reminders and references to the chart helped to control undesirable behaviors somewhat. Did the scheduling problems and immature behavior of some of the students in the experimental group resulting in loss of class time affect the results of the study? Again, it is not possible to answer this question. Post study composing activities with the control group in the freer classroom environment appeared more productive on the surface

than the experimental group; however, regardless of the difference in behavior, the children in both groups produced very fine work.

Four of the children, two in each group, scored quite a bit lower than the other children on all of the measures. In each group, it seemed that with one of the two children it was a behavior (and possibly dexterity issue as well with the control group child in this category) issue and with the other child, a learning issue. The inclusion of standardized test scores and general aptitude tests would possibly have shed light on the inability of these students to do as well as their classmates. The Gordon (1982) music aptitude measure showed that these students were not the lowest scoring students.

Another limitation of the study was that no measure of the children's creative work was given at the end of the study. As mentioned in Chapter II, the experimental group was evaluated in an identical manner as was the control group with evaluative measures designed to measure the kinds of learning that took place 100% of the time in the control group and approximately 50% of the time in the experimental group. If, following the study the control group and the experimental group had been evaluated on a task that reflected the kind of learning the experimental group had experienced during 50% of class time devoted to composing and improvising, would the control group do as well as the experimental group on that task such as on an identical composition task designed to measure creativity and/or level of compositional sophistication? Would an evaluation of the products the children created show similar growth in musical maturity, understanding, complexity, creativity, originality, and musical organization? Future research studies can be designed to examine this question.

Even though both quantitative and qualitative research paradigms are needed to inform practice in music education, schools are not places that are conducive to the controlling of multiple variables especially over eighteen weeks of time with children. Still, all things considered, it was quite remarkable how well everything went and the experimental design was maintained.

Contaminant Variables

Three possible contaminant variables affected the present study.

The experimental group's schedule was complicated by the weekly Mass schedule. This resulted in a few minutes less class time, on a number of occasions, than the control group received during that particular week for class studies. Heroic attempts by the fifth-grade teacher of this class, by the music teacher and the researcher to accommodate these problems for the research were ongoing. However, some time was still lost.

Another variable that may or may not have had an effect on the study was the early dismissal schedule. The school often had early dismissal on the day that the experimental group had class. This affected the length of the class and the time.

A third contaminant was student behavior: One of the classes was considerably noisier not only in music class, but in all of their classes and seemed to have a higher percentage of students with immature behavior that were lacking in personal self-discipline than the other class. A few of the children in the experimental group needed constant supervision and their behavior affected the other children at times. Even though some children exhibited very immature behavior, they participated enthusiastically in class studies. As a whole, the group was very positive and excited about their studies. While not typical in behavior of most classes, the

experimental group's behavior was not atypical of the occasional challenging group of children music teachers' might teach during the course of the school day.

Whether or not these variables had a significant effect on the results of the study is impossible to determine. Regardless of these complications, both groups did very well on the evaluations.

Interpretation of the Results

Interpretation of the Results for Research Question 1

The old adage “practice makes perfect” could be questioned if based on the results of the findings for Research Question 1. As follow up to their learning of curriculum content, the control group actively engaged in practicing and reinforcing what they had learned. This included the practicing of sight-reading on pre-created exercises and pieces not given to the experimental group. The way to “practice” sight-reading is to sight read multiple pieces of music.

The experimental group actively engaged in sight-reading in a completely different way. They sight-read each other's composed pieces. The amount of time spent in sight-reading was considerably less than the amount of time spent on sight-reading by the control group as time was needed for the composing. The results seem to indicate that in sight-reading ability, even though the students in the control group received multiple formal experiences in sight-reading, they did not have an advantage over the students in the experimental group who did not. The results implied that the experimental group children who did not receive the additional formal

sight-reading experiences but instead, reinforced their class learnings through applied creative work were not at a disadvantage in their ability to sight-read nor were they at an advantage in sight-reading ability. They were, however, introduced to and engaged in additional learning in music (improvising and composing) than did the control group without an increase in the amount of time spent for class activities. The results of the statistical analysis revealed that there was not a significant difference between the two groups on the sight-reading measure so the answer to Research Question 1 is “no.” However, did the creative treatment affect students’ learning? It appears that it did. The individual raw scores reveal that both groups had success learning how to sight-read. Thus, both the deliberate instruction in sight-reading and the creative application in composing and sight-reading of original compositions had a positive effect on students’ learning with one not advantaged or disadvantaged over the other. The composing experience and sight-reading of original compositions seems to have reinforced the students’ ability to sight-read in a different way than the deliberate teaching and learning of sight-reading that was the experience of the control group. This indicates that teachers can incorporate creative work like composing and improvising into the curriculum without the worry that it will in some way take away from the quality of the students’ ability to sight-read and to develop the ability to sight-read music in Western notation.

Interpretation of the Results for Research Question 2

In the control group, learning how to play and perform music on the soprano recorder, learning how to sight-read and developing musical understanding in concepts and written music theory occupied all of the class time during the study. Playing, performing, sight-reading in Western music notation and developing an understanding of music theory as related to the

playing and sight-reading were the curriculum goals and the group was taught in deliberate ways of attaining these goals. They did attain the goals and with wonderful quality. However, so did the experimental group even though the above mentioned focus was at most 50% of the time during class with the other 50% of class time spent on composing and improvising music. Multiple practicing experiences in the control group did not necessarily produce better players, better sight readers, or better demonstrated understanding on a written test of music than did the experimental group.

Upitis (1992) emphasized the importance of students' composing to learning notation and translating that knowledge to performance. Even the experience of hearing someone else play what a child had written often resulted in exciting learning: In these cases, the child often understood for the first time the powerful ability he or she had through using symbols (p. 90).

This study reinforced Upitis' idea. The experimental group actively engaged in learning to play the recorder through instruction in playing, performing, creating and notating what they had created. This was different than the control group whose time was spent in learning to play through instruction and performing. In the experimental group, the children played their own pieces and other children's pieces so they had playing experience. Sometimes the researcher improvised piano accompaniments for the students' pieces and although some music educators might argue that this would risk influencing the child's composing too much, i.e., that by creating a harmony or texture different than what the student had heard in his or her own idea of the piece, it could also be argued that it helped students to realize that their melodic compositions had harmonic implications and possibilities. The time spent in learning pre-created pieces was very little in the experimental group. As in the sight-reading ability, the results of the playing

evaluations seemed to indicate that in playing ability, students in the control group who received multiple formal experiences in playing and practicing of pre-created pieces and even some additional pieces to those that the experimental group had learned did not have an advantage over the students in the experimental group who did not. The creative treatment allowed the students in the experimental group to reinforce their playing in a different way that had an overall positive effect on their playing. Therefore, the answer to Research Question 2 is: there is no significant difference between the two groups who received different treatment however significant learning took place in both groups. Therefore, both focused playing and practicing and a creative treatment of composing and improvising had a very positive effect on students' learning to play the soprano recorder and quality of playing ability. Again, this indicates that teachers can incorporate both playing and composing into the curriculum without affecting the students' learning, and the quality of their playing and performing in an adverse way.

Interpretation of Results for Research Question 3

The results of the t tests showed no significant difference between the two groups in the written music pretests and posttests however there was a significant gain in within group scores indicating that both groups had made a substantial gain in learning. Since the experimental group had scored slightly lower than the control group on the pretest and slightly higher than the control group on the posttest, the experimental group made more of a gain than the control group in written music understanding. It is possible the applied use of notation and concepts had a positive effect on the children's learning over the memory and practice method of the control group.

Comparing the pretest and posttest scores of each child was interesting. The results seemed to indicate four groupings of ability/experience: (1) inexperienced but very capable of learning (these were children who scored very low initially and scored high on the posttest) (2) very experienced in formal music education (scored high on both tests) (3) somewhat experienced (scored in the middle range initially and made a significant gain on the posttest) (4) somewhat experienced but challenged in some way academically or behaviorally (scored low initially and made a smaller gain than most students on the posttest). In the first grouping (Group One, students' scores on the pretest indicated little to no experience in formal music studies. Their scores were very low. Their posttest scores were drastically higher indicating that the earlier pretest score reflected little exposure to and learning in Western music education and practices prior to the study. Group Two students most likely had had formal experience in music. They scored high on the test the first time and scored high or stayed the same the second time. Group Three students, it appears, had some formal training before the study and made a substantial gain in score on the posttest. Group Four students performed well below the other students on both tests however they did make a gain. This group of students was perhaps challenged in the way they approached the learning or in the abilities with which they approached learning. The control group children were drilled for recognition of the signs, symbols and concepts presented in the curriculum content: the very same content that made up the pretest and posttest. The experimental group children were not drilled on curriculum learning: They were given assignments to use it. They applied their learning through composing. Again, the theory posttest scores indicated that one group did not seem to have a significant advantage over the other in their learning of written music understanding. Both the practice/drill method of

reinforcing musical concepts and notation symbols and the using of the concepts through applied composition assignments were effective on students' learning of written music understanding.

