

Annotated BIBLIOGRAPHY¹

ON

MUSIC EDUCATION AND
CREATIVE THINKING IN MUSIC

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¹Note that this bibliography includes music sources that are particularly relevant for music teaching and learning in contexts that support early childhood through young adult. The rich literature on adult creativeness in music (professional composition, improvisation, performance) is not included here. The time span includes roughly the last thirty years, although a few important early works are included. The bibliography is constantly changing. The reader is encouraged to alert the author to important studies not included here! Enjoy!

—Creative Thinking in Music Bibliography—

Aaron, T. (1980). Music improvisation and related arts. *Music Educators Journal*, 66(5), 78-83.

The author suggested that every creative work begins as an improvisation and that improvisation be used for student learning in the general music curriculum. Practice of improvisation promotes growth outside the cognitive realm. The teacher has a responsibility to develop improvisation in students and to increase his own background knowledge as a base for improvisation. A series of activities involving movement, vocal improvisation and related arts are provided.

Adaman, J., Blaney, P. (1995). The effects of musical mood induction on creativity. *Journal of Creative Behavior*, 29(2), 95-108.

Music mood induction was used to induce either elated, depressed, or neutral mood in 71 college undergraduates. Mood ratings reported reflected the assigned groups. Creativity measures (unusual uses subtest of Torrance Test of Creative Thinking, 1966) revealed the elated and depressed groups rated higher than the neutral group. This study contributes to the body of literature linking the interaction between psychopathology and creativity.

Addison, R. (1988). A new look at musical improvisation in education. *British Journal of Music Education*, 5(3), 255-267.

The article provides a brief history of the Orff movement in England since its inception in the 1960's and cites the lack of attention paid to improvisation. The author examines the use of improvisation in music therapy and the possibility of such use for the general public. Musical improvisation develops from children's play, and the need for play and improvisatory activities remain throughout our lives. Temporal arts such as music, dance, and drama as well as most sports fulfill this need for adults. An important point is that improvisatory play is a fundamental aspect of the normal learning process and should be capitalized upon. Practical examples are presented.

Addison, R. (1991). Music and play. *British Journal of Music Education*, 8(3), 207-218.

Addison defines play and discusses its common elements. After illustrating how these qualities relate to music, he points to the observable differences in the way children and adults play. In showing how elementary classroom teachers use elements of play with children, Addison introduces the concept of instrumental teachers using similar ideas. Some of the problems inherent in instrumental teaching are discussed and he contributes possible ideas for the instrumental class. He concludes by pointing out that if the element of play and fun were maintained perhaps there would not be the high casualty rate in instrumental music.

Aebersold, J. (1988). Music is for life. *Instrumentalist*, 43(9).108.

The author expresses a personal perspective about the value of music in life and the importance of improvisation in music education. It is argued that people do not improvise because they have not been shown and taught how. Students are forced into a competitive mode. They play a few pieces over and over at competitions, festivals or contest in hope of winning trophy. Music in school is too often treated as a sporting event rather than as an expressive art in which improvisation occupy a central position.

Ainsworth, J. (1970). Research project in creativity in music education. *Bulletin of the Council for Research in Music Education*, 22, 43-48.

This research project examined the nature of creativity in music and the processes involved in manipulating musical material. Musical creativity is defined as the process of making informed decisions about a musical task. Two samples were selected from secondary schools offering music instruction. The experimental sample received music instruction and the control sample did not take part in the music instruction. The *Bentley Measures of Musical Abilities* was administered to assess musical aptitude and a general measure of creativity developed by the author was used to measure general creativity ability. The *Musical Creativity Task (MCT)* was used to measure creativity. The *MCT* consisted of asking the subject to make up a tune of any length on the xylophone, indicate when the tune was finished, and repeat the tune again in its entirety. Students were asked to describe and comment on how they made up the tune that they had just performed. At the time of this article, the project was still in progress and early results included brief descriptions of the students musical compositions and the thought processes the subjects were able to describe.

Airy, S., & Parr, J. (2001). MIDI, music and me: Students' perspectives on composing with MIDI. *Music Education Research*, 3(1), p. 41-49.

This qualitative New Zealand study examined 24 audio engineering students' perspectives of the educational usefulness of composing music using MIDI sequencing software using semi-structured interviews. Two groups of students were interviewed using different protocols. Findings indicated that MIDI composition is a musically empowering tool, especially for students with no formal musical training, and may be both a point of entry and a means for continuing music education. The study also reported on the most useful features of MIDI sequencing programs identified by participants.

Allsup, R. E. (1997). Activating self-transformation through improvisation in instrumental music teaching. *Philosophy of Music Education Review*, 5(2), 80-85.

This essay calls for teaching a student-centered curriculum in music that embraces the musical preferences of students creating a dialogical relationship with their teacher. Through this relationship teachers have the ability to peak the curiosity of students, giving them an active impulse to discover that can eventually lead to self-transformation. Influence of capitalism through marketing toward students is also discussed as a roadblock in moving towards self-transformation.

Alper, H. (1963). The Bennington approach to creative learning. *Music Educators Journal*, 49(5) 54-56.

The article summarized a six-week Music Institute that was attended by sixteen selected music instructors. The Institute worked in three areas: *Creative Music*, which provided studies in composition with contemporary means, yet practicable for secondary school application; *Performance Workshops* which provided exploration of source materials, principles of style, new approaches to technical problems; and *Curriculum Planning* which provided a seminar for designing a challenging high school music program.

Alvarez, B. (1989) Musical thinking and the young child. In E. Boardman, (Ed). *Dimensions of musical thinking*. Reston VA: Music Educators National Conference.

The chapter discusses the relation between the various dimensions of thinking, and the young child's musical thinking, and suggests criteria for developing appropriate learning strategies for 3-7 year olds based Piagetian psychology. He describes their thinking processes as varied, intuitive, and highly imaginative, featuring a lot in their play. Music is a natural mode of individual expression, making it an appropriate means for exploration through creative play, whereby the young child's mind grows. To develop musical cognition teachers need to think "holistically", because "the goal of early childhood development and education must be developmentally appropriate cognitive, affective, and psychomotor growth that will lead towards emotional and intellectual balance"(58). Direct and indirect teaching methods are suggested as a way to tap the young child's world of play in order to enhance the development of thinking skills. The author gives sample strategies for nurturing the various dimensions of thinking in early childhood musical experiences.

Anderson, J. D. (1991). Children's song acquisition: An examination of the current research and theories. *The Quarterly Journal of Music Teaching and Learning*, 2 (4), 42-49.

This article is basically a literature review which makes some mention of creative thinking. In citing Andress, the author notes that in-tune singing and creative song making can be positively shaped by adopting a developmental theory model. (p.46). She also cites Nettl in making the point that individual creativity is one of the reasons children's songs change over time. The author suggests that more research attention should be focused on children's apparent predisposition to improvise songs.

Anderson, T. J. (1977). Educating the creative musician. *International Society for Music Education*, 4, 27-30.

In this address to the ISME, Anderson notes that "most individuals possess the ingredients necessary for creativity and somehow, the educational experience either nurtures it or destroys it" (p. 27). He offers a working definition of creativity in terms of creative product, its use (both utilitarian and aesthetic), its worth (reevaluation), and time. Anderson suggests that conformity is too often stressed in the educational environment. "As I see it, four basic changes in our current educational processes could produce a creative environment; (1) More knowledge of cultural history by teachers, (2) Ability to relate any idea to other ideas [no man or woman is an island theory], (3) Need for open structures--freedom to explore on an individual basis, and (4) Need to find better ways of recognizing the products of creative thought [free moments thoughts, crazy ideas, day dreams, etc. must be channeled into personal explorations rather than stopped]" (29).

Apelstadt, H. (1989). Musical thinking in the choral rehearsal. In E. Boardman (Ed.), *Dimensions of Musical Thinking* (pp. 73-81). Reston, VA: Music Educators National Conference.

Apelstadt suggests that critical thinking skills should be developed with the goal of conceptual understanding and aesthetic growth in addition to vocal skill development. Critical thinking skills are divided into three levels: *lower level*--focusing, information-gathering, remembering; *middle level*--organizing, gathering, integrating; and *upper level*--analyzing, generating and evaluating. A framework in which to work is offered by Small's model, outlining four ways teachers can facilitate the development of critical thinking skills: 1) structuring an atmosphere of cognitive challenge, 2) planning for cognitive dissonance, 3) assisting students in developing a repertoire of questions to activate the reasoning process, and 4) building toward success in critical thinking. Practical ideas on how to incorporate these into a rehearsal consisting of warmups, work on new material, review, and polishing of familiar music are described.

Applebaum, E. (1972). A practice of narrowing options. *Music Educators Journal*, 58(7), 43-45.

The author's intent is to redesign the music education curriculum. It is suggested that theory-based curriculums do not meet the current needs of the music education students and contains problems such as examination by academic fellows, social distrust, and a general lack of governmental financial support for the arts. Applebaum indicates that the theory-based curriculum has long needed to be revised. The problem originates with the concept of what actually is music. Music should not be taught as "elements" as in analysis of a scientific experiment, but should be taught as the substance or "essence" of sound and time. Theoretical concepts such as harmony, melody, and counterpoint prepare students with a narrow perspective of the use of "elements" that do not relate to the modern concepts of today's music.

Aranosian, C. (1981). Musical creativity: the stream of consciousness in composition, improvisation, and education. *Imagination, Cognition and Personality*, 1(1), 67-88.

Author's abstract: "This article explores the stream of consciousness as a primary source for the ideas from which music is created. Improvisation and composition are presented as behaviors which deserve attention at all levels of elementary and high school music programs; the cognitive foundations of each are discussed. Also, humanistic methods of teaching music are described in the article as being superior to the traditional behaviorist methods, because the former encourage the development of both representational and creative skills, while the latter reward representational skill development and discourage the skills needed to be a creator of music." p. 67. The author cites MMCP one possible curricula approach and also cites other contemporary writings in music education.

Auh, M. (1997). Prediction of musical creativity in composition among selected variables for upper elementary students. *Bulletin of the Council for Research in Music Education*. 133, 1-8.

The purpose of this study was to determine the best predictors of compositional creativity among selected variables (i.e., formal and informal musical experiences, musical self-esteem, musical aptitude, musical achievement, academic grades, IQ, and gender) for upper elementary students, and to examine the relationships between compositional creativity and those variables. The subjects were 67 fifth and sixth grade students attending an inner-city public elementary school. The students' creativity was measured by a compositional task, where the students were individually asked to make up a three-minute song on an Orff alto xylophone. The compositions were evaluated by three judges according to five dimensions, using 7-point rating scales. Data was then collected for the independent variables. The results showed that a) the best predictors of compositional creativity were informal musical experiences, musical achievement, and academic grades; b) the strongest predictor of compositional creativity was informal musical experiences; and c) compositional creativity was significantly related to informal musical experiences, musical achievement, and academic grades.

Auh, M. & Walker, R. (1991). Compositional strategies and musical creativity when composing with staff notation versus graphic notations among Korean students. *Bulletin of the Council for Research in Music Education*. 141, 2-9.

The purpose of this study was to explore the differences in compositional techniques between students who used standard notation and those who devised their own graphical notation to depict their composition. The students were then asked to evaluate their creative process and product. Musical structure was the most preferred characteristic of the traditional group, whereas expression and uniqueness was by the non-traditional group. The male subjects in both groups used the recorder exclusively, whereas the females of both groups explored other instruments. The author concludes that composing music with graphic notations facilitates more creative compositions than using standard staff notation.

Auh, M., & Walker, R. (2003). Music education achievement as a predictor for creative music teaching by student teachers. *Bulletin of the Council for Research in Music Education*. 157, 1-8.

This research study sought to identify significant predictors of creative music teaching in undergraduate music education majors. Subjects were 19 first-year music education students enrolled in a music teaching methods class at a Australian university. Each subject taught a 15-minute sample lesson to the rest of methods class as a course assignment. Three expert judges evaluated the creative teaching of these lessons using a five-point rating scale. These scores served as the dependent variable. The proposed predictors studied were music education achievement, formal/informal music experience, prior teaching experience, and gender (there were 6 male subjects and 13 female subjects). These predictors served as the independent variables. The music achievement predictor was determined by the final grade subjects received in the methods class. The formal/informal music experience predictors and prior teaching experience predictor were determined through questionnaires taken at the beginning of the methods class by the subjects. The only significant predictor of creative teaching was music education achievement ($p < .05$). The authors conclude that their findings suggest that creative teaching can be learned in the undergraduate setting.

Auker, P. (1991). Pupil talk, musical learning and creativity. *British Journal of Music Education*, 8, 161-166.

In this verbal protocol analysis, Auken offers examples of several different styles of teacher/student verbal interaction. He suggests that more attention to student verbalization is desirable because "The language our pupils use when they are devising or interpreting the music they play is an important key to the depth of their knowledge and the breadth of their attitudes" (p. 161). Auken suggests that in order to create an environment that is conducive to creative learning, teachers may model behavior as a preparatory step, serve as a group advisor, provide students with stimulating materials with which to work, and use language that is appropriate to the conceptual level of the students. He relates examples of focusing questions, open ended questions, and valuing questions that enhanced the students' opportunity for learning in the given settings. Meanwhile, closed questioning was shown to obscure deficits in learning by focusing on low level factual knowledge without addressing conceptual understanding or the thinking process.

Azzara, C. (2002). Improvisation. In R. Colwell and C. Richardson, (Eds). *The new handbook of research in music teaching and learning*. (p. 171-187). New York: Oxford University Press.

Chris Azzara's chapter on improvisation sets forth to describe the many modes of musical improvisation and place them within the framework of music education. The author cites his own research with fifth graders, the work of well known jazz improvisation teachers, and work by creativity specialists to place the discussion of improvisation within several different contexts. A review of characteristics found in many improvisers and their environments leads to the description of a culture in which improvisation is fostered and supported. Azzara reviews the psychological processes involved in improvisation and cites work by Gordon, Kratus, Pressing, and Sloboda, who have studied the experiences, learning processes, and development of improvisers. Improvisation is placed within a historical framework within both Western and non-Western musical traditions, noting the prominence of improvisation in many musical genres, including 17th and 18th century Western classical music and Indian classical music. Finally, Azzara reviews research focused on improvisation in educational settings, including pre-school and elementary general music and instrumental music, and research on jazz improvisation. These works include means for assessment, the effects of improvisation on other musical skills, and the musical characteristics of jazz improvisation luminaries.

Azzara, C.D. (1993) Audiation-based improvisation techniques and elementary instrumental students' music achievement. *Journal of Research in Music Education*, 41(4), 328-342.

This research study examines the correlation between an improvisation curriculum and the musical achievement of fifth grade band students. The subjects were 66 middle class, predominantly white, fifth-grade instrumental students from two different schools. Each subject was given the MAP (Gordon, 1988) test to measure musical aptitude going in to the study. They were then split into two groups. Each group received identical instruction based on a "sound before sight" learning process. The experimental group received 10-15 minutes per week on improvisation. At the end of the twenty-seven week trial, the subjects were tested individually on the performance of three etudes. A group of four independent judges then evaluated the etudes based on the student's tonal, rhythm, and expressive performance. The results show a positive correlation between improvisation study and improved musical achievement, with high-aptitude students performing better than low or medium-aptitude students.

Baker, D. (1980). Improvisation: a tool for music learning. *Music Educators Journal*. 65(5), 42-51.

This article describes important techniques for teaching improvisation. It points to a lack of improvisation instruction in the schools, despite the large number of jazz ensembles. Musical imagination is stressed and many examples with notation are offered. Jazz, classical and blues idioms are included.

Baldi, G., & Tafuri, J. (2001). Children's musical improvisations: Many ways of beginning and ending. *Bulletin of the Council for Research in Music Education*, 147, 15-21.