The standard deviation on the written music test was higher in the experimental group than in the control group. There is a possible reason for this. The researcher was alerted to a situation by one of the fifth-grade teachers on the day the children took the written music posttest. The teacher reported that a particular child in the experimental group always had difficulty on written tests. She believed that the child would not pass the written theory test. This information surprised the researcher because the child had blended into class activities well. The child had completed the composition assignments as well as and better than some of the other children. The child had been anxious to improvise with the researcher in question and answer phrases based on a given framework of three or five notes (a voluntary activity in whole group interactions) and had done so with success improvising a musically balanced phrase back to the researcher. During the days that followed the receiving of this information from the fifth-grade teachers in regard to the child, the researcher verified her memory on the improvising by watching video tape footage. The child had also scored comparably with his or her peers on the *Intermediate Measures of Music Audiation* by Gordon (1982). The child's enthusiasm and sincere efforts in class studies were apparent. However, the fifth-grade teachers' prediction was correct. The child scored lower on the written music measure than any other child in the two groups. His score deviated considerably from the mean score in both groups but especially from the mean in his own group. The child's written questionnaire data were telling, too. The child responded in a very positive way to all of the questions in the questionnaire and gave as his favorite activity: "Sight-reading. It was fun because you get to play it over and over." Of course

sight-reading is an activity that is not done over and over. Whether this answer reflected a reading comprehension, writing difficulty or misconception of the term sight-reading, a term that had been introduced, explained on a number of occasions and become part of classroom talk, is not clear. Perhaps the playing of familiar pieces was enjoyable to this student because there was enough reinforcement of the notes that the child was able to keep up with the other players and had confused the term. Since no general aptitude evaluation was given to the students, it was not possible to determine a correlation or comparison between music aptitude and general aptitude for this student. Even though this child was not able to perform well on the written test, the experience of the music making activities was a positive one for him/her.

Implications of the Findings to Music Education

This study sought to find ways to incorporate music composition and improvisation into the curriculum in order to nurture children's creative thinking and to impact their musical understanding, active music making and musical experiences in a positive way. In addition, the purpose was to gain insight into ways to effectively teach music and to include all aspects of music making in music education curricula that are valuable to human beings. It was also about finding ways to help teachers and students engage in musical experiences like improvising and composing that are related to and in reinforcement of all of the other areas of the music curriculum. Pond had a vision that engaging children in creative music making and composing could and should become a reality in the public schools but he did not know how it could be accomplished.

“Above all, research should be carried out to find out how such findings as mine, can be made operative within the inevitably controlled and restricted environment of the public school. I

do not doubt that it can be done. But it will take a great deal of dedicated research and creative imagination to accomplish it” (Pond, 1981, p. 12). The present study was conducted in a private school: However, in the researcher’s experience, the classroom expectations, environment and class size were similar if not the same to fifth grade classrooms in public schools. In either setting, this study examined a way to incorporate music improvisation and music composition – the two national standards that most teachers find difficult to address – into students’ learning in a meaningful way. Time is a precious commodity in schools. Researchers and educators must continually search for the most effective uses of time and resources for optimal teaching and learning.

In this study, both approaches to teaching employed for the study groups had a positive effect on student learning. However, within in same amount of designated class time, the experimental group experienced another whole aspect of music making than did the control group. This implies that it might be possible to give students a more varied experience in music learning without neglecting other areas of the music curriculum. Only three dependent variables were employed to assess students’ learning. Students’ creative products were not assessed. It is possible that the children in the experimental group learned more from their experience in ways that were not measured. This is possible for the control group, too.

Discussion

From the results of the evaluations and questionnaire, it is clear that the majority, if not all of the children, had a positive experience and experienced an increase in musicianship skills and musical knowledge. This includes the children who said they knew it all because their demonstrated facility and fluency in playing the soprano recorder and in sight-reading was

significantly improved from the onset of the study to the end. In all cases but two, the children had had no instruction in playing the soprano recorder and even the two experienced students had only a very beginning understanding of playing the instrument. Video tape footage from the first day of class to the last day of instruction showed students' consistent development in playing and sight-reading throughout the length of the study in both groups.

The students in each group preferred the activities that engaged them in active music making. For the control group that activity was ensemble playing of pieces on the recorder. For the experimental group that activity was composing. It is important to note that these activities also developed confidence in the children regarding their musicianship. They liked the activities that allowed them to learn how to be players, readers and composers, i.e., independent learners, and how to do them with quality. Although, the students in each group performed very well on the sight-reading exam, not just the playing exam, the musical quality of the ensemble experience likely added a dimension that made the experience more musically satisfying. Regarding the sight-reading, even the researcher was surprised at the excellent level of proficiency demonstrated by the students in both groups on the post sight-reading exam.

Most teachers would agree that it is usually easier to teach children who have positive attitudes about their classroom learning. If the response to the composing is an indication of students' positive attitudes when given opportunities to engage in classroom learning that requires creative and independent thinking, then not only will this affect how much they learn in school as Hoffer (2001) suggested, but it might affect whether or not students will continue their involvement in music outside of school and in the future. Regelski (2004) advised the engaging of students in grades 4-8 in "real life" musical activities to ensure continued interest in life-long

music making. Reading, playing and composing music are real life musical activities. The advantages of such would be at the very least the enjoyment they would derive from musical experience. The interesting “mistake” made by the control group child who completed the written interview after the study, and after the child had had composing experiences in the music classroom also gives rise to thoughts on attitude. This child gave composing as the activity preference not realizing that he or she was supposed to reflect on only the time during the eighteen week study, not post study activities. This unpredicted happening indicated that a reverse of emphasis on activities between the two groups and then the completion of a written attitude interview might yield more informed results on the affects of creative work on attitude in the music classroom in future studies.

The control group was taught with the purpose of learning how to play and perform on the soprano recorder, how to sight read Western music notation and with the purpose to develop musical understanding. The experimental group was taught with these purposes in mind but not exclusively. Learning experiences in improvising and composing were just as important as the other goals. The groups were evaluated according to the goals put forth in the research questions. In subsequent research it would be interesting to give both groups an identical composition assignment such as composing an eight to sixteen bar melody for soprano recorder in addition to the other evaluation measures to see if learning to apply curriculum content in creative ways throughout the instructional period made a difference in students’ ability to complete the task and if it made a difference in the creative quality of the products produced by both groups. The assumption put forth in this study and by others is that nurturing for creative thinking in students while teaching for convergent kinds of knowledge is possible and that developing creative

conscious is beneficial to music learning and other areas of life (Davis, 1999; Guilford, 1950, 1970; Hickey and Webster, 2001; Torrance, 1963).

A concern for teachers is the amount of time it takes to give emphasis to the many areas of the music curriculum especially such activities as composing (Byo, 1999; Strand, 2006). There is no doubt that teaching the many areas of a comprehensive music education curriculum that includes attention to both disciplinary and interdisciplinary aspects of musical understanding, requires more time in the schedule than what the majority of music educators receive for their classes. As in this study, Miller (2004) found that even under the restrictions of time, some creative work is possible in the teaching of general music. The present study reinforces Miller's claim and has shown that the other areas of the music curriculum are not necessarily sacrificed with the inclusion of composing and improvising. As Stephens (2003) projected, composing can enhance the performance objectives in the curriculum. While not perhaps, in keeping with the most ideal conditions for composing and nurturing the ability to compose, in the present study, by designing the improvising and composing assignments in alignment with curriculum content made it possible to give the students several experiences in composing even within the restrictions of time. The assignments added meaning to the linear instruction received in curriculum content because students experienced the usability of purely factual information in creative ways. The assignments were varied; some allowed for the incorporation of sounds and additional instruments and they were flexible. A framework for an assignment does not necessarily stifle creativity and for some children, the framework helps them to make a start at generating their own ideas (Smith, 1994). Miller (2004) also was able to engage her students in meaningful creative work linked to curriculum goals. In linking

composition to the curriculum, it may be one way, or a partial way, to realize Pond's (1981) vision of inclusion of creative work in the public schools.

Composing requires the ability to make transfers of understandings. To some extent, the transfer comes about through discovery and construction of knowledge resultant of the process of composing. Strand (2006) found that teaching for composing and pointing out certain features in musical examples could facilitate transfers and make the learning experience more powerful for children. As was experienced in the present study, drawing from students work for "learning moments" can help move students learning forward. Teachers are able to differentiate their instruction and scaffolding according to their students' levels of understanding and when composing assignments are an outgrowth of the curriculum, teachers acquire a sense of how much the child comprehends about class studies.

In current educational trends, standardization and accountability receive much attention. Teachers are often held accountable for students' learning. This is another reason why music teachers often shy away from teaching composition, i.e., how to assess composition can be problematic. Here again, one way to address the assessment of compositions in the public school general music classroom might be to design the assignments as outgrowths of the curriculum. Loose frameworks for the assignments make possible the creation of rubrics directly related to the criteria listed in the assignment. Students are then assessed on the mechanics of the assignment and not on their creative work which not only involves much time for music educators who might have three or four hundred students, but it also involves sensitive issues. Children may not need to be assessed as to their creativity on assignments, but rather whether or not they were able to fulfill the general guidelines of the assignment that is an outgrowth of

curriculum content. For example, if a child has his attention called to an incorrect number of note values in a measure of music requires objective assessment that lets the child know they need to ask for clarification and lets the teacher know that the child is not yet in full understanding of the concept of time signatures and needs help. Assignments like this, in balance with assignments at other times that gave the students opportunities to problem find as well as problem solve as Amabile (1982) and Hickey (2003) advised, and would require a different kind of assessment that would help to insure that students were developing a comprehensive perception and understanding of composing. Engaging not only the younger children in invention of their own notational systems in order to make sense of their own musical understanding as Bamberger (1991, 1999) and Uptis (1992) suggest, but ongoing periodic engagement of the older children in such creative notation and other nontraditional systems of notation would also help to keep creative thinking in flow. Emphasis on nurturing children's creativity not assessing it might better serve educational needs.

In adherence of Dewey's (1900/1990) idea of the learning environment, both the control and the experimental group's class activities reflected his ideals to some extent due to the design of the curriculum. Each concept or skill the children learned was in support of everything else they learned. The pieces reinforced the concepts and level of skill for playing, the sight-reading reinforced the new notes children learned on the staff, and in the case of the experimental group, Dewey's four characteristic of children's natural characteristics and ways of learning were actively addressed: these included attention to Dewey's projection that children are innately social, curious, musical and artistic and they like to make things. The experimental group's flexible environment during the composing activities provided that opportunity for the children

and also supported Piaget's (Meyers, p. 148-153) and Vygotsky's (1934/1986) schema theories. The students worked productively in small groups, in pairs and some on their own. They asked for help when they needed it. The compositions showed a steady increase in understanding and ability to create more complex pieces.

Boardman (2001) and Bruner's (1960/2006) advice regarding sequential curricular planning for learning readiness and Reimer's suggestion that student's be given opportunities for creative work in even the beginning stages of learning were all observed. The curriculum plan provided in the Appendices and carrying out of the curriculum reflects this.

This study demonstrated that it is possible to incorporate improvisation and composition into the curriculum in meaningful ways that move students' learning forward. Even under time restrictions of one class per week. Composition and improvisation experiences can reinforce skill development and understanding in music. For the children in the experimental group, the incorporation of improvising and composing into class activities also seemed to affect students' attitudes about their learning in a positive way. For this study, the combination of related listening, performing and creating activities was an effective way to engage students in musical learning. Students seemed to benefit from the development of convergent understandings in music that supported their divergent thinking and the interplay of convergent and divergent thinking that was necessary for musical decision making in creative musical processing like composing and improvising. Drawing from the students work through strategies of inquiry and scaffolding facilitated the researcher's ability to help students move forward in their learning. Instruction in composing, strategies such as diminution, retrograde etc. helped students develop in their ability to compose. As Doig (1941, 1942a, 1942b) found, the experimental group

children enjoyed sharing their work and needed to be given opportunities in the classroom to share their compositions with their classmates. The control group children enjoyed performing their recorder pieces in solo and small group ensemble playing for their classmates. The students in the experimental group were successful in completing composing assignments that were an outgrowth of their linear learning.

The majority of the students in the experimental group were able to make transfers of learning from text and instruction in convergent knowledge to creative application for composing their pieces. In a way, transfer is embedded in an assignment of creative application. In asking students to apply what they have learned through assigned creative tasks, it is possible that educators might be addressing problems of transfer and giving students ways to transfer their understandings through problem solving and that are natural, enjoyable ways to learn.

Implications for Further Research

When examining the results of this study one must seriously consider the purposes of music education or rather what they should or could be. The answer to the question has never been an easy one. In this study, the philosophical underpinnings that drove the design and the desire to answer the research questions are several. First and foremost, the underlying belief that musical and creative potential are inherent in all human beings and can be developed through informal and formal ways. Second, that education can accelerate or aid in that process and third, that engagement in musical experience in a variety of ways is very beneficial to human beings physical, mental, emotional and spiritual well being. Furthermore, consistency in music education and the nurturing of creative thinking in children should and can be ongoing in music

education classrooms affecting children's learning in music, their perceptions and reactions to their learning, and their attitudes about and abilities for life-long engagement in music.

Subsequent research studies are needed to examine the effects of creative work on learning and skill development in music, on students' motivation and attitude and the meanings children make of these kinds of learning experiences. These could be conducted across age groups, across disciplines and with various creative treatments. Combined quantitative and qualitative designs would most likely best serve these purposes. Assessments of creative products and several other measures of students' understanding might provide insightful information. Stimulated protocol and semi-structured interviews would yield different information. For this study, additional data were collected: video taped class sessions; a researcher daily log that included a description of the day's events, students' comments, and the researcher's observations and personal reflections; a log of all email correspondence with the school music teacher; copies of the children's compositional drafts and resulting products including written scaffolding comments; post study compositions by both groups. Coding and analysis of this data would most likely yield additional insight on the possible effects of creative application on children's learning and meaning making of their experience.

Conclusion

The findings of this study and the findings of the many researchers reviewed for it support the inclusion of music composition and improvisation in the curriculum to the benefit of students' learning and musical experience. Some of the more specific findings are: Children are capable of engagement in creative work and composing on their own or in groups (Christensen, 1992; Stauffer, 2001; Wiggins, 1993); children's learning in cultural norms facilitates the

interactive process between convergent and divergent thinking that is characteristic of composing (Hargreaves, 1999; Webster, 1991); the quality of children's products can be affected by familiarity with the medium and instruction as to how to compose (such as the benchmark lesson on determining the meter for a composition given to the children in this study) (Stauffer, 2001); improvising and composing does have an effect on learning (Azzara, 1993; Christensen, 1992; Levi, 1991) (the children in the experimental group in the present study did as well as the children in the control group who were specifically taught to do well on the kinds of activities that were evaluated); engaging children in creative work seems to affect their motivation to learn in music class and their attitudes about their learning; learning to play instruments and to compose and write music for them during the process of learning to play is a meaningful way for students to learn formal notation systems (Coleman, 1922; 1926; 1931; Upitis, 1992; Pond, 1981); creative thinking in music and skill and understanding can be nurtured simultaneously and interactively in music classrooms even under the restrictions of time and without jeopardizing performance learning in the music classroom (Azzara, 1993; Miller, 2004)..

As is always the case in teaching a classroom full of children, students' day to day progress in learning, and their comments and behaviors provide some of the most rewarding moments for teachers and students in their engagement in the teaching and learning enterprise. Many comments and behaviors recorded on the video tape and in the researcher's log are a rich source of information for further analyzing, coding and insight into the findings. A telling of the many wonderful and interesting anecdotes from both classes would most certainly comprise another chapter in this manuscript. In ending, the quote from one of the experimental group children is appropriate. Initially skeptical of the recorder/music learning and composing

experience, and jokingly naming his or her first piece *Random Monkey Dance*, the child not only demonstrated large gains in skill and musical understanding from the first day of the study to the last, but the answer to the question of preference in activities given on the post-study questionnaire reflects the turn around in attitude from the onset of the study to the end. The child's answer for preference of activities was: "Composing because it gives you a chance to express yourself."

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APPENDICES

APPENDIX A

Sample of Curriculum Content with Related Composition Assignment

MUSIC LESSON

Music Notes

Music notes are symbols for writing, reading and playing music. The shape of a music note is a flattened circle called a “note head.” Most note heads have attached lines called stems. When the stem is attached to the right side of the note head the direction is up and when attached to the left side, the direction is down. Some note heads are colored in, and some are not. Music notes have duration or “value” of time which is measured in beats. The value of the note is how many beats or partial beats it receives in defined patterns. In many patterns used to notate music, the quarter note, as pictured below, receives one beat.

THE QUARTER NOTE  RECEIVES ONE BEAT

Clap the following quarter note exercise. Each note receives one clap of equal duration.














Exercise #1

Find the fingering for G on the recorder. Now play Exercise #1 using the fingering for G. Play the exercise again using the fingering for A, and then again using the fingering for B.

THE HALF NOTE  RECEIVES TWO BEATS

In music where the quarter note receives one beat, the half note receives two beats. Rhythm is the result of organizing beats and note values in time. Clap and play the rhythm of Exercise #2: First on G, then A, and finally B. Clap or tongue “tah” once for each note. Hold out the second beat of the half note. Count aloud while clapping, and silently while playing.























Exercise #2

Count:													
Clap:	1	1	1 - 2	1	1	1 - 2	1	1	1	1	1	1	1 - 2
Recorder:	tah	tah	tah - ah	tah	tah	tah - ah	tah	tah	tah	tah	tah	tah	tah - ah

Now try *First Piece*. Make sure your “finger pads” (the fleshy middle section of the last joint on the finger) are covering the correct holes on the recorder.

LESSON 1 PIECES
First Piece

Music by Lois Veenhoven Guderian

										
G	G	G	A	A	A	B	B	B	A	A
										
G	G	G	A	A	A	B	B	A	G	G

Clap the rhythm of *Now The Day Is Over*. Play the piece on your recorder.

Now the Day is Over

Words by Sabine Baring-Gould

Music by J. Barnaby (1869)
Arr. by Lois Veenhoven Guderian

G G G G G G A A B B A A G
 Now the day is o - ver, Night is draw - ing nigh, _____

A A B A G G G G A B G G
 Sha - dows of the eve - ning Steal a - cross the sky. _____

Clap the rhythm of *Prelude I*. Play the piece on your recorder.



Prelude I

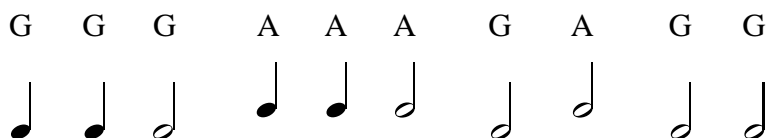
Music by Lois Veenhoven Guderian

B B G G B A G A A A B A G

B B G G B A G A A A G B G

CREATIVE CORNER

1. Using the notes G, A, and B, compose your own piece.
2. Use only quarter notes () and half notes ().
3. Make your piece as long or short as you would like it to be.
4. When your piece is finished, practice and play your piece.
5. Have a friend play your piece.
6. Give your piece a title.
7. Write as many pieces as you would like and have fun composing!

Example:**Composition:**

THEORY AND TERMS FROM LESSON I

Quarter Notes (♩) — receive one beat.

Half Notes (♭) — receive two beats.

Rhythm — the result of organizing beats and note values in time.

ASSIGNMENT

1. Practice the tonguing and blowing technique in Exercise #1.
2. Practice the half note exercise in Exercise #2.
3. Practice **LESSON I PIECES: *First Piece, Now the Day Is Over,* and *Prelude I*** three times or more per day.
4. Learn and memorize the **THEORY AND TERMS** of **LESSON I**.
5. Complete the **CREATIVE CORNER** assignment.
6. Keep a record of how many minutes you practice each day.