The purpose of this study was to determine if children create beginnings and endings during compositions and improvisations without the direction of a teacher. The study involved 34 students aged 9-10 who had no previous experience of composition or improvisation in a music class. The study was carried out on an individual basis. The researchers concluded that children are capable of providing a beginning and ending to their compositions using models from their environment (popular music, TV music, etc.); therefore, teachers should set more "open" tasks in order to allow knowledge and skills already possessed to emerge and be developed.

Balkin, A. (1985) The creative music classroom: laboratory for creativity in life. *Music Educators Journal*. 71(5). 43-46.

This article presents several practical suggestions for creative activities in teaching music. The author stresses a movement away from "yessing" (always expecting children to supply the one correct answer) and moving toward discovery learning. Encouraging children to make guesses about musical problems is stressed. Also, connecting the activities to life experiences is stressed.

Balkin, A. (1990). What is creativity? What is it not? *Music Educators Journal*, 76 (9), 29-32.

The author provided a definition of creativity encompassing the three components of person, process, and product (C=3P), outlined characteristics of creative individuals, and addressed four basic stages in the creative process

(preparation; incubation; illumination; and verification). The creative product was viewed in relation to the creative process and was discussed in terms of the “development of the decision-making process” requiring a de-emphasis on “correct” responses.

Baloche, L. (1985). Facilitating creativity and group-cooperative skills in the elementary music classroom: a model, a curriculum, and a study. *Dissertation Abstracts International*. 46(06), 1549-A. (University Microfilms No. DA8509304).

Author's Abstract: After a review of the literature, this work explores the design and implementation of an elementary school music curriculum whose materials and activities are aimed specifically at the facilitation of growth in creativity and cooperation. Results of a six-week field-test involving 16 teachers and several thousand students indicated that the teachers involved saw creativity and cooperation as appropriate focuses, that the presented adjunct curriculum was useful in this regard, that the students were more involved, and that the activities were user friendly and effective.

Baloche, L. (1994). Creativity and cooperation in the elementary music classroom. *The Journal of Creative Behavior*, 28 (4), 255 – 265.

The purpose of this year long study was to examine elementary music teacher attitudes about cooperation and creativity in the classroom. An elementary music curriculum was developed using the Roger and David Johnson's model of cooperative learning featuring 5 basic elements. The study provides results which indicate teachers can utilize cooperative learning techniques which will impact students positively. The study indicates that significant gains were made in with students who were taught with cooperative learning and creative problem solving. However, the study also indicates that the results are short-term and most likely will not continue without continuously sustained work.

Baltzer, S. (1988) A validation study of a measure of musical creativity. *Journal of Research in Music Education*. 36 (4), 232-249.

The purpose of this study was to examine the Measures of Creativity in Sound and Music (MCSM) as developed by Cecilia Wang. Specifically in question, is to test reliability and the relationships to a student's achievement scores, sex, age, and teacher ratings of the subject's creativity. The MCSM test consists of four activities which provide scores of musical fluency and imagination. CONCLUSIONS: 1) Teacher ratings are unreliable in relation to a student's creative ability; 2) Test results should be kept separate and reported as a profile of a student's creative ability; 3) No significant difference is noted between males and females; 4) Although an apparent relationship between age and creativity is suggested from the Wang test, many factors must be taken into consideration that would effect this specific conclusion, i.e. motivation, fatigue, and so forth. An historical background of other creative measure/evaluation tests are also offered.

Bamberger, J. (1974). What's in a tune? (Report No. LOGO-13). Boston, Massachusetts: M.I.T., Artificial Intelligence Lab. (ERIC Document Reproduction Service No. ED 118 369)

See also: Bamberger, J. (1977). In search of a tune. In: D. Perkins & B. Leondar, *The arts and cognition*. Baltimore: Johns Hopkins Press.

This study described the individual differences of two subjects in their perception of a melody, the strategies each used to compose a melody, and the relationship between perceptions, models, strategies, and the completed melody. A protocol analysis of the compositional process of both subjects was included. This analysis also employed the use of an innovative computer-based recording system. Results indicated that each individual first defines his or her own priorities. Then decisions are made based on those priorities, together with perception, and the ability to make an intelligent reconstruction of the melody. When the learner discovers and plays with the constraints of what makes sense, the learner cracks the boundaries of perception.

Bangs, R. (1992) An Application of Amabile's model of creativity to music instruction: A comparison of motivational strategies. PhD. dissertation, University of Miami, June, 1992.

Using Amabile's theory of a social psychology of creativity, this study adapted Amabile's model for the assessment of musical creativity. The author designed an assessment tool, called the Dimensions of Judgment, and studied task motivation and its effects on a creative product. She assessed the music compositions of third-grade children after ten preparation lessons and studied the effects of intrinsic and extrinsic motivational treatments upon the creative works in a second trial. After the first assessment, the children were placed into one of three groups and given the following motivational treatments: Intrinsic, Extrinsic, or Control, which consisted of a placebo treatment. The comparison between the assessments of compositions created before and after the different treatments indicated no change in the control group, but intrinsic motivation was found to be beneficial to musical creativity, while extrinsic motivation had an adverse effect.

Bannan, N. (1988). Singing, synthesis and creativity. *Music Teacher*, 67 (1). 8-9.

This article described the problems involving vocal music programs as opposed to instrumental. The author dispelled

many of the myths surrounding vocal education and gave some strategies for exploring vocal potential in school programs. He advocated a more creative approach related to developing ear-training and the use of technology.

Barber, S. (1995). Creativity: the key in hyperspace. *Canadian Music Educator*, 37 (1), 11-14.

This article describes the capabilities of HyperCard, a CD ROM program and how the program has been and should be continued to be used in music classrooms. The article highlights the comprehensive method of instruction afforded by using this program, and provides theoretical argument for the inclusion of this type of instruction. The author suggests this material enables teachers to become teachers as facilitators and helps promote creative thinking and intrinsic learning methods in the classroom.

Barcus, N. (1972) Fanning the Creative Spark. *American String Teacher*, 29 (2), 12-13.

The introduction of creativity into the studio setting was presented by the author. The incorporation of creative devices which would assist both technically fast and slower students grow in their sensitivity to music was discussed.

Barenboim, V. (1977). The education of young performers. *Yearbook of the International Society of Music Educatio*, 4, 39-44.

In the first portion of this article, Barenboim discusses some general problems in the training of young performers, namely that performance teachers often forget that the interpretive art of performance is an act of co-creation between the composer and performer. Teachers who believe that there is only one way to perform a work—their own way—cannot be the artistic directors and educators of musicians, since pupils will not be encouraged to seek out more knowledge, and strive for new insights into a work. Trends in the teaching of young musicians that are not conducive to creative thinking include the belief that without technical skill and note reading ability, the student cannot do anything, thus, beginning musical training focuses on these aspects. The last section of the article outlines the need for performance pedagogy classes separate from theory or history classes. In these classes, students listen to and analyze many performances of the same work, comparing and contrasting performances while learning about the art of interpretation within the context of a particular style or time period. Interpretation must be based on knowledge, not arbitrary decisions.

Barfield, R. (1985). Improvising for fun and learning. *Clavier* (May). 40-42.

The author's intent is to present a basic outline for teaching improvisation to those teachers who do not feel adequate in this area. Three goals of improvisation are stated: freedom at the piano, understanding of theory, and to lead to finished compositional works by the student. Outlines of study are listed for the following student situations: "rigid" (those hesitant to improvise), and the more advanced/experienced. Activities suggested are creating original sections to traditional pieces, improvising twelve bar blues, using keyboards, using the "insides" of the piano, and composing themes and variations.

Barrett, M. (1995). Children composing: what have we learnt? In H.L. Lee & M. Barrett (eds.), *Honing the craft: improving the quality of music education. Conference proceedings, Australian Society for Music Education, 10th National Conference*, pp. 36-45.

Barrett provides an historical account of composition teaching in school, from its antecedents in England, Australia and the U.S.. She discusses the role that composition has played in music education, and both reports on and critiques various research efforts to understand the process and products of composition (Swanwick & Tillman, Kratus, DeLorenzo, Webster, Loane, Simmonds, Green, etc.). The paper ends with a brief discussion on the study of children's invented songs.

Barrett, M. (1992) Music education and the natural learning model. *International Journal of Music Education*, 20, 27-34.

In this article, the author focuses on the natural learning model created by Holdaway (1979). She takes the conditions of immersion, demonstration, engagement, expectation, responsibility, approximation, use, and response, and puts them in context of a music classroom. Immersion in a musically-rich environment will help develop the understanding and skills needed for learning to use and control musical materials. Demonstration is important in music education as all students need models from which to learn. Engagement is the point in the model that students are able to try some of the concepts demonstrated for them. Expectations are given from the teacher in confidence and encouragement for these students' abilities. Responsibility harnesses the students' desire to know more and creates independent thinkers. Approximation is when the students try out their newly found skills in the music classroom. Use refers to the final step of the model where students get to put into practice what they have learned. This learning process is stressed as being natural, not a process to be provoked or stimulated.

Barrett, M. (1994). Music education and the primary/early childhood teacher: A solution. *British Journal of Music Education*, 11, 197-207.

This study is based in the premise that music education students have been taught with skill-intensive and instruction based methods rather than holistic approaches that include experimentation and composition. The study focused on

music education students in their first semester of their first year at a university in Australia. The research used the methodology of action research drawing upon excerpts from students' diaries. Students in the research project worked through composition exercises with the help of a lecturer. The author notes that understanding of music concepts arose from the composition process through open ended challenges. The author discusses several journal excerpts and ties them into the idea of holistic approaches to teaching music with the ideas of open-ended challenges and a "natural learning environment". (pg. 205) The author lists areas that impressed upon her after the semester's course was completed and restates her confidence in the types of learning experiences involved in the study.

Barrett, M. (1996). Children's aesthetic decision-making: An analysis of children's musical discourse as composers. *International Journal for Music Education*, 28, 37-62.

This intention of this qualitative study was to measure children's non-verbal communication of aesthetic decision-making process through composition. One hundred thirty-seven compositions, from children in grades one through six, were analyzed. The setting of the research takes place in a naturalistic setting: their own school. The findings of this study were that children as young as five years nine-months were able to make conscious decisions, especially in the realm of form. This is in conflict with previous studies of Swanwick and Tillman (1986), where there is little evidence of this until the age of ten. The author concludes that children, through describing, analyzing, interpreting and evaluating sound combinations as they compose, make conscious non-verbal aesthetic decisions. There were no differentiation of responses based on gender.

Barrett, M. (1997). Invented notations: A view of young children's musical thinking. *Research Studies in Music Education*, 8, 2-14.

Very few studies have focused on the analysis of young children's invented notations. Barrett researches a class of kindergartners invented notations in composition from the viewpoint that invented notation is a representation of children's knowledge, not a stage in musical development. Over a period of 8 weeks kindergartners are told to "make up a pattern of sounds" and write it down so they can remember it. Five categories of symbolization rose from the collection of compositions and the researcher's observations: (1) exploration - random drawings that do not seem to be connected to the sound, (2) representation of instrument - sketches or representations of the instrument, (3) representation of the instrument with reference to musical elements - drawings that indicate a musical element, such as pitch or duration, (4) representation of gesture - showing the movement or action done to perform the piece, (5) symbolic representation - each symbols represents a one-to-one relationship with a sound.(p. 7-8) These categories are supported by previous research done by Davidson and Scripp, Bamberger, and Uptis. Barrett's findings also suggest that the more children become familiar with composing with their own invented notations, the symbols become less and less representations of the specific song, but of general musical concepts that are used in the song. (p.11)

Barrett, M. (1998). Children composing: A view of aesthetic decision-making (pp. 57-81). In B. Sundin, et.al. (Eds.), *Children composing*. Malmo, Sweden: Lund University.

Barrett states that the inclusion of structure and form in compositions of young children is due to the aesthetic decision making process that is taking place. She begins by defining aesthetics, relates aesthetics to music education and then does an in-depth analysis of compositions by ten different children.

Barrett, M. (1998). Researching children's compositional processes and products: connections to music education practice? In Sundin, B. et.al (Eds.), *Children composing* (10-33). Malmo, Sweden: Lund University.

This chapter provides an overview of the 'composition movement' in music education through examination of selected research reports which focus on children's compositional processes and products. Through the discussion of several specific research studies, Barrett highlights some of the inherent difficulties of such research. For example, the question arises as to whether young children with prior composition experience compose differently than those who have no prior experience. As a result of studies which have been conducted, there emerges a number of conflicting views of children's abilities to engage in composition.

Barrett, M. (1999). Modal dissonance: An analysis of children's invented notations of known songs, original songs, and instrumental compositions. *Bulletin of the Council for Research in Music Education*, 141, 14-20.

This study provides a brief introduction to the developmental strategies of invented musical notation. It is based on the invented notations of twenty-four kindergarten students using familiar songs and original compositions for voice and instruments. Barrett classifies the 78 compositions by developmental stages. The results suggest that children can record the musical dimensions of instrumental compositions. When they notate the songs with words, however, they often get too involved in notating the lyrical content of songs to represent the musical dimensions.

Barrett, M. (2000). Windows, mirrors, and reflections: A case study of adult constructions of children's musical thinking. *Bulletin of the Council for Research in Music Education*, 145, 43-61.

The author gives a short overview of the conceptual framework on the views of children's invented notation and of the relevant research in the domain of children's invented song. The major thrust of this study is the analysis of a five year old's invented songs and notations. The study concludes by speculating on the function of children's invented notations.

Barrett, M. (2001a). Constructing a view of children's meaning-making as notators: a case-study of a five-year-old's descriptions and explanations of invented notations. *Research Studies in Music Education*, 16, 33-45.

Barrett's article provides a brief summary of research in children's invented notation in music in order to identify tensions that exist in the findings of such research. Through the description and analysis of a five-year-old boy's invented notations and his verbal accounts of such notations, it explores the ways in which our understanding of children's notational activity and musical understanding may be enhanced through attentive listening and responding to children as composer/notators.

Barrett, M. (2001b). Perception, description, and reflection: Young children's aesthetic decision-making as critics of their own and adult compositions. *Bulletin of the Council for Research in Music Education*, 147, 22-29.

This report is one part of a larger longitudinal study in which the author investigates children's aesthetic decision-making while composing and critiquing their own compositions and those of others. Each child composed an original piece, comprised of a distinct beginning, middle and end, using tuned and non-tuned percussion; though they were not required to notate their compositions, all were recorded on audio tape. The adult compositions used in this study were excerpts from Saint-Saens's *Carnival of the Animals*, "Fossils" and "The Swan." After the compositions were completed, the author interviews each subject, but not until a "distancing" period elapses to emphasize the child as audience-listener. Each respondent was able to comment on musical properties, expressive decisions, references, judgments of quality, compositional style and performance for each recording. There were notable differences in the children's qualitative responses between adult compositions and their own work.

Barrett, M. (2003). Freedoms and constraints: constructing musical worlds through the dialogue of composition. In M. Hickey (Ed.), *Why and how to teach music composition* (pp. 3-27). Reston, VA: MENC.

Barrett discusses creativity and composition in music education as a meaning-making process. The author reflections on the theoretical framework for the study and provides a definition for composition in music education as a meaning-making process. Included are two interviews of student composers that model composition in music education as a meaning-making process. The article concludes that composition is an important tool for constructing meaning in developing musicians.

Barrett, M. (2006) Creative collaboration: An "eminence" study of teaching and learning in music composition. *Psychology of Music*, 34(2), 195-218.

This case study uses interview and observation methods "to examine the teaching and learning beliefs and practices of an eminent composer-teacher when working with a student-composer over the course of the first semester of an academic year. The subjects consisted of an "eminent" composer-teacher, a current composition major in her final year of a Bachelor of Music degree program, and a current composer who had been a student in the past five years. The procedure was broken into three phases: initial interview, videotaped teacher and student meetings, and closing interview. By analyzing each of these phases, twelve teaching strategies and three overall themes were found. This analysis found that the "beliefs, processes and practices of an eminent teacher" form a cooperative and collaborative environment for the teaching and learning of compositional skills.