M	TU	W	TH	F	SA	SU
---	----	---	----	---	----	----

Little Bird

Music by Lois Veenhoven Guderian



APPENDIX B

Creative Treatment Assignments

Northwestern University School of Music

Effects of Applied Music Composition and Improvisation Assignments on Sight-Reading Ability, Learning in Music Theory and Quality in Soprano Recorder Playing

Student Investigator: Lois Veenhoven Guderian

Study Coordinator and Creator/Preparer of documents: Lois Veenhoven Guderian

Faculty Advisor: Dr. Peter Webster

Treatment – Creative, Applied Assignments in Music Improvisation and Composition that Reinforce Curriculum Content Given to Students Preceding and Following Instruction

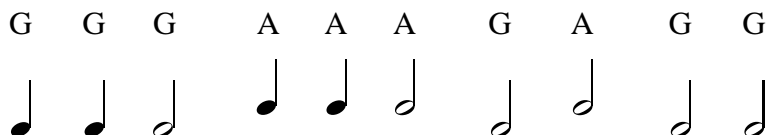
Improvisation Activities:

Improvisation activities precede the learning of new notes and note values on the soprano as found in the instructional materials: Children are taught the new fingerings and are then engaged in question and answer musical phrases with the investigator. The first time, both groups imitate the teacher. The second time, the experimental group improvises the answered musical response to the investigator's musical question and the control group children are asked to imitate the same musical answer the investigator plays as in the first time. Some improvised activities as pertain to particular lessons of instruction are included in the creative treatment for that lesson.

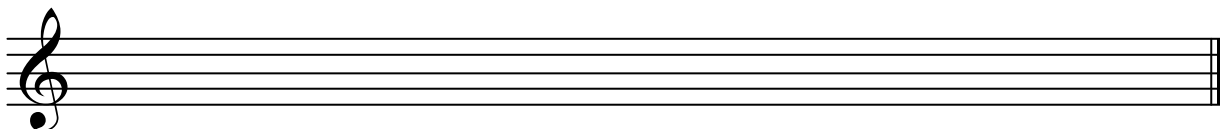
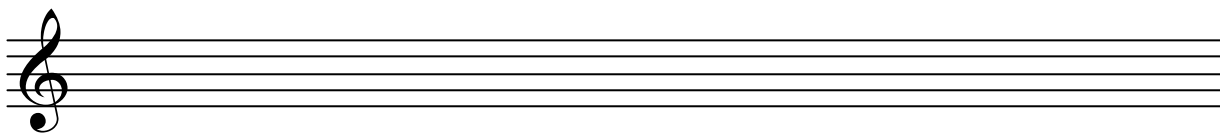
Composition Activities:

Creative Assignment for Instructional Lesson I

1. Using the notes G, A, and B, compose your own piece.
2. Use only quarter notes (♩) and half notes (♪).
3. Make your piece as long or short as you would like it to be.
4. When your piece is finished, practice and play your piece.
5. Have a friend play your piece.
6. Give your piece a title.
7. Write as many pieces as you would like and have fun composing!

Example:**Composition:****Creative Assignment for Instructional Lesson II**

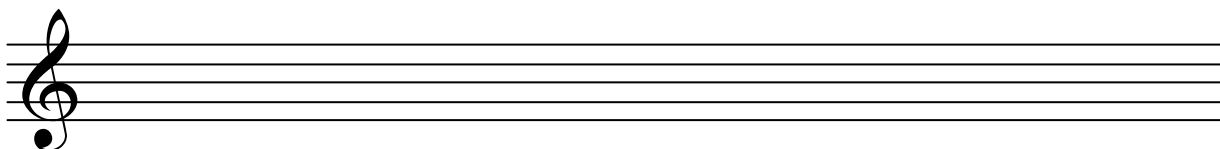
1. On the staff provided, write your composition from Lesson I.
2. Play your piece when you have finished to make sure the written version matches the sound you want.
3. Change your piece if you would like to change it.
4. Ask a friend to play your piece.
5. Give the piece to your teacher in order to make copies for everyone in your class to play the piece in the future. If you would like others to know that you wrote the piece, make sure your name is on it.
6. If you have time, compose a second piece. There is more staff paper for this on top of the piano.



Creative Assignment for Instructional Lesson III

Using the staff below, create your own composition. Before you begin, experiment with rhythmic and melodic patterns using the notes and note values you have learned by playing them on your recorder. When you have some ideas for your piece, try notating it in one of the time signatures we have learned in class.

- Use 2/4, 3/4, or 4/4 time signature
- Use any combination of quarter, half, dotted half and whole notes
- Use G, A and B notes on the recorder. Optional: Use any other notes you might have learned on your recorder outside of class.
- Make sure each measure has the correct number of beats as found in the time signature.
- Use measure bar lines to separate the measures.
- Make your piece four to eight measures long.
- Draw the double bar at the end of your composition



Creative Assignment for Instructional Lesson IV

Rhythm Sounds Composition

Compose a “rhythm sounds composition” using eighth notes and any of the other notes you have learned. Any object or “sound” can become an instrument. Use traditional classroom instruments, sounds or homemade rhythm instruments in your composition. Assign parts to your classmates. Direct, practice and perform your piece in class. Possibilities for homemade instruments or sounds are on the table. Explore and experiemnt with these but remember – any sound can become part of your composition. Example:



Write your composition here:

Creative Assignment for Instructional Lesson V

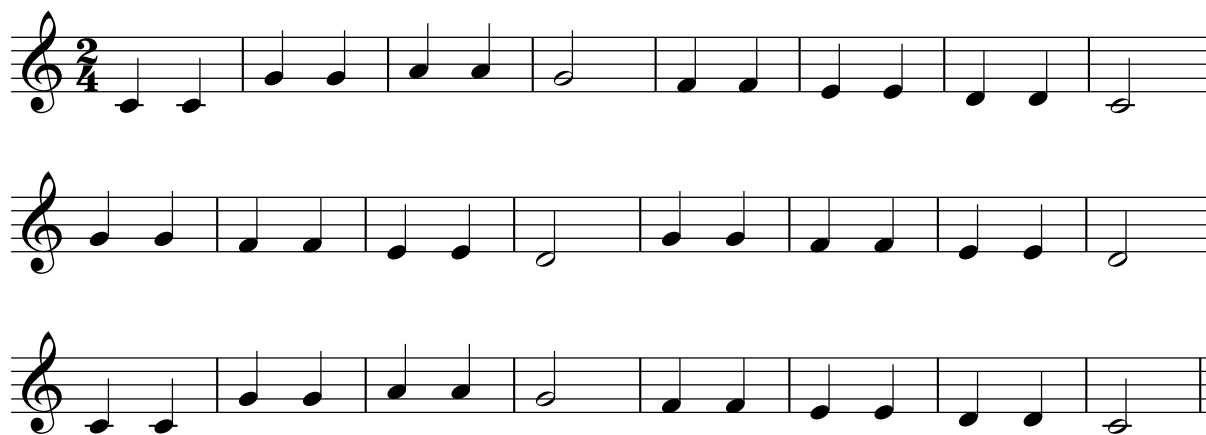
Add dynamic markings to one or more of the compositions you have composed. Play your piece(s) and experiment with the dynamics to help you determine where to place them so that the pieces sound the way you would like them to sound.

Creative Assignment for Instructional Lesson VI

Practice *Twinkle, Twinkle Little Star*. Then play the variation of *Twinkle, Twinkle Little Star*. Try creating your own variation of *Twinkle, Twinkle Little Star* by changing some of the notes, rhythm, and/or dynamics. A staff is provided for your variation.

Twinkle, Twinkle Little Star

Traditional French tune



Twinkle, Twinkle Little Star

Variation I

Musical score for Variation I of "Twinkle, Twinkle Little Star" in 2/4 time. The score consists of four staves. The first staff begins with a treble clef and a 2/4 time signature, followed by a *mf* dynamic marking. The melody is composed of eighth and quarter notes. The second staff continues the melody with a half note and quarter notes. The third staff features a *p* dynamic marking at the start and a *mf* marking later, with a mix of eighth and quarter notes. The fourth staff concludes the variation with a final half note and a double bar line.

Twinkle, Twinkle Little Star

Variation II

Empty musical staves for Variation II of "Twinkle, Twinkle Little Star" in 2/4 time. The section begins with a treble clef and a 2/4 time signature. There are six empty staves, each divided into four measures by vertical bar lines, providing space for the student to write the melody.

APPENDIX C

Benchmark Lesson on Meter

Compositions Not Quite Ready – Edits and Expansions Needed

The compositions you created need some revising and in some cases, finishing. The assignment you received was to help give you both direction and freedom in what you created. I have marked an “X” next to the parts of the assignment that you need to edit or expand and I have edited the parts that I could edit. I cannot change your piece or make it longer because I am not the composer of the piece. You are! Here are helpful things to keep in mind

The *time signature* you choose for your piece will determine how it sounds. Consider the following piece one of your fellow classmates wrote. It sounds differently in each time signature because the first beat of the measure receives the emphasis. No time signature was given for the piece. Where would you draw the measure bar lines?

4/4 G G G A B B B A G A B A B A B A G


3/4 G G G A B B B A G A B A B A B A G


2/4 G G G A B B B A G A B A B A B A G


You may change the time signature of a piece but you must show the change and then you must make sure the number of beats in each measure, for the new time signature, are correct.

3/4 G B B 2/4 A B 3/4 G B B 2/4 A B 3/4 A B B 2/4 A B

3/4 A B B 2/4 A B 3/4 B B B 2/4 A B 3/4 B B B 2/4 A B

3/4 A B B 2/4 A B 3/4 G B G

Composing: improvise until you find an idea you like

Develop the idea

Repeat the idea

Change the idea

Create a second idea for your piece that contrasts with the first idea

Use variety to make your piece interesting (not all quarter notes in 4/4)

Speak your lyrics while clapping the beat to discover the long and short durations and note values

Use dotted quarter notes in combination with 8th notes.

APPENDIX D

Principal's Authorization to Conduct Research

Northwestern University School of Music Authorization to Conduct Research:

August 14, 2007

Dear _____:

With your permission, I am conducting a research study at _____ beginning late August of the 2007-2008 academic school year. This study investigates the effectiveness of an approach to music education where opportunities for creative work – in this case, music composition and improvisation – are embedded into the curriculum. The study, in part, fulfills one of the requirements for a PhD degree in Music Education from Northwestern University School of Music. The interest for this study evolved as a result of my life quest to offer quality music education to the students entrusted into my care and from my experiences as a music educator and professional musician. Whereas many music education researchers have examined the resulting products of creative thinking in music or the processes of creative thinking and problem solving, this study is about the effects on learning, musical understanding and the development of musicianship skills when students are given opportunities to apply what they are learning, i.e., curriculum content, in creative ways. I appreciate your willingness to allow me to conduct the research in the fifth-grade music classes at your school in order to collect data for this study.

As per the guidelines of Northwestern University's research protocols, I will maintain the data in confidentiality. Students' names will never be published in association with their participation in this study.

Completing the form below will grant me authorization to conduct the research at _____. The study will take place during the fifth-grade music classes for the duration of eighteen weeks, the full length of the forty minute class time each week. If further information is required, please feel free to contact me.

Sincerely,

Please complete this form and return it to _____ Please keep a copy for your records.

I authorize _____ to conduct educational research in the fifth-grade music classes at my school.

Principal's name (please print): _____

Principal's signature: _____

School name: _____

APPENDIX E

Student Letter and Consent Form

September 4, 2007

Dear Student: _____,

I am conducting a research study in music education and recorder playing during your music classes at _____ School this fall. The purpose of this study is to examine ways of teaching and learning music for their effectiveness.

Educational research studies are conducted to find out answers to questions about teaching and learning. Student participation is necessary and very important to educational research. With your help, we might be able to answer questions or make an important discovery that will benefit many students in our schools as well as inform teachers of better ways to teach.

I invite you, as a fifth-grader at _____ School, to participate in this study. If you decide to participate, you will learn how to play the soprano recorder, how to read music and play in a recorder ensemble during your regularly scheduled music class. You will also learn how to create your own music either during the study or immediately following the research study this fall. At the beginning of our work together I will ask you a few questions about your background in music and give you two evaluations so I have an idea of where you are in your music studies. I will read the questions to you or play musical sounds and ask you to circle the answer you think is correct. In some cases I will ask you to write a short answer. If you do not know an answer to a question, simply leave it blank. The evaluations are not for a grade. After our work together this fall, I will give you another written evaluation and ask you to play two solos for me on the soprano recorder that I will audio tape. In addition, you will be asked to write answers to six questions that I will ask you about your music learning experience during the study. The number of questions you answer on the written portion and how you play the pieces will not determine your grade in music class. The evaluations will help us understand how much you have learned.

Enclosed are two forms: an assent form for you and a consent form for your parents. Please take time to read the assent form carefully and discuss this opportunity with your parents.

Northwestern University's Institutional Review Board of the Office for the Protection of Human Subjects requires your signature and your parent/guardian's signature, should you be willing to participate.

If you have any questions or concerns regarding this study, please do not hesitate to ask your music teacher or ask me when you see me at school. Please return the assent and consent forms to your classroom teacher **no later than Wednesday, September 10, 2007**. I look forward to receiving your response!

Sincerely,

**Northwestern University
School of Music**

Student Assent Form

Effects of Applied Music Composition and Improvisation Assignments on Sight-Reading Ability, Learning in Music Theory and Quality in Soprano Recorder Playing

Student Investigator: Lois Veenhoven Guderian
Faculty Advisor: Dr. Peter Webster

I have read this form and the research study has been explained to me. I have been given the opportunity to ask questions and my questions have been answered to my satisfaction. If I have additional questions, I have been told to contact my music teacher or classroom teacher. I agree to participate in the research study described above and my parents will receive a copy of this assent form.

Subject's Signature

Date

Signature of Person Obtaining Assent

Date

Investigator's Signature

Date

APPENDIX F

Letter to Parents

Northwestern University School of Music Information Letter Regarding Music Education Research and Fifth-Grade Students

September 4, 2007

Dear Parents of _____,

I am conducting a research study in music education at _____ School in _____ beginning in September, 2007. This study investigates the effectiveness of an approach to music education where opportunities for creative work – in this case, music composition and improvisation – are embedded into the curriculum. The study, in part, fulfills one of the requirements for a PhD degree in Music Education from Northwestern University School of Music. The interest for the particular topic evolved as a result of my life quest to offer quality music education to the students entrusted into my care, from my life as a professional musician and my many classroom experiences in nurturing creative music making in students of all ages. Whereas many music education researchers have examined the resulting products of creative thinking in music or the processes of creative thinking and problem solving, the purpose of this study is to examine the effects on music reading and playing, musical understanding and the development of musicianship skills when students are given opportunities to apply what they are learning, i.e., curriculum content, in creative ways. As you know, educational research is a form of inquiry. The larger purpose of all educational research is to gain information that when necessary, leads to change in educational practices and policies that in the long run benefit those who are most involved in education: Students and teachers. With your help, this can become a reality.

For the past several years, I have been researching several topics in regard to music teaching and learning and creative thinking in music. From this research and my experience as an educator, a theory is emerging. I have applied the principles of the theory in a variety of teaching settings and age groups. In all cases where the approach to teaching reflected the theory, students were highly engaged in their work and evaluations from these teaching situations showed substantial gains in musical understanding and skill development. In 2002, a pilot study for the present study was conducted at an elementary school with third grade children. Both participating groups in the study showed a large gain in musical understanding. This research study will yield additional information that is important to understanding the theory behind the classroom strategies employed here as well as their effectiveness. I invite your fifth-grade student to participate in the study. Should you allow your child to participate, he or she will complete an initial musical aptitude test and a pretest of music theory not previously learned during their music classes. The same theory test will be given at the end of the study to see if there has been a gain in learning. In addition, two recorder playing examinations will be given by me and your teacher _____. A sight-reading evaluation and solo playing evaluation on a prepared piece in order to evaluate

musical understanding and playing ability. These will be audio taped and assessed by a panel of experienced music educators. As per the guidelines of Northwestern University's research protocols, I will maintain the data in strict confidentiality. Students' names will never be published in association with their participation in this study.

Enclosed is a comprehensive description of the study and a parental consent form for your review. Please take time to review these documents thoroughly and discuss them with your child. Northwestern University's Institutional Review Board of the Office for the Protection of Human Subjects requires your signature and your child's signature, in order for your child to participate.

If you have any questions or concerns regarding this study, please do not hesitate to contact me, (music specialist or principal). **Please return the enclosed consent form to your classroom teacher no later than September 10, 2007** I look forward to receiving your response!

Sincerely,

APPENDIX G

Research Procedure Document for Parents and Parent Consent Form

Northwestern University, School of Music Parent/Guardian Consent Form

Effects of Applied Music Composition and Improvisation Assignments on Sight-Reading Ability, Learning in Music Theory and Quality in Soprano Recorder Playing

Student Investigator_____

Faculty Advisor_____

Introduction/Purpose

Your child is being asked to participate in a research study that will focus on methods of teaching for music education. In particular, the purpose of this study is to determine whether certain methods of teaching that incorporate music composition assignments and improvisation – in reinforcement of curriculum content and classroom instruction – will have an effect on (1) the level of ability in sight-reading traditional music notation, (2) the learning of music theory, (3) the facility and fluency in playing the soprano recorder.

During the last four decades, researchers, philosophers, psychologists and arts educators have contributed a number of research studies devoted to the study of creative thinking. Due to their efforts, there is a growing awareness, if not an already established belief, of the benefits of creative endeavors to human well-being: The importance of nurturing creative thinking, and providing students with opportunities for creative thinking and creative expression in music learning environments (Lapp & Lundgren, 2000-2001; McPhearson, 1999; Reimer, 1987; Reimer & Smith, 1992; Vega, 2001; Webster, 1991). All students in the fifth-grades are asked to participate in the study in order to provide a diverse representation of participants.

Procedures

Your child's participation in the study will last for eighteen weeks beginning in fall of 2007 and ending in the first quarter of 2008. All students in the fifth-grade classes at ($N = 46$) are asked to participate. The entire music class time of forty minutes each week will be used to conduct the study. As a participant in this study, your child will receive the following evaluations and instruction in music education: A written questionnaire regarding their background in private lessons or ensembles; in order to ensure similarity in musical aptitude across subjects, a musical aptitude measure – the *Intermediate Measures of Music Audiation* (IMMA) by Edwin Gordon – will be given to all students at the onset of the study. In addition, a music theory pretest on the first day of the study and the identical test as posttest on the last day of the study in order to determine the gains in music learning and understanding within and between the two groups. The pretest and posttest will be administered in the same way on the two test days: The questions will be read aloud to the class as the students write the answers so that students' reading aptitude is not a variable. The students will be instructed to leave an answer blank if they do not know it. The music theory pretest and posttest will be comprised of music notation, theory and musical

signs and symbols not previously learned during their school studies in music class. The test requires students to write short answers or circle the correct answer from the options given. The students will complete and hand in the test at the same time. On the last day of the study the students will be given the initial questionnaire they received on the first day of the study and asked to complete the second page on which there are six questions in regard to their experience during the study.

Students in both fifth-grade classes will receive instruction in soprano recorder playing, music reading and music theory. One group, randomly assigned, will receive instruction in music composition and improvisation as follow up to the classroom instruction during the study. The other group will receive traditional drill and practice in music as follow up to the classroom instruction. After the study is completed, the group that was taught without the improvisation and composition will have the option of receiving the instruction in these areas of music study as a separate enrichment outside of the research study in order to give all of the fifth-graders the opportunity for applied creative experiences in music. The improvisation-composition group will receive extra time as well in practice and drill once the study is completed and the evaluations for data have been collected. All students will be given the following evaluations after the days of instruction are completed:

1. a researcher-created measure of sight-reading – a piece of music not previously seen or heard by the students. Students' sight-reading ability will be evaluated in four areas: rhythmic reading accuracy; note reading accuracy; observation of signs, symbols as found in the example; consistency of beat and tempo
2. a researcher-prepared measure of playing ability – seven criteria evaluated: note reading accuracy; rhythm reading accuracy; tone quality; facility in playing; fluency in playing; expressive quality; observance of notational signs and symbols
3. a researcher created interview form regarding children's background in music outside of school instruction and follow up questions regarding their experience during the study.