Barrett, M. (2006). Creative collaboration: An 'eminence' study of teaching and learning in music composition. *Psychology of Music*, 34, 195-218.

Barrett conducted a case study investigation of the teaching strategies utilized by a composer-teacher on the collegiate level. She identified the following strategies during observations and interviews, these included: (1) extending thinking, providing possibilities; (2) referencing work to and beyond the tradition (signposting); (3) setting parameters for identity as a composer; (4) provoking the student to describe and explain; (5) questioning purpose, probing intention; (6) shifting back and forth between the macro and micro levels; (7) providing multiple alternatives from analysis of student's work, (8) prompting the student to engage in self-analysis; (9) encouraging goal setting and task identification; (10) engaging in joint problem finding and solving; (11) providing reassurance; and (12) giving license to change. The composer also modeled for students a professional lifestyle and demeanor, music enterprise, and the art of

finding one's voice.

Barrett, M. S., and Gromko, J. E. (2007). Provoking the muse: A case study of teaching and learning in music composition. *Psychology of Music*, 35, 213-230. doi: 10.1177/0305735607070305

What is the nature of teaching and learning in an artistic enterprise where the outcome is the creation of an original artwork? This naturalistic case study examines the teaching and learning process in music composition as creative collaboration by analyzing a semester's worth of composition lessons between an experienced graduate student-composer and an eminent composer-teacher. The authors analyzed twelve videotaped lessons, identifying the ways the composer teacher provoked the student-composer's compositional thinking. Six vignettes of dialogue are presented from these lessons. Semi-structured interviews were conducted with the participants after the semester had concluded to identify the key teaching and learning strategies. The composer-teacher employed two main strategies, problem finding and problem solving, through dialogue focused on description, analysis, and intensive questioning of the student-composer's evolving work. The nature of the dialogue evolved over the semester with the student-composer becoming more engaged in the problem identification process. The authors considered Vygotsky's concept of the "zone of proximal development" to understand how the participant's different forms of experience contributed to collaboration. The authors propose a systems view of creativity, recognizing the student-composer's development in a social community guided by his interactions with the composer-teacher.

Bash, L. (1991). Improving improvisation: watch for the flags. *Music Educators Journal*, 78 (Oct), 44-48.

This article presents practical suggestions for improving students' improvised jazz solos. Suggestions center around analyzing and evaluating students' solos, and assigning listening lessons. A communicative approach of dialogue between listener and performer is taken. Tips include avoiding extreme range, and lack of space. At the same time, students are encouraged to punctuate phrases, and concentrate on one technical aspect per solo. Issues like keeping a sense of the steady beat, including articulation, and relating the solo to the melodic content of the piece are introduced. Concluding areas discussed in the article are repetition, planning, form and finality.

Baudo, J. (1982). The effectiveness of jazz education on the enhancement of the characteristic traits associated with creativity in music: implications for curriculum planning. *Dissertation Abstracts International*. 43(10), 3252A. (University Microfilms No. 8303085)

The study pertained to the effectiveness of jazz education as a tool to enhance creativity in music. Questions were asked concerning teacher perception of jazz education as a tool and how it may enhance creativity in music students and how specific was the content of jazz education in the curriculum. Evidence showed that : 1) 94% of the surveyed high school teachers specified that jazz education enhanced characteristic traits of music students, 2) jazz educators are aware that jazz education enhances creativity as a tool , 3) students are aware that jazz in the curriculum is used as a tool to enhance and improve music creativity . Eighty-five percent of the high school music teachers surveyed indicated that they believed that jazz education was essential to the music curriculum.

Beers, D. (1990). Composing pieces for beginners. *Clavier*, 2, 33-34.

The author describes teacher made compositions which use specific student interests and skill levels to encourage enthusiasm. Compositions can be complete or partial, allowing for student participation in composing.

Begg, P. (1992) Identifying and measuring musical intelligence in second grade students. MA Thesis, Pennsylvania State University, School of Music.

The author derives much of her philosophical base from Gardner's theory of intelligence and explores the possibility of measuring for music intelligence. Twenty-four students from the researcher's five second grade classes. Half of these students were chosen from a group that had difficulty with tonal and rhythmic tasks and the other half excelled at these tasks. Students were given a music background questionnaire, tasks using tonal and rhythm patterns, the PMMA (Gordon) and the MCTM (Webster). All measures were correlated. Scores on the music background questionnaire, music tasks and PMMA were highly correlated. Scores on the MCTM were not correlate significantly with the other data. This was also true when considering the two groups of students. The author concludes that music intelligence may consist of a number of complex factors.

Bencrisutto, F. (1981). Creative involvement. *The School Musician*. 52(10), 8-9.

The author argues philosophically for the importance of the arts in general, and music specifically; the arts must be considered as important as the sciences. Towards this ends, band directors (as well as vocal and orchestral directors) can lead the way in the teaching of "total-music" discipline and creative involvement.

Bencriscutto, F. (1993) Developing creativity through improvisation. *The Instrumentalist*, 48 (3), 38-52.

This article emphasizes the use of jazz theory and vocabulary to cultivate improvisational skills in all band members. The author relates the processes involved in improvisation to those of the creative process itself: "exploring, manipulating, questioning, risking, testing, and modifying ideas" (p.40). Provided in the article are excerpts of a study sequence designed to enable mastery of the vocabulary as well as a discography of exemplary recordings and hints for organizing rehearsals.

Bencriscutto, F. (1985). Perspectives on musicianship--develop creative musicians. *The Instrumentalist*. 39 (10) 22-23.

The author feels music educators must stimulate and cultivate creative thought, response and action amongst their students. Motivating instrumental students through public appearances, competitions, grades, contest ratings, etc. is fine; however, the values of music gained through this perspective is as artificial as the motivation. Only to the degree music is taught as a creative discipline will it survive and function in its essential capacity as a guide for man's rational intellect.

Bennett, S. (1975). Learning to compose: some research, some suggestions. *Journal of Creative Behavior*. 9(3), 205-210.

The author suggested approaches to teaching composition based upon his study of professional composers and his experiences as a composer. Having discovered that a germinal idea is often the first stage of composition and that this is often developed through improvisation, Bennett proposed an improvisational approach built upon the immersion process by which language is acquired.

Benson, W. (1967). *Creative projects in musicianship*. Washington, D. C.: Music Educators National Conference.

This volume summarizes projects sponsored by the Contemporary Music Project at two sites: Ithaca College and at the Interlochen Arts Academy.. It is volume No. 4 in a series. The book describes each project briefly and concludes with some general observations about teaching "creative-process" courses in music. The Ithaca College projects "were instituted to supply technical information on current practices of music to students in music education to provide them with the confidence necessary to present modern music to their students in the future." The objectives of the Interlochen project were "to teach the fundamentals of music through the approach of the 20th century composer" and was aimed at junior and senior high school students. Some musical materials and strategies are discussed for both projects. The concluding portions of the book contain observations on creative teaching in music.

Benson, W. (1973). The creative child could be any child. *Music Educators Journal*. 59(8), 38-40.

Benson suggested that the teacher should put aside all types of established prejudices or dislikes about some students in order not to forcefully encourage their own imagine of beauty of creativity. The author re-affirmed that creativity is self-expression. He noted that negative comments about the student creations limit the creative ability, whereas positive comments such as "let's see how we can improve", or "how you can more accurately express the ideas(s)" could be more encouraging. The method of evaluation recommended by Benson included questions such as: "Did the piece interest us?"..."Were there any obvious flaws?"..."What would you do to correct the trouble spots?" Each student should be encouraged to enjoy the pursuit of creativity and not just understand the procedures or rules for composition in creating a song.

Berkley, R. (2004). Teaching composing as creative problem solving: Conceptualizing composing pedagogy. *British Journal of Music Education*, 21(3), 239-263.

The author's role in this research report was as a participant observer. This article reports on a research project into teaching composing at GCSE (General Certificate of Secondary Education). It suggests that understanding composing as problem solving may allow for the justification of teaching composing and student's composing in schools. Composing is explained as a series of chronological stages requiring the development of skills of hypothesis and verification in students. Individual teachers were analyzed in case studies using Bernstein's framework to learn the way each teacher determined the principles of their own composing curriculum. Research data suggests that although there was variance in individual teachers strategies, teachers still managed a positive creative learning environment, and facilitated ownership, autonomy and authority in students. The article concludes that by viewing teaching composing as problem solving, music educators are empowered to rationalize the specific demands of the music curriculum in which they are operating.

Boardman, E. (1989). The Relation of Music Study to Thinking. In E. Boardman, (Ed.). *Dimensions of musical thinking*. Reston, VA: Music Educators National Conference..

This article serves as the introductory chapter to *Dimensions of Musical Thinking*, an MENC publication which parallels *Dimensions of Thinking: A Framework for Curriculum and Instruction*, published by ASCD. The author

relates the development of thinking processes to the acquisition of a particular body of content, in this instance music. Four perspectives on content knowledge and the implications of various thinking dimensions on each are presented (content area learning as schema dependent; content areas as models and metaphors; content areas as changing bodies of knowledge; and content areas as special approaches to investigation). The author argues that music educators must teach appropriate cognitive skills and the understanding of how to use them, in order to help students become independent musicians. Performance, description, and creation of music are seen as holding the potential for meaningful learning in the music classroom.

Bolden, B. (2004). Students composing: Examining the experience. *Canadian Music Educator*, 45(4), 20-27.

This study investigates student composing by examining what students gain from the experience of composing and how students achieve self expression through composing. Thirty-seven college students composed one piece of unaccompanied choral music and completed a questionnaire on the experience of composing. The results showed that students found inspiration from various musical and nonmusical experiences. Self-representation and the ability to express through composition were described by all subjects. Some students reported increased composing confidence and recognized the utility of composing while eight percent found composing unpleasant. The knowledge attained through this study is to help educators to facilitate the design and implementation of music composing opportunities in the music classroom.

Bradley, I. (1974). Creative processes in the development of aural and discrimination. *Canadian Music Educator*. 15(3), 26-32.

See also: **Bradley, I. (1974).** Development of aural and visual perception through creative processes. *Journal of Research in Music Education*. 22 (3), 234-240.

This study looked at the effect of music instruction using creative processes and experimentation on the growth of aural and visual perception of musical elements. Five 4th grade classes served as the control group and one 4th grade class served as the experimental group for the year-long study. The experimental group received instruction that allowed opportunities for self discovery and experiences as performers, composers and listeners. Statistical analysis of the gain scores showed that the difference in scores for the experimental group were significant, thus this group showed greater growth in the ability to discriminate between aural and visual stimuli.

Brandstrom, S. & Hogberg, F. (1998). Composing and teaching composition: the Lulea concept.

The Municipal Music School in Lulea has developed a philosophy of music education that encourages freedom to create and compose music without barriers that often inhibit students. The philosophy has a strong belief in works of art functioning as mirrors to the students. Students are taught to be intrinsically motivated and to explore many facets of music, especially composition through personal creativity. The article includes an appendix with five composition lesson plans used at the Municipal Music School in Lulea.

Brophy, T. (2001). Developing improvisation in general music classes. *Music Educators Journal*, 88 (1), 34-41, 53.

Brophy has compiled suggestions for general music teachers to use in planning and implementing improvisation experiences for students. The article describes various stages or levels of improvisation, as presented by John Katus, and incorporates those stages into a series of steps for classroom use. Although designed primarily for elementary general music teachers, many of the strategies can be modified and used in other settings. Brophy also discusses some of the differences in improvisation according to age.

Brown, A. R., & Dillon, S. (2007). Networked improvisational musical environments: Learning through online collaborative music making. In P. Brunard & J. Finney (Eds.), *Music education with digital technology* (pp. 95-106). New York: Continuum.

Using qualitative methodology, this article explores the potential of online collaborative composition environments and more specifically reports on the use of the jam2jam software package in a collaborative online setting. Participants were year 8 students (12-13 years old) in four schools, two in the city and two in the country. Four students at each location played the laptop while classmates improvised using other instruments (Theremin, rap, voice, Orff instruments, etc.). Students at the schools collaborated with each other in real time. The author argues for the inclusion of the computer as a legitimate musical instrument, one which affords a variety of modes of creative music engagement, especially for those who may not have formal music training or for whom school music holds no interest. The article also contains teaching strategies.

Brown, E. (1968). A study of the application of creativity in the teaching of secondary school music. *Dissertation Abstracts International*. 29 (5), 1553A. (University Microfilms No. 68-15219)

This is a two part study, the first of which attempts to define creativity as it relates to music education in terms of the

process centered around problem-solving, that is, the procedures basic to the concepts of music learning. It examines the writings of philosophers who most closely approximate the theories of creativity as an educational process. In the second section, the practical application of such philosophies are illustrated as they pertain to secondary music, vocal being the author's strong area. A questionnaire is used to determine the extent to which creative music teaching exists.

Buchanan, J. (1989) Music education and the educationally disadvantaged gifted child. In C. P. Doane & J. W. Richmond (eds.). *Proceedings of the Suncoast Music Education Forum on Creativity*. University of South Florida.

In this creatively structured review of literature, Buchanan outlines the characteristics and needs the average and educationally disadvantaged [low SES] gifted child. "The sensitive music educator will seek to increase his/her understanding of the characteristic strengths and needs of this group of children followed with the creation of implications and applications derived from these understandings which will enable the educator to provide meaningful and challenging experiences in music for the disadvantaged gifted child. Music is one of the most appropriate subjects for fostering individual and group growth for the disadvantaged gifted child, and music educators must not abdicate the responsibility of providing the best possible education for these children" (p. 130).

Bunting, R. (1987). Composing music: Case studies in the teaching and learning process. *British Journal of Music Education*, 4(1), 25-52.

Bunting studied the composition development of two secondary school boys, differing teaching strategies involving guided and free composition, and evaluation procedures. The author/instructor discusses instructional procedures and provides transcriptions of the students' compositions, which were a result of performance-based improvisations using keyboards, bass guitar, and drums. The study is purely descriptive, and no conclusions were drawn as to preferred methods or strategies.

Burnard, P. (2000a). How children ascribe meaning to improvisation and composition: rethinking pedagogy in music education. *Music Education Research*, 2 (1), 7-23.

The purpose of this study was to discover how children engage in and reflect on their experiences of improvising and composing. The study took place over the course of six months at a multi-ethnic middle school in West London. The methods of investigation used were observations, interviews, and the examination of musical products created by the students. 18 12-year old children were used in the study. The results concluded that there is a difference in perception in children with regards to composition and improvisation. Some children believe the two are distinct forms; others believe the two are interrelated, with improvisation leading to composition; and finally, other children see no difference between the two. The study stresses the importance of providing an environment where children will be successful at improvisation and composing and closes with suggestions for teachers with regards to pedagogy.

Burnard, P. (2000b). Examining experiential differences between improvisation and composition in children's music-making. *British Journal of Music Education*, 17 (3), 227-245.

This article looks at children's experiences of differences between improvising and composing. The author suggests that educators look at children's perceptions of improvising and composing rather than a "top-down" or adult approach. The two aims of this study are to "describe the nature of children's experience of improvising and composing by observing in what ways children participate in these music making activities" and to "consider dimensions along which improvisation and composition are related by asking children to reflect on "what" it is to improvise and compose."(pg. 229) Drawing heavily upon interviews with students this study uses a set of "lifeworld themes" consisting of "lived time", "lived body", "lived relations" and "lived space"(pg. 231) to explore children's experiences of improvising and composing. The author discusses the differences between children's experiences in improvisation and composition in each of these themes as well as the implications for music educators.

Burnard, P. (1999). 'Into different worlds': Children's experience of musical improvisation and composition. Unpublished doctoral dissertation. University of Reading.