I will teach the classes and administer the evaluations assisted by the school music teacher, _____. The playing and sight-reading exams will be taped and evaluated by a music teacher not present during the evaluations as well as by me and _____. All measures will be evaluated for validity and reliability by a panel of music education experts comprised of Northwestern School of Music Faculty and experienced music teachers.

Observations of teaching from selected lessons in each group will be observed, video taped and independently evaluated by a panel of experts from Northwestern School of Music Education Faculty to ensure that the style of teaching is the same for both groups. The examiners will receive a measurement for this task in which teaching style, researcher enthusiasm, and delivery of curriculum content are evaluated for consistency and bias.

Risks

There are no known risks associated with this study other than what the children would encounter in daily school life. You may withdraw at any time. If you or your child decides not to participate, or to withdraw, your child will receive forty minutes of music instruction per week with a designated music teacher.

Benefits

There are several potential benefits to your child if they participate in this study. Your children will receive an excellent music education course in recorder playing, music reading, musical understanding and applied creative work. The instruction is an excellent foundation for any kind of instrumental or vocal music study as well as for continued studies in recorder playing and music class instruction.

Creative thinking techniques in music education, especially those of improvisation and composition and the materials and methods that support such work have been targeted as areas that need research. How to provide students with these opportunities, while at the same time helping students to develop musical understanding, musicianship and facility in playing and singing, is an important issue in music education. This research will provide music educators with a better understanding of how children learn, the impact of creative work on overall learning in music and how to incorporate music improvisation and composition into the curriculum. In addition, the meanings children make from the two approaches to teaching and learning may give insight into how to engage children in learning that is meaningful and enjoyable. Long term effects could include a more musically literate population, tangible teaching methods to nurture creative thinking and music making and ways to help children become aware that they have great potential for creative work. This self-awareness of creative potential would benefit not only individuals, but society at large. It may have an effect on how students spend time outside of school. A pilot study for this study, conducted in 2002, in which third graders were allowed to creatively apply and experience what they were learning showed positive results in music learning. This study, longer in duration, and with a different age group than the pilot study, would tell us more about these methods. Results from this research can benefit all involved: researcher, administrators, school teachers, students and their families.

Alternatives

Your child has the alternative to choose not to participate in this study, and you have the alternative not to allow your child to participate in the study.

Confidentiality

Participation in this research study does not result in a loss of privacy. ***Students' names will not be used in the publication of the results of this research. Students will be assigned a code number in order to convert the results of the evaluations to numbers for statistical analysis.*** No personal information other than age, grade in school, gender, and the name of school will be used in any way. All research materials will be held in the strictest confidence.

Centralized Data Collection or Registries

The results of the students' examinations will be collected in a centralized computer or data registry at Northwestern University following the study. Students will receive a numerical identifier. No names will be used. For the benefit of music educators, with your permission, I would like to publish copies of the scores of the students' compositions in the Appendix section of the dissertation that will result from this study. Here again, students will receive a numerical identifier. In addition, I may present audio or short clips of video recordings for educational or research purposes. No personal identifiers will be used. (Please see consent section of this form.) Recordings and copies of evaluations and written compositions will be kept on file by the researcher for these purposes.

Financial Information

Participation in this study is at no additional cost to you. Your child will not receive any pay for participating in the study. Your child will receive a new, quality soprano recorder for use during and after participation in the research study that they may keep.

Subjects' Rights

Your child's participation in this study is voluntary and he/she is free to withdraw at any time before the scheduled date for the study. Participation or withdrawal will not affect your child's class standing. The research study will be conducted during your child's general music class by the researcher who holds an active State Teachers Certificate in K-8 music from the State Teachers Certification Board State of Illinois and is an experienced educator in the schools. If you choose to withdraw your child, or if he/she chooses not to participate in the study prior to the scheduled date of the study, you must inform the school and researcher of your intention.

Contact Persons

Any questions you have about this study may be directed to Professor Lois V. Guderian at telephone number _____ or _____ Principal, _____ at telephone number ____.

Questions about research subjects' rights may be directed to:

The Office for the Protection of Research Subjects of Northwestern University (OPRS)

Telephone: 0 01 (312) 503-9338; E-mail: irb@northwestern.edu

OPRS: 710 N. Lake Shore Dr., Northwestern University; Chicago, IL 60611, U.S.A.

**Northwestern University
School of Music**

Parent/Guardian Consent Form

Effects of Applied Music Composition and Improvisation Assignments on Sight-Reading Ability, Learning in Music Theory and Soprano Recorder Playing

Student Investigator: Professor Lois V. Guderian

Faculty Advisor: Dr. Peter Webster

I have read this form and the research study has been explained to me. I have been given the opportunity to ask questions and my questions have been answered to my satisfaction. If I have additional questions, I have been told who to contact. I agree to let my child participate in the research study described above and will receive a copy of this consent form.

Subject's Signature (Student)

Date

Signature of Person Obtaining Consent (Parent)

Date

Investigator's Signature

Date

I give permission for publication of my child's composition scores in the Appendix section of the dissertation by Lois V. Guderian or for the purposes of education or research presentations.
Circle "Yes" if permission is granted and "No" if permission is not granted.

YES NO Parent's signature _____ Date _____

I give permission to Lois V. Guderian to play an audio recording of my child's soprano recorder playing for the purposes of education or research presentations.
Circle "Yes" if permission is granted and "No" if permission is not granted.

YES NO Parent's signature _____ Date _____

I give permission to Lois V. Guderian to play a short video or DVD recording clip of my child's participation in classroom activities and instruction for the purposes of education or research presentations. The video clip may include a view of my child's face.
Circle "Yes" if permission is granted and "No" if permission is not granted.

YES NO Parent's signature _____ Date _____

APPENDIX H

Student Pre and Post Study Questionnaire

(First page completed before the start of the study, second page after completion of the study.)

Name_____

Grade in School_____

Date of Birth_____

Have you ever received instruction in recorder playing? (Circle one) YES NO

If you know how to play the recorder, how many years have you played? _____

Piano Study?_____ Years played_____

Other instrument?_____ Years played_____

Other instrument?_____ Years played_____

Give the number of years you have participated in any of the following:

Band_____ Orchestra_____ Chorus_____ Church Choir_____

Gordon IMMA scores:

Tonal_____

Rhythmic_____

Composite_____

Theory Pretest Score_____

(For use after the completion of the study)

Name (continued) _____

Did you have a favorite activity that was a part of music class activities during the study?

If so, what was that activity and why was it your favorite?

Did you have a least favorite activity that was a part of music class activities during the study?

If so, what was that activity and why was it your least favorite?

Have you learned more about music as a result of the study?

Do you enjoy playing the recorder as a result of class studies?

Evaluation Scores:

Posttest score _____

Sight-reading evaluation _____

Playing ability evaluation _____

APPENDIX I

Evaluation of Style of Teaching and Contaminant Variables

Evaluation of Style of Teaching and Contaminant Variables

Please evaluate the teacher-researcher on the behaviors demonstrated in teaching the experimental group and control group of students for this research study and according to the table below by placing an X under the word *same* or *different* that best describes the teacher-researcher's behavior.

For this study, *Delivery of Curriculum Content* refers to the teaching and explanations of musical concepts and playing skills; *Style of Teaching* refers to the manner in which the teacher interacts with the students and engages them in learning – not the methodological approach to teaching; *Enthusiasm* refers to the teacher's demonstrated behavioral attitude regarding the two different approaches to teaching, i.e., one with follow up to class instruction with drill and practice and the other with follow up in assigned, applied creative tasks.

	Same	Different
Delivery of Curriculum content		
Style of Teaching		
Enthusiasm		

Signature_____

APPENDIX J

Sight-reading Evaluation

Sight Reading Measurement

Moderato

mf *p*

4

mf

6

APPENDIX K

Researcher Prepared Measure of Playing Ability

**Northwestern University
School of Music**

**Effects of Applied Music Composition and Improvisation Assignments on
Sight-Reading Ability, Learning in Music Theory and Soprano Recorder
Playing**

Student Investigator: Lois Veenhoven Guderian

Faculty Advisor: Dr. Peter Webster

Study Coordinator and Creator/Preparer of Documents: Lois Veenhoven Guderian

Researcher Prepared Measure of Playing Ability

Aura Lee

Words by G. R. Poulton

Melody by W.W. Fosdick, ca. 1830

Arr. by Lois Veenhoven Guderian

The musical score for 'Aura Lee' is presented in 4/4 time across four staves. The first staff begins with a treble clef, a 4/4 time signature, and a piano (*p*) dynamic marking. The melody consists of eighth and quarter notes. The second staff continues the melody. The third staff begins with a mezzo-forte (*mf*) dynamic marking. The fourth staff begins with a mezzo-piano (*mp*) dynamic marking and concludes with a double bar line.

APPENDIX L

Evaluator's Rating Sheet for Sight-reading and Playing Evaluations

Playing and Sight-reading Ability Evaluations

Student # _____

- Using the following five-point scales, please rate the students' recorder performances. The first group of ratings are for a prepared piece and the second for a sight-read piece.
- Before rating the students, please listen to at least the first ten students' recordings in order to acquire a sense of the playing of the group as a whole. Feel free to listen to more if time allows.
- Return to the beginning and then make your judgments based on the level of the group as a whole.