This study explores children's experience of improvising and composing and seeks to discover how children participate and reflect on creating music. Two questions were used to guide the study: (1) What constitutes the dimensions along which children move between improvising and composition, and (2) how do children's reflections of their lived experience provide insight into the intention which directs their processes of music making. Research site was a multi-ethnic, comprehensive middle school in West London. Eighteen self-selected 12-year-old children participated in 21 weekly music making sessions over six months. Ethnographic procedures were used. Children experienced improvising and composition as distinct forms distinguished by bodily intention, as interrelated forms co-existing functionally in context, and as inseparable processes.

Burnard, P. (2005). What matters in general music? In D. Elliott (Ed.), *Praxial Music Education: Reflections and Dialogues* (pp. 267-271). New York: Oxford University

Press.

The author's intent is to discuss how praxial philosophies can enhance general music programs through practical applications. Changes within the music education realm, such as standardization and frameworks, are discussed. Literacy and numeracy are the means to success, consequently eliminating music in some settings. The author notes the positive engagement when acknowledgement and encouragement of original ideas and actions occur. Importance of teaching that balances formal instruction with opportunity for inquisition and personal expression is mandatory for success. The praxial view is strongly supported and it is argued that musical learning is necessary for understanding musical creativity. The author suggests that the main way to achieve musicianship and listenership, which are the most worth learning, is by making music from one's own experiences.

Burnard, P. (2006). Routes to understanding musical creativity. In L. Bresler (Ed.) *International handbook of research in arts education*, 1197-1212. Dordrecht, Netherlands: Springer.

The author presents a review of the literature pertaining to methodologies undertaken in the investigation of the creative process. The author interweaves (her term) discussions of several theoretical concepts with mention of, and material from, over one hundred research studies and texts. These methodologies and techniques discussed include examples from phenomenological research, psychological research (including cognitive, social, and developmental psychology), with discussion of psychometric tools and standardized measurement of musically creative thinking, and ethnomusicology and ethnographic research. Several visual examples in the forms of charts and tables supplement the text. In a section titled "Re-Visioning and Re-Searching Musical Creativity", the author asks several questions regarding the "who, what, where, when, and why" of creativity, and makes substantive suggestions for continuing the efforts of comprehending the creative processes inherent in music. Burnard also proposes how musical creativity exists in our current context, by providing a graphic representation. A reference list of 110 sources concluded the article.

Burnard, P. (2006). The individual and social worlds of children's musical creativity. In G. McPherson (Ed.), *The Child as Musician: A Handbook of Musical Development* (pp. 353-374). Oxford: Oxford University Press.

The author introduces and discusses creativity as a cultural construct by examining how a child's creativity is shaped by personal, social, and cultural influences. Children's musical creativity needs to be understood in different contexts and should be realized both within the individual and social worlds in which a child's musical creativity develops. Burnard suggests that children's musical creativity is decided by contextual and environmental influences. Expanding the vantage points of individual and social dimensions of children's musical creativity has provided significant advantages.

Burnard, P. (2006). Understanding children's meaning-making in composition. In I. Deliege, & G. A. Wiggins (Eds.), *Musical creativity: Multidisciplinary research in theory and practice* (pp. 110-133). New York: Psychology Press.

This chapter includes a review of existent literature on children's perceptions of compositional processes and products, and the meanings students associate with composition in various contexts of the school environment. The study presented by the researcher consists of four case-studies of students' compositional processes and the meanings attributed to their compositions. After an analysis of the children's drawings and explanations of their experiences with composition, the researcher presents a model of 'the lived experience of children as composers' that includes time, body, relations, space, and musical experience.

Burnard, P. (2007). Prelude: Provocations in creativity research. In L. Bresler (Ed.), *International handbook of research in arts education* (Vol. 16, pp. 1175-1179). Dordrecht, The Netherlands: Springer.

This article is an introduction to a chapter on creativity in the International Handbook of Research in Arts Education (Vol. 16). The author argues that while the "creativity agenda" (promoting creativity in society) crosses cultures in our globalized era, the definition or essence of creativity itself differs greatly from one society to the other. She reviews the changes creativity research has gone through in the 20th-21st centuries, indicating that current debates include domain-free vs. domain-specific creativity, assessment of creativity, and individual vs. collaborative creativity. Furthermore, the author expresses the need for an explicit definition of creative teaching and how it affects creative learning, and calls for advocacy efforts that would emphasize arts in education as champions of high creativity standards. She concludes by

introducing the contributors to the chapter, pointing out their emphasis on understanding creativity, rather than measuring it.

Burnard, P. (2007). Reframing creativity and technology: promoting pedagogic change in music education. *Journal of Music, Technology and Education*, 1(1), 37-55.

The author speaks about the necessity of understanding how an efficient music educational practice can be applied in an e-learning framework, where groups of learners are connected. This article incorporates theoretical and practical approaches that perhaps could be helpful for exploring the mutual dependence between creativity and technology. A number of ways of driving pedagogical growth are offered, like some reflections about the significance of the socio-cultural Activity Theory (AT) to surpass several of the issues that have affected the theory and the practice of music education. Finally, the text presents a structure for studying pedagogic transformation in music education.

Burnard, P., & Younker, B. (2004). Problem-solving and creativity: Insights from students' individual composing pathways. *International Journal of Music Education*. 22(1), 59-76.

This qualitative study is a cross-case comparison of problem-finding and problem-solving strategies used by six subjects while composing. "Compositions" are defined as revised pieces of music created over time. The authors created new research from old data by reanalyzing 44 subjects from four of the authors' previous studies and choosing six subjects who represented different types of composing strategies. These subjects ranged in age from 11 to 20 years old, were from three different countries, and had different levels of musical background. Their individual composing strategies were described, labeled, and placed in a hierarchical order based on the complexity in use of and transition between various stages of creative thinking (Wallace, 1926) and various types of creative thinking (Webster, 2002, 2003). The authors offer a circular model to represent the pathways some composers take between the various creative thinking phases proposed by Wallace.

Burns, K. (1997). Invented notation and the compositional processes of children. *Update: Applications of Research in Music Education*, 16 (1), 12-16.

This article discussed four aspects of invented notation and composition: what invented notation is and its role in the compositional process, identifying the areas of research for this topic, the investigation of the role of technology in composition, and the implications in the classroom. Several ideas were extracted from a review of the literature to create a definition. Invented notation is essentially "a creative tool for that which has been musically perceived" (p.12). Invented notation asks children to use problem solving skills and reflection in combination with their musical knowledge to create ways of communicating their ideas. Two areas of research were discussed in this paper, invented rhythmic and invented melodic notation. The use of a computer in the compositional process, according to researchers, shifts the focus of the composition to the process because the students receive immediate feedback and can revise without relying solely on their memory to notate their musical ideas. The educational implications that arise from this article are many. Creative expression is nurtured through invented notation by giving the students another tool to communicate their musical ideas. Teachers must provide guidance, a comfortable environment and time to share the students' works in order for invented notation and composition to be successful.

Burns, M. (1986). Musical creative learning and problem solving. *The Creative Child and Adult Quarterly*, 11 (4), 234-240.

The author presents a case for the need to include creative activities in the general music curriculum. The Kodaly and Orff approaches are cited as appropriate avenues for this approach. A lesson plan is presented for the composition of a song based on the creation of a Haiku poem. The lesson is quite specific as to the musical content of the creative process and to the steps taken in the classroom to make the lesson work smoothly.

Burns, M. (1988). Music as a tool for enhancing creativity. *Journal of Creative Behavior*, 22(1), 63-69.

Burns presented several models of creativity and creative learning, including those of Treffinger, Bloom, and Russell-Smith. Her main purpose was to point out the need to incorporate creativity in music education. Towards the end of the article she offered a sequence of lessons which could serve as an example of how one might go about implementing her proposed measures. This series of lessons was focused on the use of Haiku poetry as a guideline for the development of a composition project.

Byrne, C., MacDonald, R. & Carlton, L. (2003). Assessing creativity in musical compositions: flow as an assessment tool. *British Journal of Music Education*, 20 (3), 277-290.

The work included in this study sought after a way in which music educators can reach an improved understanding of their students' creative processes and not compromise their curriculum by making a connection between the concept of flow or optimal experience and the creativity of student compositions. An explanation of flow is provided, showing the usage of three of its components (clear goals throughout, immediate feedback and balance between challenge and skill) in the research setting. Also provided is a description of the prescribed usage of Amabile's Consensual Assessment

Technique and Csikszentmihalyi's Experience Sampling Form to provide the methods for scoring the creative products of first-year college students (n=45) who were asked to both compose and then discuss and reflect upon their creative process in small groups over a two week time period. Upon calculating results by use of Spearman correlations, paired sample t-tests and reliability analyses, a significant positive correlation was shown between optimal experience or flow levels of the students and the groups' quality of compositions. Implications for music educators are discussed, leading into the supported claim that if tasks are designed to be stimulating and engaging for students in the music classroom then there will be an increased likelihood for high-quality work produced. In closing, the development of a 'self-regulation tool' is shared, based upon the nine components of flow being vital for student enjoyment leading to optimal learning.

Caldwell, R. (1991). Imagining the performance. *American Music Teacher*, 41 (3), 20-25, 79.

In this reprint from the author's book *The Performer Prepares*, Caldwell states that performance begins in the performer's imagination. He presents a model of exercising the imagination using issues in performance as a catalyst to each stage of performing. An Action/Outcome Grid is introduced to match each Issue Level with a Stage of Performance. The grid, as a point of reference, is a tool to spot and evaluate conflicts in overall imagining of the performance. Citing several examples of such conflicts, Caldwell suggests that the performer attempts to understand the illuminated uniqueness of his or her performance rather than search for correct answers to discovered incongruities.

Campbell, P. (1990). Cross-cultural perspectives of musical creativity. *Music Educators Journal*, 76 (9), 43-46.

According to Campbell, creative music is a human phenomenon found in all the world's music cultures. The author first explored how music can be creative and re-creative, the differences between composition and improvisation, and the language of musical expression. In light of this discussion, the traditions of musical creativity in several cultures were described, including those of India, Iran, China, and West Africa.

Campbell, P. (1991). Unveiling the mysteries of musical spontaneity. *Music Educators Journal*, 78 (4), 21-25.

Improvisation is quoted as "the spontaneous generation of melody and rhythm without specific preparation or premeditation," "the musical response to an unpredictable impulse or feeling," and "the intricate balance of performance and composition." With these definitions it would follow that improvisation would be an important part of music education, but it is not, yet. The author addresses the common arguments against the practicality of its use in teaching; it cannot be taught if the teacher does not do it him/herself, it is only for jazzers, there is enough "creativity" in the performance of music, the administration would not approve, and it cannot be taught. The second half of the article offers field-tested procedures from which music educators can design a course of study for improvisation.

Campbell, P. (1995). Of garage bands and song-getting: the musical development of young rock musicians. *Research Studies in Music Education*, June, (4), 12-20.

The purpose of this study was to explore the methods of music teaching and learning in a rock band. Members of two Seattle rock bands were the subjects of this study. The nine participants were all white males age fourteen to sixteen. Based on interviews and observations of band practice sessions the author presents insight into the methods that band members follow (both as an individual and part of the group) to learn, rehearse, and at times compose their music. Some attention is given to influences of early home and school music environments. The author sees a link between the ear-training and applied performance techniques taught in school and used in the rock bands studied. But this link is not intended to suggest that schools should take on the teaching of this style of music (as this would, by necessity, require a compromise of its true nature), but rather to encourage a deeper understanding of the nature of music learning within this domain.

Campbell, P. S. & Teicher, J. (1997). Themes and variations on the creative process: Tales of three cultures. *Research Studies in Music Education*, June/July, (8), 29-41.

The comparison of improvisation in Southern Indian, Sub-Saharan Africa, and Vietnam cultures are examined in order to highlight "traits" to use in the creative musical education of students. Observations of the practice of improvisation in each culture are surveyed. Commonalties of the three cultures include: the importance of improvisation, the act of using established music as the root of further musical elaboration, the importance placed on highly developed aural skills and a broad melodic and rhythmic vocabulary as first stages in the learning of improvisation, and the method of learning improvisation through observation and imitation.

Campbell, P. S., Scott-Kassner, C. (1995). *Music in childhood: Preschool to elementary grades*, NY: Schirmer Books.

The book contains chapters on the "creating" child and the "moving" child. In the creating chapter the authors state that "the creative impulse is alive in children of all ages", and comes out of their "creative imagination and exploration...a need to satisfy the inherent desire children have to generate and manipulate sounds, and eventually place them in

meaningful structures". Musical creativity is equivalent to thinking artistically - thinking creatively in music. Divergent thinking is the heart of creative thought. Following a developmental approach, the author outlines elements of children's creative musical behavior - exploration and discovery, improvisation, composition, aural planning, song writing, use of notational system, and self-assessment. The teacher's role includes: posing the right questions; giving guidance and setting the right criteria; building assessment skills, of self and others' works (seen as crucial to the composition process) In the moving chapter, the focus is on children's acquisition of musical understanding through creative movement, and deals more with the teacher's role in achieving that end. "Children develop musical sensitivity when their natural movements are channeled towards the discovery or reinforcement of musical features and components" (209). It is the teacher's responsibility to harness, shape, and direct the spontaneous movement of children towards the understanding of musical concepts - rhythm, melody, phrasing, texture, dynamics, and form; it entails guiding children to develop their own repertoire of movements to express musical concepts. This requires logic and creativity on the part of the teacher.

Campbell, P., Connell, C., & Beegle, A. (2007). Adolescents' expressed meanings of music in and out of school. *Journal of Research in Music Education*, 55 (3), 220-236.

The article wants to identify the adolescents' points of view about the role of the music in the configuration of their identities; the benefits of being engaged with music; the content of the music curriculum in secondary schools; and the music teachers' ability to provide music-learning experiences at school. This article is based in a research which had as a main goal to find out the significance of music, inside and outside the school, for middle and high school adolescents. The research was based in essays, statements and reflections of adolescents that participated in a national essay contest called *Ban the Elimination of Music Education in Schools*. The contents of the adolescents' reactions were analyzed by investigators, using an inductive approach. As a result, the research showed a remarkable support from the adolescents toward music (as an indispensable part of their lives) and music educators in secondary schools.

Canfield, S. (1961). Creativity in music education. *Music Educators Journal*, 48(2), 51-52, 54,56.

The article began by recognizing that a child's development can be helped through stimulation of his need for expression; through his need for and experimentation with tools of expression; and through improvement of his power of application. When a children search for creative outlets, he looks further into himself and find powers of which he may have been unaware. In the process, his personality becomes better balanced and integrated. With creative teaching, an instructor may help free a student's thoughts feelings and dreams.

Carbon, J. (1986). Toward a pedagogy of composition: exploring creative potential. *College Music Symposium*, 26, 112-121.

Carbon suggests that scholars have made the art of composition into a "scientific" skill that is devoid of human interaction, feeling, and intuition. He presents Jung's psychological theory of the four personality types (the thinking, feeling, sensation, and intuition personalities) and suggests that each personality type approaches compositional tasks from a preferred psychological perspective. In the spirit of Jung's model, Carbon proposes that each composition student is a composite of the four psychological/personality types; all four approaches are utilized simultaneously during the compositional process. Carbon encourages his composition students to explore their personal compositional approach profile, in order to realize their full creative potential. He illustrates his methods for this exploration among beginning composition students. The activities focus on self-awareness and "correcting imbalances" among the four approaches, so that there are fewer inhibitions during the act of composition.

Carlin, J. (1997). Musical preference for compositions by selected students aged 9-15 years. *Bulletin of the Council for Research in Music Education*, 133, 9-13.

The focus of this study was to determine if age and musical training influence sound preferences when composing. The subjects were children aged 9-10 or 14-15 and either had considerable formal training or none at all. The subjects were given acoustic and electronic instruments from which they could derive their compositions. The study found that both age and musical training do in fact influence the sound choices and the complexity of the children's work. The researchers found implications for music education: all the subjects expressed enthusiasm and satisfaction from the compositional process, regardless of age or training.

Carlin, J. (1998). Can you think a little louder? A classroom-based ethnography of eight- and nine-year olds composing with music and language (eight year olds). *Dissertation Abstracts International*, 59 (5), 1503.

Qualitative study that analyzed verbal and musical compositional process of twenty-one of the teacher/researchers third grade students. Three students were chosen as (focus) composers. Data collected in this study included: 1) journals and student self-assessments; 2) video tapes of the working sessions and the reflective discussion between focus students and researcher; 3) video tapes of all students in in-process sharing and final compositional performance; 4) field notes of teacher/researcher. Findings included these insights: 1) process and product were intertwined; 2) Self-determined compositional goals were met through the processes of exploration, revision, and polishing; 3) Socio-cultural factors

influenced the music and language of the compositions; 4) Training made an initial difference in ability, attitude, speed, and final product expectations; 5) untrained students could compose rather than just improvise; 6) Students used the same processes when composing in two different modalities.

Castaldo, J. (1969). Creativity can end our musical isolationism. *Music Educators Journal*, 56 (3), 36-38.

The author argues that music, like any discipline, must serve as a way to elucidate life and must not be studied as an isolated phenomenon. To ensure this lack of isolation, musical meaning must be the focus of every level and aspect of technical study. This, Castaldo believes, is best accomplished when the student is involved in the creative process.

Castellano, J. (1969). Music composition in a music therapy program. *Journal of Music Therapy*, 6 12-14.

Finding a way for music therapy patients with little or no background in music theory to compose is the topic of this article. A method of composition developed by Armin Watkins was used by the author to teach music composition to a group of eight psychiatric patients. The results, as exemplified by the success of one student, were felt to be very good. Several examples of compositions showing various types of pathological thinking are also presented.

Charles, B. (2004). Boys' and girls' constructions of gender through musical composition in the primary school. *British Journal of Music Education*, 21 (3), 265-277.

This study addressed the gender implications of creativity among a cohort of elementary-aged students in London and examined, using interviews with the students and observations of them in group compositional work, the extent to which they exhibited gendered musical practices, and how these practices affected their creative processes and products. It found that boys and girls talk about music and creativity differently and do create gendered meanings in their discourse, but that they do not reproduce these ideological views in practice. It also found that the teachers studied also are affected by gendered musical ideas and have gendered expectations about the practices of boys and girls.

Cheyette, I. (1977). Developing the innate musical creativity of children. *Journal of Creative Behavior*, 11(4), 256-260.

A how-to article which gives some guidelines for teachers in developing creativity through a project which includes creating a story and the accompanying music. Cheyette believes that the richer we can make the child's environment with respect to human relationships of affection and care, the greater the potential for sensing relationships. The author argues that children must develop a background of enriched sensory images. The article presents ways to accomplish this. A list of teacher activities is provided.

Cheyette, I., & Cheyette, H. (1969). *Teaching music creatively in the elementary school*. New York: McGraw Hill.

This volume represents a textbook for potential teachers of music. It approaches the teaching of music from the assumption that music is best learned by making music. In addition to chapters on developing an awareness of the musical elements, it also offers information on the development of a classroom orchestra with informal instruments and on developing the innate creativity of children.

Chittum, D. (1970). Creativity and music education. *American Music Teacher*, 19(6), 25, 29.

This article presents a rationale for the inclusion of creative activities in music education in all settings. The author states that the earlier a student begins creative activity in music, the sooner the student will gain the awareness of all the important aspects of music such as color, contrast, motion, and drama. The author gives some specific suggestions for including creativity in the private music lesson. Among these suggestions are that the student experiment with composition, improvisation, electronic instruments, and that theory lessons grow out of these activities.

Christensen, C. (1992). Music composition, invented notation and reflection: Tools for music learning and assessment. Unpublished doctoral dissertation, Rutgers, The State University of New Jersey.

Christensen is a proponent of the artistic-based approach to music curriculum, a curriculum which provides students with the opportunity to experience the role of artist, performer, and audience member. Using the Harvard Project Zero model for effective artistic learning (perception, production, reflection), Christensen designed a descriptive field study in which she examined fourth-graders' collaborative composition processes, their perception of what makes music musical, and their reflection of their role as composers. Six groups, each consisting of four fourth-grade students, participated in the study, although the researcher chose only three of the groups (12 individuals) from which she obtained the actual data that was utilized in this study. The students chose their compositional theme from a pool of visual prompts. The students primarily used classroom percussion instruments with which they created a collaborative composition, created a notational system which represented the organized sounds, and finally performed the composition. By interviewing the students, taking careful field notes, obtaining school records and parent information,

the researcher found that the students were able to provide verbal accounts of their composition's musical elements and organization, the notational process, and the compositional process in each interview. It appears that the interviews became more detailed in the students' reflection of these processes and perception as the collaborative composition project progressed. Thus the researcher concluded that the group compositional process facilitates and enhances the students' awareness of their musical thinking processes, while allowing them to experience the compositional process encountered by professional composers. She also submits that qualitative research in the classroom provides music teachers with the resources to assess students' cognitive processes, instead of relying on a final product for that information.

Claire, L. (1993). The social psychology of creativity: The importance of peer social processes for students' academic and artistic creative activity in classroom contexts. *Bulletin: Council of Research in Music Education*, 119, 21-28.

The author examines how the type of work the students are usually engaged in which affects the social processes of children, affects creativity in academic and nonacademic subjects. The author observed three different fifth grade classes where the teachers are dedicated to nurturing creativity and recorded patterns of social behavior. The author observed two kinds of classrooms, hierarchical and mutual. The hierarchical classroom had very little to no student input, decision making, and student interaction. The mutual classroom had more student interaction and facilitated more cooperative learning. Students worked together towards a common goal by making decisions together and cooperating. The author concluded that the mutual classroom was the classroom that facilitated more creative thinking.

Clarkson, A. (2002). A curriculum for the creative imagination. In T. Sullivan & L. Willingham, (Eds.), *Creativity and music education* (pp. 52-76). Edmonton, Alberta: Canadian Music Educators' Association.

Clarkson is an advocate of the development of an 'educated imagination' in which the divide between the cultures of science and art is bridged. As was first stated by Northrop Frye, the creative imagination expands the limits of what one can conceive. Based on this premise, Clarkson, a professor of music, developed a course entitled "Foundations of Creative Imagination." This article outlines the concepts around which this course was structured, discusses activities used in the course, and gives applications to middle and high school classrooms which participants have found beneficial. Clarkson's course led to the formation of the *Milkweed Collective*, a community of artists and writers who went on to give public shows of artwork and to write a book which gives personal accounts of their experiences in this course.

Cleall, C. (1981). Notes toward the clarification of creativity in music education. *Psychology of Music*, 9 (1), 44-47.

Music never becomes a spontaneous creation for most because the gap between our conception of what is beautiful and pleasing, and what most of us can achieve is always increasing. This is the basis of Cleall's article: that we have become accustomed to perfection in the arts to such an extent that only a privileged few can be expected to create. He states that all children should be allowed to play freely, to experiment in their play, to discover on their own; for it is the process of creativity not the product that nurtures creativity.

CMP 3. (1966) Experiments in musical creativity. Washington, D. C.: Music Educators National Conference.

This document is a description of three different programs developed and implemented by the Contemporary Music Project. The Baltimore and San Diego Projects were concerned with ways the music teacher's skill and understanding of contemporary music could be developed, and the identification of ways of presenting contemporary music to children. Summaries of in-service programs and pilot class lessons are included. The Farmingdale Project concentrated on two approaches to music education, Dalcroze Eurhythmics and creative experiences in 20th century composition. The curricula and suggested activities are included.

Coffey, T. (1992). A human rite. *Music Teacher*, 71 (May), 31.

The author/composer stresses the need for a curriculum which encourages self-expression. Music, a symptom of being human, soothes, arouses, and excites the mind and body. Music is part of every human ritual from celebration, war, marriage and death. It is part of identity. Music teachers are cautioned to not let "Western classical traditions" choke their music curriculum. Teachers are encouraged to help students create sound patterns that answer their needs and reflect their world.

Cohen, V. (1980). The emergence of musical gestures in kindergarten children. (Doctoral dissertation, University of Illinois at Urbana-Champaign, 1980). *Dissertation Abstracts International*, 41(11), 4637A.

This study is a qualitative description of how kindergarten age children learn to produce sound - or musical gestures.

The two questions that Cohen poses at the start are: 1. What is the nature of the kindergarten child's musical gestures? and, 2. What is the source of these musical gestures? Observations and subsequent analyzations are done over a period of three years of kindergarten children's involvement with musical improvisation/composition. After general observations, Cohen also does an in-depth study on the compositions of two exceptional music students. Aside from findings specific to the two children, Cohen's major finding was that one can observe the evolution of mental schemas by which children organize sound. Some educational suggestions are that teachers need to allow for more holistic type exploratory musical experiences rather than atomistic or additive. Also that children have the ability, but need more freedom, to discover the music within themselves without the constraint of musical "rules" imposed by teachers.

Cohen, V. (2002). *Musical Creativity: A Teacher Training Perspective*. In T. Sullivan & L. Willingham, (Eds.) *Creativity and music education*. Edmonton, Alberta: Canadian Music Educators' Association.

Cohen outlines a course of instruction that will train teachers on how to become capable guides through the creative process. The author describes a workshop experience where teachers in training worked together to develop the knowledge and pedagogic skill needed to become successful creative guides. The two stages of the process are peer teaching (involving role playing) and pupil teaching, which involves real students and a teaching evaluation.

Coleman, S. (1922). *Creative music for children*. New York: Putnam.

This volume explains the authors experiments with involving young children in the creation of their own instruments. The book also documents how these instruments were used with original music. A discussion of how to include these activities into a curriculum and at home is also included. There are several pictures of young children with original instruments in the book as well. Much of the thinking of the author is noteworthy, given the date of the book.

Colgrass, M. (2004). Composers and children: A future creative force? *Music Educators Journal*, 91(1), 19-23.

This article is an established composer's reflection on the American Composers Forum BandQuest project for school band music. The composer found it difficult to write band music at the middle school level. In conjunction with a school in Toronto, Colgrass consulted with students on using standard and graphic notation to write a piece suitable for them. Colgrass suggests that more composers should write for young and amateur musicians, and that both school music teachers and composers should collaborate more.

Colley, A., Banton, L., & Down, J. (1992). An expert-novice comparison in musical composition. *Psychology of Music*, 20, 124-137.

The authors of this study examined the compositional skill of harmonization by comparing the verbal responses and harmonizations of three music students to those of a composer. The subjects were given one hour to harmonize a nine bar Bach chorale, given the soprano line and a beginning measure of harmony. Subjects recorded their thoughts verbally during the composition process and again during a closing interview. The authors observed that the expert considered the task globally, considering the style and direction of the piece, while the novices focused on individual chords and technical problems. The authors note that these findings are similar to those of expert-novice comparisons in other domains.

Collins, D. (1992). Creativity and special needs: A suggested framework for technology applications. *British Journal of Music Education*, 9, 103-110.

Collins cites Malcolm Ross's (1980) principles "upon which one may base the conditions for creativity" (p. 104) in his discussion of the use of technology in the opening of creative opportunities for students with disabilities. "There are conditions of creativity, some of which may be precluded from the disabled...Those involved in the design of either music hardware or software need to be responsive to these factors, through ongoing collaborative work" (abstract). Teachers, through effective use of technology, may foster the recursive processes of "initiating (the original impulse), acquainting (with particular medium), controlling (mastery techniques/skills to manipulate), [and] structuring (gathering into a satisfying whole)" (p. 107).

Colwell, C., Davis, K., & Schroeder, L. (2005). The effect of composition (art or music) on the self-concept of hospitalized children. *Journal of Music Therapy*, 42 (1), 49-63.

The purpose of this study was to determine the effect of art composition (drawing using standard medium) and music composition (using the program Making More Music) on the self-concept of hospitalized children. The Piers-Harris Children's Self-Concept Scale was used to measure self-concept in 6 categories: Behavioral Adjustment (BEH), Intellectual and School Status (INT), Physical Appearance and Attributes (PHY), Freedom and Anxiety (FRE), Popularity (POP), and Happiness and Satisfaction (HAP). Twenty-four hospitalized children/adolescents were randomly assigned to participate in either the art or music composition for 45-60 minutes. Results indicated a significant difference of improved self-concept from the pretest to posttest for the total score when the subjects were evaluated together as one group. The art composition group demonstrated a significant improvement of self-concept for

the total score and for POP, whereas the music composition group demonstrated a significant improvement of self-concept for INT and PHY. Implications of this study are described as well as ideas for follow-up research.

Conant, B. (1988). A study of cognitive processes of children creating music in a computer learning environment. (Doctoral dissertation, University of Massachusetts, 1988). *Dissertation Abstracts International*, 49(5), 1086A.

Conant hypothesised that children who have experience with music composition using computer software will show more improvement in global texture, melodic contour, abstraction, and closure than students who do not have this experience. The study focuses on the cognitive process using the computer software "Music Construction Set" as a composition teaching tool. The experimental group was given various compositional tasks on the computer whereas the control group had none. Pre- and posttest results showed "marked" gains in the experimental group over the control group in the four categories (mentioned above). Implications posited were that work on composition with computer software has potential for enhancing creativity and more experiential understanding of music.

Cox, E. (1966). A functional approach to creative experiences in music in the elementary school. *Dissertation Abstracts International*. 27 (12), 4277A. (University Microfilms No. 67-06519)

This project is intended to provide a comprehensive guide to assist elementary teachers and music specialists in providing many opportunities for the child to experience creativity in music. Creativity was defined as "a quality that is expressed when an individual relates things in his experience that were previously unrelated, out of these relationships produces something that is new and satisfying to him." Various theories of creativity and other information contributed by administrators and music teachers helped to develop this project. Certain assumptions were also basic to the study: all children possess some degree of creative ability obtainable through education experiences, musical experiences make valuable contributions towards education, and that creative endeavor should play a significant role in music education of children. Guidelines are proposed. This project provides specific objectives and was tested with various groups. All activities were said to be effective in the classroom.

Crawford-Simpler, D. (1993). The effects of task related versus non-task related warm-up activities on the creativity test scores of kindergarten children (task related). *Dissertation Abstracts International*, 54(08), 2885. (Publication No. AAC 9403472).

This study looks at a section of kindergarten students and their responses to differing types of warm-up activities. One treatment group participated in warm-up activities which would be followed with related class activities, one treatment group used warm-up activities which were unrelated to the class activities and a control group did not do any warm-up activities. The Torrance Test of Creative Thinking was administered to all the students and no significant differences between the groups were found.

Crow, B. (2006). Music creativity and the new technology. *Music Education Research*, 8(1), 121-130.

Crow considers the new technology in the music classroom and its effect on musical creativity. He examines the historical and current state of creativity in the music classroom in England. He discusses the gap between music education today and young people's lives and offers music technology as part of the solution. Descriptions of current music software are examined in relationship to student creativity and music learning.

Crow, B. (2008). Changing conceptions of educational creativity: a study of student teachers' experience of musical creativity. *Music Education Research*, 10, 373-388.

This article reports a qualitative study of graduate students' views on musical creativity before and after student-teaching in secondary schools music programs. The author administered questionnaires and interviewed the 18 graduate students he supervised in a yearlong training course at Goldsmiths College, London, England. The findings suggest that the student-teachers (both before and after their teaching experience) separate "classroom" musical creativity from "real-world" musical creativity: The former is perceived as a means for promoting general "life skills" whereas the latter is expected involve musical understanding and music-specific skills. Furthermore, the article discusses various difficulties the participants (and their pupils) experienced when musical-creativity activities were introduced in the secondary school classrooms. Two additional teacher-related problems are addressed: creativity in teaching, and room for teacher's musical creativity growth. Finally, the role of undergraduate preparation is extensively discussed. The author suggests that the undergraduate music programs' focus on classical performance compromises students' ability to teach for musical-creativity.