I. Playing Ability Evaluation

1. Place a checkmark in the box that best applies

	Excellent	Good	Average	Poor	Unacceptable
Pitch Reading & Playing Accuracy					
Rhythm Reading Accuracy					
Steadiness of beat					
Tone Quality					
Facility in Playing*					
Fluency in Playing**					

*Facility refers to ease and proficiency in playing the instrument. **Fluency refers to number of stops and starts.

2. Place a checkmark for any evidence of the observance of dynamic markings and for any indication of expressive quality

Dynamic Markings _____ Expressive Quality _____

II. Sight-Reading Ability Evaluation

1. Place a checkmark in the box that best applies

	Excellent	Good	Average	Poor	Unacceptable
Note Reading Accuracy					
Rhythm Reading Accuracy					
Steadiness of Beat					
Tone Quality					

2. Place a checkmark for any evidence of the observance of dynamic markings

Observance of Dynamic Markings _____

APPENDIX M

Music Theory Pretest and Posttest

1. Music Notes: Fill in the blanks with the correct number of beats.

1.a. THE QUARTER NOTE  RECEIVES _____

BEAT(S) in 2/4, 3/4, 4/4, and 5/4 time signatures.

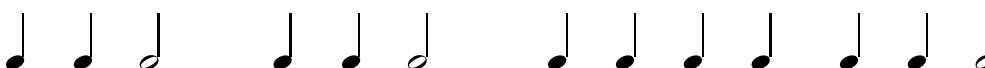
1.b. THE HALF NOTE  RECEIVES _____

BEAT(S) in 2/4, 3/4, 4/4, and 5/4 time signatures.

2. Look at the following exercise while the teacher claps the rhythm. Did the teacher clap the durations of the notes in the exercise correctly? Circle YES if the teacher clapped the exercise correctly and NO if she did not.

YES

NO



3. The result of organizing long and short note values into groups would be the (circle one answer)

METER

RHYTHM

MEASURE

BEAT

4. The Following is a Picture of (circle two)

NOTE

STAFF

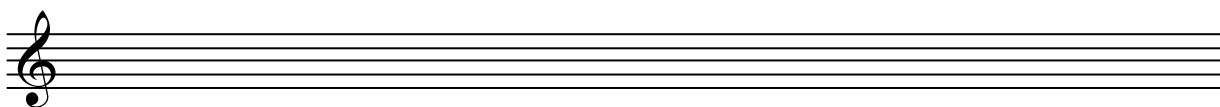
STEP

SKIP

TREBLE CLEF

BASS CLEF

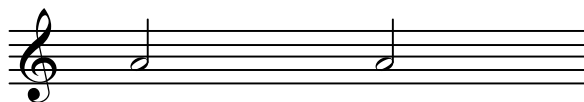
REPEATED NOTES



5. Write the letter name for the notes.



6. Write the letter name for the notes.



7. Write the letter name for the notes.



8. **Below is a picture of reading music on the staff. Underneath each measure, write the term that matches the picture: Steps; Skips; or Repeated notes.**



9. **Fill in the correct number of beats.**

9.a. THE DOTTED HALF NOTE  RECEIVES _____

BEATS in 2/4, 3/4, 4/4, and 5/4 time signatures.

9.b. THE WHOLE NOTE  RECEIVES _____

BEATS in 2/4, 3/4, 4/4, and 5/4 time signatures.

10. **Examine the following Time Signature examples. Circle the example that is explained correctly.**

Example A

- 2 – There are four beats per measure.
- 4 – The eighth note receives one beat.

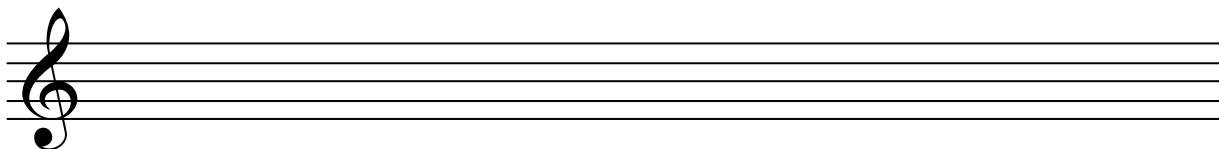
Example B

- 3 – There are three beats per measure.
- 4 – The quarter note receives one beat.

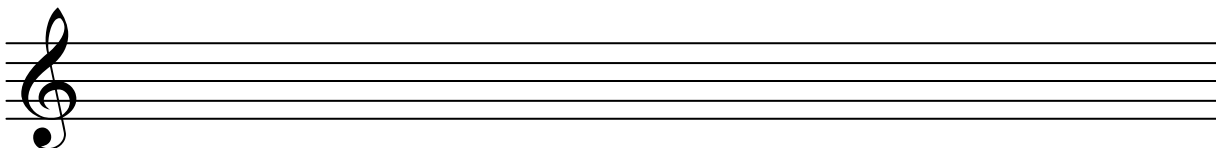
Example C

- 4 – There are four beats per measure.
- 4 – The quarter note receives four beats.

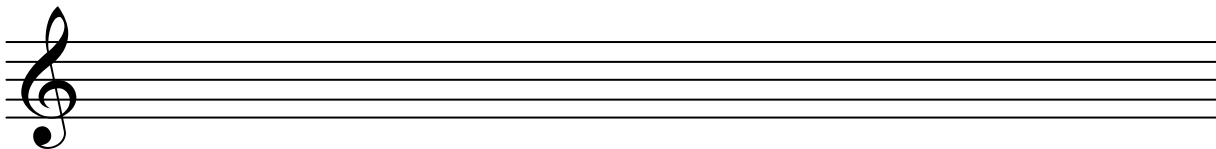
11. Using the staff below, draw the following: Time Signature.



12. Using the staff below, draw the following: A Measure Bar Line.



13. Using the staff below, draw the following: A Measure



14. Fill in the blank with the correct number of beats.

14.a. THE EIGHTH NOTE — (♩) — RECEIVES _____

BEATS in 2/4, 3/4, 4/4, and 5/4 time signatures.

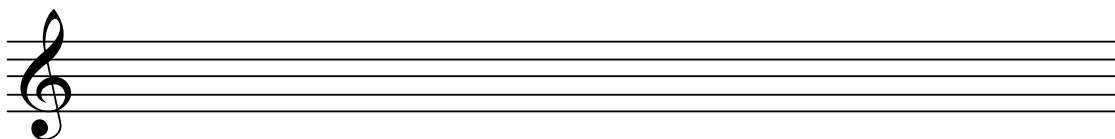
14.b. TWO EIGHTH NOTE S BEAMED TOGETHER (♪) ARE

EQUAL TO _____BEATS in 2/4, 3/4, 4/4, and 5/4 time signatures.

15. Dynamics in Music: Fill in the Chart below by writing the Symbol and English word for the Italian terms below. The first one is completed for you.

Symbols, Italian term and English Meaning			
<i>P</i>	=	<i>piano</i>	= <i>Soft</i>
	=	<i>mezzo piano</i>	=
	=	<i>pianissimo</i>	=
	=	<i>forte</i>	=
	=	<i>mezzo forte</i>	=
	=	<i>fortissimo</i>	=

16. Draw the C Major scale on the staff below



17. In the measures below, place an X through the two-note groups that are steps.



18. What are you hearing? Listen to the teacher play the example. Circle the example below that you think the teacher played.

Example A



Example B



APPENDIX N

Curriculum Content for the Two Classes

LESSON I **1**

TECHNIQUE AND FINGERING	1
<ul style="list-style-type: none"> • Learning How to Hold the Recorder • Understanding the Hole Coverings • Tonguing • Blowing • The First Three Notes, G, A, and B Fingering Chart 	
MUSIC LESSON	3
<ul style="list-style-type: none"> • Music Notes <ul style="list-style-type: none"> ♦ Quarter Note ♦ Half Note 	
LESSON I PIECES	4
<ul style="list-style-type: none"> • <i>First Piece</i> • <i>Now the Day Is Over</i> • <i>Prelude I</i> 	
CREATIVE CORNER	5
<ul style="list-style-type: none"> • Using the Notes G, A, and B, Compose Your Own Piece 	
THEORY AND TERMS	6
<ul style="list-style-type: none"> • Quarter notes • Half notes • Rhythm 	
ASSIGNMENT	6

LESSON II **7**

TECHNIQUE AND FINGERING	7
<ul style="list-style-type: none"> • Review of Fingering and Technique from Lesson I (Notes G, A, and B) 	
MUSIC LESSON	7
<ul style="list-style-type: none"> • The Music Staff • Treble Clef <ul style="list-style-type: none"> ♦ Notes G, A, and B on the Staff • Reading Music on the Staff <ul style="list-style-type: none"> ♦ Repeated Notes, Steps and Skips ♦ Notation • Dotted Half Note 	
LESSON II PIECES	10
<ul style="list-style-type: none"> • <i>Stop and Look</i> • <i>Waltz</i> • <i>Breathe on Me Breath of God</i> • <i>Faith of Our Fathers</i> 	
CREATIVE CORNER	12
<ul style="list-style-type: none"> • On the Staff Provided, Write Your Composition from Lesson I 	