Custodero, L. A. (1997) . An observational study of flow experience in young children's music learning (Doctoral dissertation, University of Southern California, 1997) . *Dissertation Abstracts International*. (University Microfilms No. 9835142)

This study observed 4 and 5- year olds learning processes in a music classroom based on Csikszentmihalyi's model of

flow experience. Custdoero has developed a model by which flow experience can be measured and examines these experiences in an educational context to determine what qualities of the activities presented are most engaging and intrinsically rewarding. The children in the study were involved in keyboard playing, singing, rhythm activities, skill games, storytelling and writing. The author indicates observing children's natural tendency to engage in flow experiences is critical to recreating the situation in the classroom. Music classes were more flow producing than other disciplines which is attributed to the sensory and physical participatory nature of the music experience.

Daignault, L. (1996). Children's creative musical thinking within the context of a computer-supported improvisational approach to composition. (Doctoral Dissertation, Northwestern University, 1995). Ann Arbor: University Microfilms International, 1997.

Daignault focuses on fifth grade children's creative thought processes in music. Using CSIAC (Computer-Supported Improvisational Approach to Composition), Daignault sets out to explore the following research questions: 1. How do the compositional strategies utilized by children, at each phase of the CSIAC, differ (a) quantitatively and (b) qualitatively when comparing children placed in the top third with those placed in the bottom third groupings according to expert ratings on the *creative* qualities of their final composition? 2. How do the compositional strategies utilized by children, at each phase of the CSIAC, differ (a) quantitatively and (b) qualitatively when comparing children placed in the top third with those placed in the bottom third groupings according to expert ratings on the *craftsmanship* qualities of their final composition? 3. How do the two product ratings and the compositional strategies utilized by children, at each phase of the CSIAC, differ (a) quantitatively and (b) qualitatively when comparing children who have had private lessons in music (piano) with those who did not? After a pilot study and literature review were completed, twenty-five subjects aged 10 to 11 participated in three phases of the study: *Improvisation*, recording 3 to 8 improvisations on a sequencer program; *Selection*, listening to all recorded improvisations and then selecting the preferred one; and *Development*, developing the selected improvisation using piano roll notation. Five experts in music education were instructed to evaluate children's products according to their own subjective definitions of "creative" and "craftsmanship" quality. Subjects were separated into highest and lowest groupings, and the compositional processes were analyzed using a combination of quantitative and qualitative methods. Two divisions of data emerged: *Improvisation Type* (either product or process oriented) and *Development strategy* (either refinement or extension). Lower rated students tended to create process-oriented improvisations, while higher rated students tended to create product-oriented improvisations.. During the *Development* task, the high groups tended to use notation to both refine and extend their selected improvisation, while the low groups only refined products. The high craftsmanship group manipulated notation to create new ideas, while the high creativity group used much more improvising. The piano background of the subjects was an important factor, determining both the development strategy and the type of improvisation.

Dalgarno, G. (1997) Creating an expressive performance without being able to play a musical instrument. *British Journal of Music Education*, 14 (2), 163-171.

The author of the article contends that one can separate the two main components of a great performance: the technical skill of the performer and the expressive interpretation of the work. By doing this, Dalagarno believes that someone with little or no piano skills can create an expressive performance with the assistance of music technology. The computer program discussed is called *Vistamusic* and is capable of creating expressions and even full compositions without complex musical concepts like MIDI. In *Vistamusic*, one can decide where a crescendo will go and how far to carry a ritardando, as well as compose his or her own music. The program is mainly limited to piano simply because of the complexity of sound in other instruments (such as the string quartet described in the article). When tested, the program, though it did have its limitations, was able to satisfy the performer in the final recorded performance.

Dallman, R. (1979). A survey of creativity in music through composition in elementary schools of Colorado. *Dissertation Abstracts International*. 31(12), 6644A. (University Microfilms No. 71-14523)

This was a descriptive study that surveyed the fostering of creative behavior in music composition in traditional programs at the elementary school level. Author reports results of a questionnaire sent to area music specialists. Results showed that little composition was done in grades 1-2, most composition done in upper grades. Most composition was done in a class setting with traditional notation. Personal interviews with selected teachers confirmed findings in questionnaire. Dissertation also includes examples of compositions. No attempt at analysis provided.

Davidson, L. (1990). Tools and environments for musical creativity. *Music Educators Journal*. 76(9), 47-51.

Davidson writes about factors that influence students' compositional efforts. He covers such factors as "the empowerment of students made possible by using computers, the importance of conducting classes in the language of music-sound, and the importance of characteristics common to the music classroom." Classroom characteristics

discussed include long-term engagement, pacing, open-ended learning, student defined problems, judgment, and student empowerment.

Davidson, L. (1985). Tonal Structures of Children's Early Songs. *Music Perception*, 2 (3), 361-374.

The author's longitudinal study concluded that the expansion of children's tonal vocabulary is ordered by "contour schemes." The contours are defined by intervallic range (3rd - 7th), manner in which the interval is filled, and direction of motion used by the child. The expected ordering of intervallic growth and the prediction that skips would be sung before steps held true for nearly all subjects. Both invented and standard songs were tested, but children varied in their use of these for tonal development.

Davidson, L., McKernon, P. & Gardner, H. (1979) The acquisition of song: a developmental approach. In *Documentary Report of the Ann Arbor Symposium*. (pp. 301-315), Washington: MENC.

This study labels the child's first attempts to grasp the outline of a song as "topological mapping," which is followed by grasp of rhythmic surface, pitch contour, and key stability, all representing "phases" of song acquisition. These conclusions are drawn from a longitudinal study involving nine children, after which there is a comparative study of the efforts of four and five-year olds and eighteen-year olds to master an unfamiliar but culturally typical song: larger elements such as phrase boundaries and tempo are mastered by both; finer details, especially pitch, proved difficult for the younger group. Although the authors rely on Piagetian terms to describe the child's early mental processes, they reject his theory of general intelligence by documenting the correlations between significant musical achievements and those in other artistic domains.

Davies, C. (1992). Listen to my song: a study of songs invented by children aged 5 to 7 years. *British Journal of Music Education*, 9, 19- 48.

This article discusses the organization and relationships of musical events in time as being fundamental to music's meaning and that structural considerations become important to a child as soon as he or she begins to be musically articulate. Theories on musical thought processes are presented and followed up with an ensuing discussion on whether or not these processes occur in the musical inventions of young children. A study was described in which the compositions of 32, 5 - 6 year-old children were recorded and analyzed to discover the thought processes that children experience in composing. Results indicate that among others, children of 5 and 6 can invent musical ideas such as a beginning and an end and pattern alternation, repetition and transformation, group notes into units or phrases, and experiment with formal possibilities. Their use of music's structures is based on implicit or intuitive knowledge.

Davies, C. (1986). Say it 'til a song comes (reflections on songs invented by children 3-13). *British Journal of Music Education*, 3(3), 279-293

Davies presented several examples of compositions written by her own students, who ranged in age from 3-13 years of age. She then used these compositions as a starting point from which to reflect upon the nature of musical development and speculate about the potential role of composition in music education. She believed that the act of manipulating sound through the act of composition offered a unique and invaluable means through which children could explore their feelings and come to a better understanding of life's experiences in general.

Davies, M. (1983) Creative projects. *Music Teacher*, 62, 21.

In the author's opinion, most articles on the subject of creative music projects in the classroom have focused on philosophy, justification, and possible topics. By contrast, this article focuses on many of the practical issues facing the teacher. These include planning, organization of pupils, materials, and the potential advantages and disadvantages for students of doing creative projects.

Davies, P. (1963). Music composition by children. In: P. Davies & W. Grant, (Ed.). *Music in education: Proceedings of the fourteenth symposium of the Calston Research Society*. (pp. 108-123). London: Butterworths.

This chapter describes the work of the author with children in an English grammar school (children have passed their 11+ examinations). Creative work began with the teacher (author) needing to provide musical arrangements for the school orchestra. The text contains some observations on how to approach early compositions of children and urges the reader not to be too particular about rules of composition. There is an accompanying recording to the volume which provides auditory examples of compositions. The author describes the children's creation of incidental music for Peter Pan. The chapter concludes: "Musical composition, like painting and literature, is a natural means of expression which could play a beneficial part in the lives of individuals in our schools, and in the general life of the school community, if teachers would only get to know composers' scores, particularly twentieth-century scores, and then put their superior knowledge to one side and learn with their pupils." The chapter is followed by the text of a question and answer period.

Davis, L. (1983). Creative projects. *Music Teacher*, 3, 21.

The author describes the steps for planning a creative project, and organizing the classroom. Suggestions are made concerning the choice of topic, use of recording equipment, and how to deal with individual differences in group

projects. The author adopts a critical view of practical group work in creative projects, and discusses both the advantages and disadvantages of such an approach.

Dean, R. (1989). *Creative improvisation: jazz, contemporary music and beyond*. Philadelphia: Open University Press.

This book explains how improvisers of any level, and of any genre can develop techniques for improvisation, gain facility at manipulating musical material and modifying musical elements. Dean offers suggestions for simplifying material, then transforming it in a variety of ways, focusing on one element at a time. Some of the strategies in this text draw on non-western musics as well as non-musical ideas, such as texts and visual stimuli. By experimenting with all levels of musical control, the author feels that one's own personal style of improvising will evolve. There is a tape that accompanies the book, so that readers can try out examples as they experiment with the suggestions. Readers are asked questions about their improvisations, and about the material. There is also a discography which lists jazz, contemporary, Asian and Middle Eastern improvisations.

Della Pietra, C. J., & Campbell, P.S. (1995). An ethnography of improvisation training in a music methods course. *Journal of Research in Music Education*, 45 (2), 112-126.

Students with interests outside of those in the traditional choral and instrumental ensembles need to be given the opportunity to explore their own musical expression through other creative means. The authors believe that improvisation may be the vehicle by which these students can learn to enhance their musical and notational understanding and that it is the key to unlocking the motivation to pursue greater musical endeavors. They make the case that these students will be more attracted to improvisation if the teachers are themselves comfortable with it, that improvisation will strengthen secondary music programs, and that improvisation should thus be taught in music education training programs. The purpose of this study was to analyze the thoughts and behaviors of music education methods class students during a five-week-long improvisation class as recorded by two highly articulate and more experienced informants who were chosen by the authors. Results suggested that students in music methods courses can indeed learn the value of improvisation and the method by which improvisation is most effectively taught in a classroom.

DeLorenzo, L. (1987). An exploratory field of sixth grade students' creative music problem solving processes in the general music class. *Dissertation Abstracts International*. 48(07), 1689A. (University Microfilms No. 87-21099)

See also: DeLorenzo, L. (1989). A field study of sixth-grade students' creative music problem-solving processes. *Journal of Research in Music Education*, 37 (3) 188-200.

This study examined the creative music problem solving processes of sixth grade students in the general music class. Based on the assumption that problem solving involves a series of choices, this project observed and analyzed the students' chain of music decisions from problem perception through problem perception through problem solution using a qualitative mode of creative projects (within the typical music class routine) at four school sites. Findings demonstrated marked differences in problem solving behavior. Whereas highly involved problem solvers explored and organized sound for its musical expressiveness, uninvolved problem solvers rarely based their decision making on musical concerns. Conclusions suggest that students need as much experience in ways of thinking about music as the "doing" process itself. Many structured exploratory experiences along with related discussion appear to play a critical role in elevating students to higher planes of creative musicianship.

DeMarez, T. (1982). On the composer provoking student creativity. *ISME Yearbook*. 9:152-7.

The author, a composer, believes that creativity is a human trait, and discusses the value of creative imagination. What differentiates the artist is a kind of artistic self-exposure that externalizes private mental processes, which then become substantive and communicated. She believes that students should be encouraged to compose from the very beginning and that it is helpful to have composer teachers in the schools to enliven the process.

Dennis, B. (1972). Experimental Music in Schools. *International Society for Music Education Journal*. 2 20-21.

The article encourages the idea that we should think less about teaching the music of the past and consider music of today as an important part of the music we teach. The author argues for a better communication between composers of the present and their audience. Performance of contemporary music of established composers by children is encouraged and some examples are given.

DeTurk, B. (1989) Critical and creative musical thinking. In E. Boardman, (Ed). *Dimensions of musical thinking*. Reston VA: Music Educators National Conference.

While maintaining that critical and creative thinking differ in music, the author argues that they share three characteristic dimensions - conceptual knowledge, experience, and metacognitive strategies. The former is primarily

evaluating in cognitive and affective ways using informed experience, and the latter involves "higher order thinking with a specialized purpose - the production of something new". He outlines the application of the common characteristics to the two forms of thinking and their implications for music education.

deUria, N. (1989). The effect of creative activities on the achievement of first year music student's music initiation scores. *The Canadian Journal of Research in Music Education*. 30 (2), 22-28.

This study examined the effect of "Audio perceptive Education" as a teaching method using creative activities and improvisations. A sample of 50 children between the ages of 9 to 11 were tested. Assessment involved identification of pitch range, rhythm changes, short melodic dictation and creating a musical idea. Criteria for evaluation included final scores, time spent and development of creative ideas. The authors found creative activities increased interest, improved attendance and "basic music learning" in the experimental group.

DiCecco, B. (1988). Nurturing the musical imagination or "Once more with feeling." *American String Teacher*, 38, 53-56.

DiCecco discussed the need to change the current focus of instrumental methods from technique to genuine artistry. He claimed that one of the major difficulties involved with music education is that while music is primarily a non-verbal means of expression, teaching is primarily a verbal means of communication. Furthermore, musicianship is something which must come from within the student and resists being imposed by the teacher. DiCecco was adamant, however, in his belief that musicianship skills can indeed be taught. He advocated "creative repetition" in practice sessions and the encouragement of active listening on the part of the student. With this practice in imagining the sounds he/she wished to produce, the student would then be more able to clarify the goals of practice and ultimately rise above the means of technical concerns in striving for the end of true artistry.

Dobbins, B. (1980). Improvisation: an essential element of musical proficiency. *Music Educators Journal*. 66 (5), 36-41.

Author argues that true clarity of self-expression can reach its height through spontaneous improvisation. To achieve this goal, four stages of the music language were introduced by using the same formula to teach a high proficiency level used in the teaching of a verbal language. The authors stresses that the notated or fixed idea is a characteristic of both the classical and jazz idioms. Both seem to use the technique of expanding the musical idea through improvisation (ex. Baroque and BeBop styles). Dobbins also notes, "a skilled improviser in any tradition must be able to deal with the relevant elements of melody, rhythm, and harmony in a spontaneous and expressive manner." To effectively develop a student's creative skills, improvisation must be taught at the earliest educational stages with the integration to vocal techniques, theory, and sight-singing skills.

Dodson, T. (1979). A comparison and evaluation of the effects of a creative-comprehensive approach and a performance approach in acquisition of music fundamentals by college students (Doctoral dissertation, University of Southern California, 1979). *Dissertation Abstracts International*. 40 (4), 1941A.

An investigation concerned with achievement of aural discriminatory competence with levels of attainment in music performance and with student self-confidence in dealing with music fundamentals. Two groups were compared: (1) creative comprehensive (CC), and (2) performance approach (PA). Result showed that there was no evidence that different gains in achievement on aural discrimination occurs in the sample groups. There was strong evidence that the CCA group produced greater musical self-confidence than did the PA group.

Dogani, K. (2008). Using reflection as a tool for training generalist teachers to teach music. *Music Education Research*. 10(1), 125-139.

This qualitative study examined the use of reflection in teacher education programs by looking at 50 pre-service teachers in Greece, who were involved in their first experience of teaching music to preschool children. The researcher used questionnaires, observations, discussions, and reflective journals to gather data. The findings showed that through reflection, pre-service teachers were able to identify their own musical experiences, their feelings toward creative music teaching, and classroom conditions as factors affecting the formation of their own personal teaching pedagogy.

Doig, D. (1941). Creative music: I. Music composed for a given text. *Journal of Educational Research*. 35, 262-275.

First of a three-part series. The author provided opportunities for children to compose music at Saturday classes at The Cleveland Museum of Art. The purpose was to supplement musical opportunities through the encouragement of self-expression through music. The following question was raised: "What elements do children use before receiving definite training in musical composition?" Younger children showed more freedom and flexibility in the feeling for the relationship of tones to each other. Younger and older children alike demonstrated sensitivity to form and had a

definite melodic and rhythmic sense. All could express themselves through music. Writing music was of interest to both age groups. Analysis charts and original songs of children were included.

Doig, D. (1942a). Creative music: II. Music composed on a given subject. *Journal of Educational Research*. 35, 344-355.

Second of a three-part series. The author provided opportunities for children to compose music at Saturday classes at The Cleveland Museum of Art. Two age groups were used. The younger group was comprised of children six to nine years and the older group contained children ten to sixteen. An analysis of their twenty-nine compositions revealed that all children showed a feeling for cadence, repetition and contrast. Younger children showed a preference for scalewise melodies, older children for scalewise, chordal, and combinations. All students showed a preference for major tonality. Younger children changed meters, but older children showed few tendencies to do the same. All could express themselves musically. Graphs and tables were included.

Doig, D. (1942b). Creative music: III. Music composed to illustrate given music problems. *Journal of Educational Research*. 36, 241-253.

Third of a three-part series. The author provided opportunities for children to compose music at Saturday classes at The Cleveland Museum of Art. This third study included composing music to illustrate musical problems. Those problems were: (1) Adaptions on a given original melody. (2) Original compositions illustrating given rhythmic and structural problems, and (3) Composition of a march or waltz. Results showed that children developed a concept of tonality, melodic contour, rhythmic figure and meter. Results also showed age level differences. Analysis charts and samples of original pieces were included.

Dorman, P. (1990). The importance of musical play centers for young children. *General Music Today*, 3, 15-17.

Stating that the primary purpose of schooling is socialization, the author described several learning centers incorporating creative musical activities developed for that purpose. Music education was related by means of play centers to the development and enhancement of self-concept, critical thinking skills, divergent thinking, and artistic expression.

Dowling, W. (1984). Development of musical schemata in children's spontaneous singing. In W. Crozier, and A. Chapman, (eds.) *Cognitive Processes in the Perception of Art*. Amsterdam: Elsevier.

This research describes three main areas that support Dowling's hypothesis that regularities in structure of song provides evidence for mental schema controlling song production. First there is discussion of general development patterns in children's singing which includes a chart comparing various researchers' views. The second area provides analysis of spontaneous songs of Dowling's two daughters. Dowling recorded his daughters starting in March 1978. The analysis illustrates schematic control over the melodic and rhythmic contours of the phrases used in songs. The final area is a brief study of children' memory of their own songs. The author makes two conclusions: (a) when a child imitates adult sound model the result is a version filtered through child's own syntax and (b) in child's syntax we can see the origins of the adults more articulate and elaborate version.

Dunn, R. (1984). A music course with creative musicianship. *Music Teacher*, 63, 16-17.

The author outlined how "creative music" fits into her well-established music program at a state grammar school of 740 girls from the ages of eleven to eighteen. The creative component consisted of assigning groups of four or five girls to create original group compositions using one melodic instrument, such as a metallophone or glockenspiel, and several rhythm instruments. One culminating project for the year was the creation of a musical, where the girls decided upon the story, wrote the words and tunes of the songs, and the teachers wrote the piano accompaniment. The overall course of music study at the school was also outlined.

Dunn, R. (1992). Teaching music through individual composition: A music course for pupils aged eleven to eighteen. *British Journal of Music Education*, 9, 49-60

A secondary school teacher describes a composition curriculum for students grade seven through twelve. Music classes musical ability based and provide students with group and individual composition experiences. An emphasis is placed on developing notational skills as a means for enabling individual expression.

Dunn, R.E. (1997). Creative thinking and music listening. *Research Studies in Music Education*, 8, 42-45.

This article explores the notion of creative thinking and music listening by (1) sampling conceptual writings on the subject of creativity and listening to music, (2) articulating ten generalities regarding creative listening, (3) examining empirical research in this area, and (4) describing a study that presented subjects with a problem-solving listening task

requiring them to visually represent ("map") what they heard in a musical excerpt. The maps and resulting verbal responses regarding the task are analyzed and discussed.

Edwards, L. (1982). Valencia's Tooth, a first-grade operetta. *Music Educators Journal*, 69, 44-45.

An operetta composed around children losing teeth is the focus of this article. The author describes the various composition and improvisation processes her first-graders explored when using Orff, rhythm of text, and pitch exploration in the pentatonic scale. These were incorporated into a dramatic concept for the performance.

Elliott, D. (1989). The concept of creativity: implications for music education. In C. P. Doane & J. W. Richmond (eds.). *Proceedings of the Suncoast music education forum on creativity*. Tampa, FL: University of South Florida.

Elliott derives a definition of creativity and a model based on expert generating and selecting of various choices.

Creativity is defined as "a phenomenon that results from the interaction of a family circle of dynamic social systems including: a human practice, a practitioner, and the social-cultural contexts surrounding each and all. This family circle pivots on the family business of original and significant production within a specific domain" (p. 34). Elliott offers seven recommendations for educators designed to increase creative opportunities and skills for students.

Elliott, D. (1995). Improvisation and jazz: implications for international practice. *International Journal of Music Education*, 26, 3-13.

Elliott addresses the complexities of improvisation, specifically in relation to jazz. As a starting point, improvisation is a complex form of musicing in which people simultaneously compose, interpret and perform a musical work. In order to competently improvise, there is a need for prior understanding of musical meaning. Elliott contends that improvisation requires one to continuously reflect in and on their actions in relation to their knowledge of music. By enabling and promoting jazz musicianship, music educators have the opportunity to help students acquire a creative disposition, as one is constantly 'on the look-out' for promising musical ideas. The music educator's role in teaching improvisation is principally one of mentoring, coaching and modeling for students who are jazz apprentices.

Ellis, P. (1995). Designing sound: developing computer support for creativity in music education. *Research Studies in Music Education*, 5, 11-23.

An overview of the 5-year *Designing Sound* R&D project sponsored by the English government is given. Two software programs, *Designing Sound* and *Touching Sound*, are viewed from the philosophical idea stage through an action research partnership with primary, special needs, and secondary schools, to their release for use in educational settings. The goal of the software and accompanying book for curricular support is to create a program allowing students ages 4-19 the ability to realize musical thoughts by focusing on making sound more tactile and malleable.

Ellis, P. & Dowsett, R. (1987). Microelectronics in special education. *British Journal of Music Education*, 4(1), 17-23.

This article described the attempts of the authors to evolve a strategy leading towards a structured, progressive, practical music curriculum based on aesthetic as well as therapeutic musical experience for handicapped children. The children were given experiences with digital technology adapted for their situation (e.g. using knobs instead of a keyboard for manipulating the recorded sounds of their voices or synthesized sounds. Experiences with a digital delay unit, synthesizers, and a drum computer, and the responses of the children are described in detail.

Ernst, K. (1968). The nature and nurture of creativity. In R. A. Choate. (Ed.). *Documentary report of the Tanglewood symposium*. (pp.128-130). Reston,VA: Music Educators National Conference.

A rationale for music education that emphasizes creative development is made based on the need for the versatility, rejuvenation, and imagination that creative thinking can provide for every aspect of American life. The importance of the teacher's role in this type of music education was emphasized and a list of desirable characteristics for a creative teacher was given. Finally, the need for creative teaching at the university level was discussed as the major way of developing creative music teachers for the elementary and secondary levels of education.

Espeland, M. (2003). African drum: The compositional process as discourse and interaction in a school context. In M. Hickey, (Ed.), *Why and how to teach music composition: A new horizon for music education* (pp. 167-192). Reston, VA: : Music Educators National Conference.

This chapter offers a compositional model with support from the author's study of classroom group composition in Norwegian students ages 9-11. The model focuses on how the Outcome (composition) is influenced by both Personal (student's social role and intention) and Compositional Actions (actions focused on creation of the piece). Other influences on composition include Relevant Context (teacher input, student perceptions of teacher input, student habitus, and participants sense of time), Significant Events (breakthroughs, focus episodes, and blockages), and Power Relations (group leadership, peer teaching, and participation). The author compares and contrasts his model to other recent research in the field.

Evans, C. (1989). Is Amanda really musical? *Music Teacher*, 68 (2), 13-17.

This article was the final of a set of four discussing music in the primary curriculum. The author argued that many teachers have not understood why composing, listening and performing skills need to be taught in the general music classroom. He argues that students need to be involved in their own music learning. The major focus of the article was on the students' advantage of learning composition and some sample classroom exercises.

Fallin, J. (1995) Children's Literature as a Springboard for Music. *Music Educators Journal*. 81(5), 24-27.

In this article, Fallin suggests the use of childrens' books as a resource for encouraging children to be musical. She provides examples of lessons which begin with a story, and through the addition of sound evolves into a music lesson. Included are ideas for listening lessons and multicultural lessons. She provides a resource list of potential stories well suited to music lessons.

Farber, A. (1991). Speaking the musical language. *Music Educator's Journal*, 77 (9), 30-34.

Farber discusses the benefits and techniques involved in the teaching of improvisatory playing, especially to young pianists. She suggests that improvisers differ from other performers only in the nature and scope of the musical choices they make. The chief benefit of improvising is thought to be the necessary attention students must give to phrasing and structure. Practicing for technical development is encouraged because "The better your technical skills, the more flexible your thoughts" (p. 32). Although improvising helps students to "think like composers" (p. 34), "the improviser cannot step back or ever leave the molten center of the piece. He or she must learn to preserve what went before and to enlighten it with a sense of what must come" (p. 32).

Farmilo, N. (1981). The creativity, teaching style, and personality characteristics of the effective elementary music teacher. *Dissertation Abstracts International*. 42 (2), 591A-592A. (University Microfilms No. 8117057)

Six view points of the creative literature were examined. The cognitive, philosophical, developmental, aesthetic, humanist, and the psychoanalytical approaches were used. The author used 53 subjects mostly from the Detroit areas divided into creative and non-creative groups. Groups were determined by questionnaires and ratings. Each subject also had a personality file. The scores from the *Omnibus Personality Inventory* helped in the placement of each subject. The OPI consists of three patterns and 14 scales of personality factors. Results of the Chi-square and Fisher Exact Probability Test showed no relationship between creativity and teacher effectiveness. The Fisher Exact Probability Test did strongly suggest a relationship between teaching styles and effectiveness rating. Conclusion was that the effective elementary music teacher can be creative or non-creative but does have a creative teaching style. This effective teacher enjoys: pondering ideas, a variety of music and art, many-faceted problems, ambiguity, is highly ethical and is artist as opposed to scientific.

Faulkner, R. (2003). Group composing: Pupil perceptions from a social psychological study. *Music Education Research* 5(2), 101-124.

This essentially phenomenological study uses multi-methods to examine pupil perceptions of the processes, effectiveness and value of group composing. Thirty-six students 11 to 15 years of age from a rural state school in northeast Iceland were participants in the study. Analysis of pupil surveys, pupil assessment of their own compositions and 12 pupil reflective interviews through line-by-line and axial coding resulted in validating the use of group composition in the classroom. The themes of integrated, holistic musical behavior instead of discreet reductionist thinking and meaning from a social psychological perspective also emerged from the study.

Fautley, M. (2004) Teacher intervention strategies in the composing processes of lower secondary school students. *International Journal of Music Education*. 22 (3), 201-217.

The author investigates ways in which teachers approach composing and evaluating composition in the general music classroom through case-study observations of music classrooms. The author noted that teachers resist making musical judgments about student composition, but rather focus managing the classroom on completing the task. The author believes that student compositions would benefit from systematic musical intervention and evaluation from the teacher.

Fautley, M. (2005). Baseline assessment of pupil composing competencies on entry to secondary school: A pilot study. *British Journal of Music Education*. 22(2), 155-166. Cambridge: Cambridge University Press.

Fautley intends to devise a simplistic audiated method for measuring musical aptitude for students entering the British secondary school system. The baseline test was defined by right/wrong identification of audio samples in listening for discontinuities of melody, rhythm, beat, texture, and cadence. Two sample groups were pulled from the 55 students of the baseline test to assess and critique the quality of original group composition as related to the above parameters.

General trends were found supporting the baseline test results of the groups. Additionally, gender bias in various musical domains is hinted at but not explored.

Feinberg, S. (1974). Creative problem-solving and the music listening experience. Music Educators Journal. 61 (1), 53-59.

See also: Feinberg, S. (1977). Creative problem-solving and the music listening experience. Journal of Creative Behavior. 11 (3), 158-164.)

Author argues for a new approach to listening based on a model that stresses both a problem-solving approach and knowledge approach. "In such a setting, the student is not told what is significant in a piece of music, nor is he informed as to what is happening in the work. Rather, he is given opportunities to explore these possibilities for himself through the working out of various problems and hypotheses." p. 54. Ideas for music listening lessons are presented based on the general factors of fluency, flexibility, and elaboration of thought. The author also makes a connection between procedures for teaching listening and the overall creative process as described by Wallas and others. There is also an underlying theme that such an approach is closely associated with aesthetic education goals.

Field, A. (2007). New forms of composition and how to enable them. In P. Brunard & J. Finney (Eds.), Music education with digital technology (pp. 156-168). New York: Continuum.

This philosophical article explores the issues of music technology's impact on creative music making. The author raises questions of how best to implement the new technologies, arguing that music technology is a discipline in its own right and should not be used simply as a means to understand other aspects of music making. Seven strategies for enabling creativity are put forth and include: exploring time scale, accessing sounds of the world, using any input to create a composition, music's ability to comment on life and other music, the idea of what is 'better' and using sound in new ways, new approaches to rhythm, and new approaches to form. Examples are given throughout.

Finney, R. (1981). Making Music. New York: C.F. Peters Corporation.

This book, the first in a series of three volumes, is intended to serve as an instruction book in composition and as a performance book for contemporary music. The author believes that composing is as much a part of performance as it is of theory and aims to allow students, both adults and children, to experience performance, composition and composing. This volume focuses its composition and performance activities in non-pitched or single pitched instruments as melody and harmony are to be introduced in later volumes.

Fisher, R. (1968) Learning music unconventionally—Manhattanville Music Curriculum, Music Educators Journal 54 (9), 61-64.

This article presents the personal experiences of the author while attending the first Manhattanville Curriculum program in 1966. The intent of the summer workshop was to reexamine course content as it relates to musical creativity and its use in music education. The workshop was focused into two areas of study: to allow participants to experience and develop their own creativity through the use of individual and group composing opportunities; a curriculum workshop, which examined a wide field of educational philosophies, and their implications to music education, the development of theories to incorporate creative techniques into the school curriculum, and finally the strategies for that implication.

Fitzgerald, R.B. (1964). Creative music teaching in the elementary school. NEA Journal. (December?), 42-43.

This short article provided rationale for creative activities in the classroom, and discussed implications for teacher training. Creativity was defined as a process that involves inquiry and discovery learning. The author described pilot projects of the Contemporary Music Project for Creativity in Music Education (MENC) involving teacher in service and laboratory classroom activities. Objectives were to identify creative approaches to introduce contemporary music and to experiment with techniques for providing creative musical experiences for children.

Flohr, J. (1985). Young children's improvisations: emerging creative thought. The Creative Child and Adult Quarterly, 10 (2), 79-85.