	271
THEORY AND TERMS	13
<ul style="list-style-type: none"> • Music Staff • Step • Repeated Notes • Skip • Treble Clef • Notation • Dotted Half Note 	
ASSIGNMENT	13
LESSON III	14
TECHNIQUE AND FINGERING	14
<ul style="list-style-type: none"> • Review of Fingering and Staff Placement for Notes G, A, and B 	
MUSIC LESSON	14
<ul style="list-style-type: none"> • Time Signature <ul style="list-style-type: none"> ♦ Measure ♦ Measure Bar Line • Whole Note 	
LESSON III PIECES	16
<ul style="list-style-type: none"> • <i>Piece</i> • <i>Almost a French Folk Song</i> • <i>Praise God from Whom All Blessings Flow</i> • <i>Hot Air Balloon Waltz</i> 	
CREATIVE CORNER	17
<ul style="list-style-type: none"> • Create a Composition in 4/4 Using G, A, and B Notes 	
THEORY AND TERMS	18
<ul style="list-style-type: none"> • Tip for Writing Notes Correctly • Time Signature • Measure • Measure Bar Lines • Double Bar • Whole Note 	
ASSIGNMENT	18
LESSON IV	19
TECHNIQUE AND FINGERING	19
<ul style="list-style-type: none"> • Two New Notes, C and D 	
MUSIC LESSON	19
<ul style="list-style-type: none"> • Eighth Note 	
LESSON IV PIECES	20
<ul style="list-style-type: none"> • <i>Little Bird</i> • <i>Chester</i> • <i>From Brahms' First</i> • <i>Twenty-First-Century Minuet</i> 	
CREATIVE CORNER	22
<ul style="list-style-type: none"> • Rhythm Sounds Composition • Homemade Instruments 	

	272
THEORY AND TERMS	23
• Eighth Note	
ASSIGNMENT	23
LESSON V	24
<hr/>	
TECHNIQUE AND FINGERING	24
• Review of Fingering for Notes C and D	
MUSIC LESSON	24
• Dynamics: Louds and Softs of Music	
• Dynamics Chart	
LESSON V PIECES	25
• <i>Beautiful Savior</i>	
• <i>Prelude II</i>	
• <i>Aura Lee</i>	
CREATIVE CORNER	27
• Add Dynamic Markings to an Original Composition	
THEORY AND TERMS	27
• <i>Piano</i>	
• <i>Mezzo Piano</i>	
• <i>Pianissimo</i>	
• <i>Forte</i>	
• <i>Mezzo Forte</i>	
• <i>Fortissimo</i>	
ASSIGNMENT	27
LESSON VI	28
<hr/>	
TECHNIQUE AND FINGERING	28
• Four New Notes, Middle C, D, E, and F	
MUSIC LESSON	29
• C Major Scale	
• Steps, Seconds	
• Repeat Sign	
LESSON VI PIECES	30
• <i>Burleske</i>	
• <i>Holy, Holy, Holy</i>	
CREATIVE CORNER	31
• Variation of <i>Twinkle, Twinkle Little Star</i>	
THEORY AND TERMS	33
• Step	
• Interval	
• Skip	
• C Major Scale	
• Repeat Sign	
• Syllable	
• Solfège	
ASSIGNMENT	33

APPENDIX O

Answers and Comments written on the Post Study Student Questionnaire

Experimental	Control
Q1. Did you have a favorite activity that was a part of music class activities during the study?	
7 answered with a straight “no”	9 answered with a straight “no”
17 answered “yes” and their reasons are recorded below.	Additional “no” answers 1. “No, I didn’t like everything the same.” 2. “No, I liked everything the same.” 3. “No, not really” 10 answered “yes” and their reasons are recorded below.
Q2. If so, what was that activity and why was it your favorite?	
1. “Composing with a partner.”	1. “Yes, playing Little Bird. It was a fun song to play.”
2. “Composing because it gives you a chance to express yourself.”	2. “Yes, playing fun songs like Little Bird because they are fast and energetic.”
3. “Making music. I liked it because it was the way I like the music.”	3. “Yes, it was playing Little Bird because it was a fun song.”
4. “The compositions.”	4. “Yes, listening to solos and playing solos.”
5. “My favorite activity was when we got to use real instruments for a composition.”	5. “Yes, learning how to learn a recorder.”
6. “My favorite part was when we were experimenting with the different instruments. It was very fun!”	6. “Yes, my favorite was learning new notes like C and D because I’ve never learned them before and I also liked trying to figure out how to play the pitch of C and D.”
7. “I liked the group composing because I like group projects.”	7. “Yes, it was learning new notes because we had fun learning it.”
8. “I liked writing compositions because writing them is more fun than playing them.”	8. “Yes, it was playing Little Bird because it was a fun song.”
9. “The composing part.”	

Experimental	Control
<p>10. “Composing pieces with the other instruments.”</p> <p>11. “I liked the compositions because I got to be creative.</p> <p>12. “Sight-reading. It was fun because you have to play it over and over.”</p> <p>13. “I liked creating my own piece.”</p> <p>14. “Composing because I like playing with instruments.”</p> <p>15. “I liked it when we made a song using different beats.”</p> <p>16. “It was when we memorized the songs for the Christmas concert. It was fun!”</p> <p>17. “Compositions because it was fun.”</p>	<p>9. “My favorite activity was playing the recorder and I liked the song Little Birdie.</p> <p>10. “Yes, I liked composing the music.” (This student was absent on the day the other children completed the evaluation. He completed the evaluation after the study was completed and by the time he and his class had engaged in post study composing activities with the researcher. Hence, the comment regarding composing from a control group participant.)</p>
<p>Q3. Did you have a least favorite activity that was a part of music class activities during the study?</p>	
<p>13 answered with a straight “no”</p> <p>Additional “no” answers were –</p> <p>1. “NO! NO!! It was all fun! So NO!.”</p> <p>2. “No. I liked it all.”</p> <p>3. “NO” (followed by a picture of a smiley face)</p> <p>11 answered “yes” and their reasons are recorded below.</p>	<p>9 answered with a straight “no”</p> <p>Additional “no” answers were –</p> <p>1. “No, I like everything.”</p> <p>2. “No, not really”</p> <p>3. “I don’t know what my least favorite thing was.”</p> <p>10 answered “yes” and their reasons are recorded below.</p>
<p>Q4. If so, what was that activity and why was it your least favorite?</p>	
<p>1. I didn’t like making the piece with the variety of instruments.</p> <p>2. My least favorite was doing the variations.</p>	<p>1. “I didn’t like the reflection (I think this student means echo) exercises. I also didn’t like going over the notes and the rest (but that’s ‘cause I knew ‘um).”</p>

Experimental	Control
<ol style="list-style-type: none"> 3. I didn't really like doing the notes at the bottom like low C. 4. Compositions. 5. All of the loud noise. 6. Playing Aura Lee. It was way too slow. 7. Learning to sight-read. 8. Playing from the book. 9. I didn't really like the song choice for the Christmas concert because I just don't like songs that are very short. 10. Not being noisy. 11. Composing. It is boring. 12. My least favorite activity was people talking because we couldn't learn. 	<ol style="list-style-type: none"> 2. "I didn't like songs that were challenging." 3. "The final test I was very nervous and I didn't want to be taped." 4. "It was playing during the Christmas concert because it was scary." 5. "Trying to figure out the notes." 6. "I didn't like some of the music because it was sometimes harder." 7. "I didn't like it when the boys were playing around with the recorders." 8. "Playing a song over and over again (however) not including Little Bird." 9. "Echoing because it was boring." 10. "I didn't like having to do singing exercises in class." (The students both sang and played the recorder for the Christmas concert so there were two or three times that we prepared our voices with solfège exercises related to their recorder studies.)
Q5. Have you learned more about music as a result of the study?	
<p>21 straight "yes"</p> <p>1 straight "no"</p> <p>Additional comments were</p> <ol style="list-style-type: none"> 1. "sure" 2. "Not really because I play piano and I know it all." 3. "I've learned a little more about music." 4. "I learned more about music, since I couldn't read a note." 	<p>15 straight "yes"</p> <p>7 straight "no"</p> <p>Additional comments were</p> <ol style="list-style-type: none"> 1. "Yes, lots." 2. "I kind of did." 3. "Definitely." 4. "Sort of learned a very little because I played the piano and basically knew it." 5. "A little, not really."

Experimental	Control
	6. "Yes, I think it helped." 7. "I haven't really learned that much because I play the piano and saxophone." 8. "Not really. I already knew a lot about music before." 9. "No, because I already play an instrument." 10. "Yes I have learned a little bit more."
Q6. Do you enjoy playing the recorder as a result of class studies?	
15 affirmative 1 borderline positive 6 straight "no" 2 "not really" Additional comments were 1. "A little bit." 2. "Not really. I didn't really like it." 3. "Not really." 4. "I don't really like playing the recorder as much as dance but it was okay." 5. "A little bit because our class was too loud and that is what I didn't like." 6. "I enjoyed playing the recorder, it helped me learn music."	19 affirmative 6 straight "no" Additional comments were 1. "Not that often but better than before." 2. "Yes, but not as much as playing guitar or drums." 3. "Kind-a." 4. "Yes, but some of the parts got a bit boring." 5. "Kinda, because now I am pretty good." 6. "Yes I did. It was a nice change." 7. "Yes, more than before." 8. "I like playing the recorder." 9. "Yes. I have a recorder at home but until now I have never used it that much." 10. "Not much because I already play different instruments." 11. "Yes, because I got to do it with all my friends." 12. "Yes I enjoyed playing the recorder at class."

Results for the Written Interview

Interesting results from the written interview add meaning to the statistical results. The results indicate that almost all students felt they had learned about music or more about music through their experience in recorder playing and learning. The highest response for activity preference in the control group was playing of a particularly favorite piece *Little Bird*. In the experimental group, the favorite activity response was the composing. The preferences then relate directly to the two music making activities that received the most focus in each group. Playing pieces on the soprano recorder is a more musical activity than sight-reading or learning about symbols and concepts. In the same manner, composing involves students in active music making much more than sight-reading or learning about music theory. The control group had a slightly higher positive response to Question 6: Do you enjoy playing the recorder as a result of class studies? This may be because the focus of the control group was playing. Since the result of the study indicates that both traditional learning and composing had a positive effect on students' learning to play and sight read music on the soprano recorder and on students' written understanding of musical symbols and concepts, it would appear that both activities are valuable in the curriculum.