The purpose of this study was to characterize and describe the behavior of four different age groups engaged in improvisatory tasks: ages two, three, four and five years old. Ten children participated as subjects. Each child was given the opportunity to improvise on an Orff xylophone using a two octave pentatonic scale comprising the pitches c, d, f, g, and a. The children met individually with the investigator for fifteen minutes and worked through three phases: free exploration, improvisation based on an emotion (sad, happy), and improvisation of a melody over a bordun accompaniment. The author concluded that there are three distinct stages of development: motor energy (ages two and four), experimentation (ages four and six), and formal properties (ages six and eight). Motor energy: plodding and accented durations, pendulum-like regularity, often looks aware while playing; Experimentation: interest in sound itself, experimentation with his/her capacity for sound, variety of ideas; Formal Properties: tonality emerging, repetition, larger formal structures, decentered perception.

Flohr, J. (1979). Musical improvisation behavior of young children. Dissertation Abstracts International, 40 (10), 5355A. (University Microfilms No. 8009033)

The purpose of the study was to characterize and describe the improvisatory behaviors of four, six, and eight year olds. Twelve subjects (four from each age group) met with the investigator for ten individual 15 minute sessions during which they were provided opportunities for free exploration, guided exploration, and exploratory improvisation on an Orff xylophone using a two octave pentatonic scale. Recordings of sessions using audio cassettes, the investigator's descriptive notes, and transcriptions of some exploratory improvisations form the basis for extensive anecdotal summaries of each subject's work and for descriptions of differences in the use of time, tonal orientation, relationship of patterns to musical stimuli, and abilities to form musical images which are attributed to chronological age.

Folkestad, G. (1996). Computer Based Creative Music Making. Goteborg, Sweden: Acta Universitatis Gothoburgensis. (comes with accompanying CD)

This book summarizes the author's dissertation work. The purpose was to investigate the situated practice of young people creating music using computers and synthesizers. The aim was to (1) describe the process of music making and how it is apprehended, and (2) analyze the relationship between the different processes of music making and the character of the music that is created. This three-year empirical study used computer MIDI files, interviews, and observations. Analyses revealed six qualitatively different ways of creating music, divided into two main categories: horizontal and vertical. The book contains extensive summaries of related literature. The accompanying CD contains music examples from the research.

Folkestad, G. (1998). Musical learning as cultural practice: As exemplified in computer-based creative music-making. In Sundin, B. et.al (Eds.), Children composing. Malmo, Sweden: Lund University.

This article is based on the author's doctoral thesis, Computer Based Creative Music-Making: Young People's Music in the Digital Age (1996). The purpose of the article is to describe the theoretical framework of that study and to present a summary of the main account of the compositional styles employed by the young composers observed in the study.

The author employs a broad understanding of music education that includes settings and situations other than the typical institutional and teacher centered settings such as after school settings. Additionally, the author's perspective focuses on learning rather than teaching. The theoretical framework for the study is grounded in a research approach known as situated cognition; however, the author chooses to use the term "cultural practice". Findings include 1) all participants, both those with and those without music training, succeeded in creating music and 2) all the participants completed the completely voluntary project.

Folkestad, G. and Nilsson, B. (2005). Children's practice of computer-based composition. *Music Education Research*, 7(1), 21-37.

The authors describe and discuss the results of a two-year study of 8-year-old Swedish children creating music with synthesizer and computer software. In the first phase of the study, the children, who were not formally trained in music, were given tasks, framed as invitations, to create music inspired by pictures related to the themes of Landscape and Water, respectively. In the second, open-ended phase, the children were invited to paint a self-portrait, and to create music along with the portrait. The subsequent suggestion was to create music to a painting by Kandinsky. The authors identified five different variations of the practice of creative music making, each with a different object in the foreground of the activity. During creative music making, a shift between these variations sometimes occurred. The participants created music with form and structure and used repetition and development of formulas, whether rhythmic or melodic. In some cases, the "invitations" facilitated a child's response, while in others, where the invitation was perceived as a school "task," the response was more limited, or the child lost interest in his or her product. However, a concluding interview, in which the synthesizer and computer were available but no prompt was given, showed that for some children, who wanted to create music but were unable to do so, the absence of a prompt could have blocked the creative process. In those cases where the children had difficulties in creating meaning on their own in their composing, they turned the task itself into a meaningful context. The authors suggest that music teachers should be prepared to vary their methods according to the needs of the individual student.

Folkestad, G., Hargreaves, D. & Lindstrom, B. (1998) Compositional strategies in computer-based music-making. British Journal of Music Education, 15 (1), 83-97.

This article describes the process of computer-based composition and how it is perceived by young composers. It describes a three-year empirical study of 129 computer-based compositions by 15 to 16 year old students. By saving MIDI files as the students work the process of composition could be studied. Interviews were carried out and observations of their work were made. After analysis, the method of creating music can be categorized two ways - a horizontal process in which the composing and arranging are separate activities and vertical process in which the composing and arranging are integrated.

Foster, D. (1969). Can creativity be taught? Music Journal. March, 36; 68.

In his article, the author questioned whether creativity can be taught and what schools can do to foster creativity. The author stated that "although art cannot be taught, the way to art can be taught" and thus suggested that schools expose their students to as wide a range of artistic experiences as possible. This article is written in a philosophical mode.

Fowler, C. (1966). Discovery method: its relevance for music education. Journal of Research in Music Education. 14 (2), 126-134.

This article presented the discovery method as a way to make music learning more internalized and intrinsically motivating by leading students to discover concepts through experience and manipulation before attempting to verbalize them. The author suggested that teaching various aspects of the elements of music (meter, rhythms, melody reading) can be taught without excessive verbalizations of the concepts involved. He concluded by saying that the teacher knows a child understands a concept when he can show it, perform it or apply his knowledge in a new situation.

Fowler, C. (1970) Discovery: one of the best ways to teach a musical concept. Music Educators Journal. 57 (2), 25-30.

Similar in content to the author's 1966 article (Fowler, C. Discovery method: its relevance for music education. Journal of Research in Music Education. 14 (2), 126-134.), this contribution offers a number of practical suggestions for the application of the discovery method of learning. The Lecture, Socratic, and Discovery methods are compared.

Fowler, C. (1985). The shameful neglect of creativity. Musical America, (September), 10-12.

The article expresses concern that students in music classrooms are not being allowed opportunities for creative self-expression. Fowler argues that the act of being creative with an art form allows us to exercise our real intelligence when we are able to translate what we observe symbolically in the process of formulating and conveying our understandings. Creating their own musical expressions will also allow students to relate music directly to their own lives and times and permit "a precious inner aspect of their beings to speak and be heard"; the study of music will become more personal, vital, and significant.

Fox, L., & Hopkins, T. (1936). Creative School Music. New York: Silver Burdett and Company.

This volume begins with philosophical arguments for a "new education" -- encouraging music educators to abandon the old methods of acquisition of facts, specific habits and skills. The authors argue for acquisition of "variable insights" and "broad flexible techniques." A great deal of space is devoted to the merger of music and words in children's creative expression. A few specific lesson plans are included, most of which will seem quite dated to the contemporary reader. Nonetheless, the book represents an important historical step in the recognition of creative music thinking as a valuable part of education. Part III of the book contains a number of original songs transcribed from activities with children (K-8).

Franca, C., Swanwick, K. (1999). Composing, performing, and audience-listening as indicators of musical understanding. British Journal of Music Education. 16 (1), 5-19.

This research study supports claims an integrated music curriculum that is comprised of composing, performing, and audience-listening facilitates the development of musical understanding. The data shows that these three activities nourish students' experiences from different angles. Composing allows a wide range of decision-making; audience-listening expands their musical horizons and understanding; and performance allows for lesser decision-making because of the interpretative component. However, it is necessary to enable students with activity-specific skills to maximize outcomes.

Freed-Garrod, J. (1999). A framework for investigating self-described decisions and value judgments for composing music: An illustrative case study. Bulletin of the Council of Research in Music Education, 141, 41-45.

This ethnographic study investigated music classroom composition to examine any musical and sociocultural influences on decision-making. Open ended tasks were given to 8 and 9 year olds who had no training. One of the 21 participants was used to illustrate the findings. The implications that were found include: children this age can compose, children are capable of expressing ideas with sound, and decision-making is affected by musical and sociocultural influences. A useful framework was devised to organize and interpret the data.

Freed-Garrod, J. (1999). Assessment in the arts : Elementary aged students as qualitative assessors of their own and peers' musical compositions. Bulletin of the Council for Research in Music Education, 139, 50 – 63.

As a music specialist, the author wrote to answer two of her own questions : "How should the assessment be carried out?" and "Who should do the assessing?" 3rd grade students worked in cooperative groups to compose a song. There was ongoing self, peer and teacher assessment and feedback, as in the cooperative learning approach. Freed-Garrod cites that students were very responsible in their role as assessors, offering critiques and suggestions throughout the

project which resulted in aesthetic awareness, as well as artistic judgment. Included are sample questions asked to students during the process and self/peer evaluation sheets.

Freundlich, D. (1978). *The development of musical thinking: case studies in improvisation.*

Unpublished doctoral dissertation, Harvard University.

Musical thinking is studied by looking at the child's spontaneous solution to a musical problem where the problem is a traditional musical frame (standard 12 bar blues) and the solution is an improvisation within that frame using a simple diatonic xylophone. Through two longitudinal case studies of fifth graders, the author (1) demonstrated a procedure for obtaining data on children's musical thinking; (2) established a mode of analysis for the data; (3) explored the educational ramifications of improvisatory experiences. Data collected through 11 five minute structured jam sessions and reported in great detail demonstrated that the child can generate authentic musical ideas without referral to notation and that musical concepts furnished by improvisational procedures are logically organized and amenable to developmental study.

Frock, G. (1996). *Exploring Percussion Sounds. The Instrumentalist. 50 (6), 42-46*

The author explains how a school teacher, using percussion instruments can teach creative listening in music. The student's thinking about different rhythms will enable them to think about music inwardly. The student is also encouraged to experiment with the instruments to develop patterns other than any given by a teacher. Such ideas of sound as dynamics are also covered.

Fung, C. V. (1997) *Effect of a sound exploration program on children's creative thinking in music. Research Studies in Music Education, 9, 13-19.*

This article highlights a study done to see how children would react to the introduction of a Sound Exploration Program. The researchers used 66 students from urban elementary schools in Minneapolis and St. Paul, Minnesota and broke them up into three groups: first grade participants, second grade participants, and second grade nonparticipants. The sound exploration program was coordinated by the Saint Paul Chamber Orchestra and included activities on the nature of sound, critical listening, improvisation, related arts, and knowledge about the orchestra. The model used to assess the experiment was Dr. Peter Webster's Measure of Creative Thinking in Music. This was used during posttest assessment only. Results showed that the first and second grade participants received higher mean scores than the second grade nonparticipants. Results from this study led researchers to believe that first and second graders may become musically creative after participating in such a program as the one provided by the Saint Paul Chamber Orchestra.

Gall, M. & Breeze, N. (2008). *Music and eJay: An opportunity for creative collaborations in the classroom. International Journal of Educational Research, 47, 27-40.*

This article presents the results of a qualitative investigation by two researchers, and is part of a large-scale study on the incorporation of current technological tools across a variety of academic content areas. The authors engaged two primary school educators as subjects, and explored how they and their students used the software program *Dance eJay* in the development of students' creative abilities. Discussions of the theoretical framework of musical creativity is interwoven with the author's methodology and

results. The authors cite a claim that current curricular procedures and materials are not sufficient in providing all students with opportunities for musical creativity. Several screen shots of the music software help elucidate the descriptions of the compositional opportunities. The authors conclude with their opinions as to the implications this study might have for educators, and make several recommendations for the incorporation of music technology in the classroom. A list of 43 references closes the article.

Galloway, M. (1972). *Let's make an opera: a happening with 120 young children. Journal of Creative Behavior. 6 (1), 41-48.*

This was a description of a music program for 6 to 11-year-old students taught by the author. She described many types of creative music activities including: composition, improvisation, reading and playing or singing written music, music listening and music theory activities. The article described how the story Peter Pan was produced into an opera by students and is an example of student creativity involving original compositions, dialogue, set making and practically every other aspect of production.

Gamble, J. (1981). *The effects of relaxation training and music upon creativity. Dissertation Abstracts International. 42 (8), 3399B. (University Microfilms No. DDJ82-02082)*

This study attempted to determine the effects of relaxation training and background music upon figural creativity. It was an experimental study with one dependent variable: figural creativity, as measured by the Torrance Tests of Creative Thinking, figural battery, and the evaluation of subject drawings by a panel of three art judges. The treatment groups consisted of: background music group, background music combined with relaxation training group and a no-treatment (control) group. The results of this study indicated that there was a significant difference in creativity

variables across treatment groups as measured by the TTCT, with the Music and Relaxation Training treatment group experiencing the greatest effect. There was no significant difference between groups on the drawing portion of the treatment as measured by the TTCT.

Gamble, T. (1984). Imagination and understanding in the music curriculum. British Journal of Music Education, 1 (1), 7-25

Abstract: "Music is unique in its power to involve the whole person, intellectually as well as emotionally and kinesthetically. Our ultimate aim in music education, therefore, should be to develop musical imagination and understanding. We can achieve this by making composition and improvisation the central focus of the music curriculum, with listening activities carefully related to children's work..." Of primary significance is Gamble's notion that when students focus on improvising and composing, they necessarily engage in performing and listening as well, and will be highly motivated to do so since their involvement with music becomes personal and founded in inquiry.

Garcia, A. (1998). Grading jazz improvisation: On what basis? Jazz Educators Journal, 30(5), 58-64.

This is a response to a request for discussion about grading, specifically with creative products. Does one grade only technical aspects, or should the expressive, creative aspects be considered also? A survey of grading procedures of jazz improvisation courses for credit is part of the article. The author encourages participation so that results can be discussed within the profession.

Gardner, H. (1982). Art, mind and brain. New York: Basic Books.

Gardner subdivided the areas of art, mind, and brain into five subject categories. Part 1 presented various schools of thought linked to intelligence and creative thinking; behaviorism, psychoanalysis, cognition, and philosophy. Part 2 discussed the artistic development of children. Its pointed to the creative powers of children, the development of creative awareness and how children are perceptive to art work. Part 3 provided information on the educational effect of the media on to the child. Part 4 informed the reader about the physical function of the brain as it relates to damage, communication and creativity.

Gardner, H. (1983). Frames of mind: the theory of multiple intelligences. New York: Basic Books.

Gardner included what he believes to be the criteria for a more comprehensive view of intelligence. The specific intelligences discussed in detail include those in the areas of linguistics, music, logical-mathematics, spatial matters, bodily-kinesthesia, and personal knowledge. The section on musical intelligence begins with a description of the musical skills of composers followed by descriptions of the core abilities used when musical competence is demonstrated by ordinary people. Aspects of the normal development and training of musical skills, musical breakdown, brain organization, and musical skills of other cultures are then considered. This section finishes with discussion of some of the ways musical intelligence interacts with the other intelligences. The book concludes with implications for education and possible applications of this knowledge for the future.

Garofalo, R. & Whaley, G. (1978). Creative instrumental music projects. The Instrumentalist, 32 (Feb), 42-43.

The authors presented suggestions for incorporating comprehensive musicianship into the instrumental performance curriculum. They recommended greater breadth and depth of consideration in the study of history, analysis, and composition. They assumed a humanistic approach, claiming that perhaps the best way to pursue these "extra" topics in the instrumental performance program would be through individual projects which stemmed from the particular needs and interests of each individual student.

Gibson, S. (1989). A comparison of music and multiple arts experiences in the development of creativity in middle school students. Dissertation Abstracts International, 49 (12A), 3543. (Publication No. AAC8906853)

Authors Abstract: The principle aim of the investigation was to compare approaches for developing attributes of musical creativity as manifested in the art of improvisation. Using music as a single art form, or in combination with movement and the visual arts, a learning process was sought which would develop musical creativity, general creativity, and musical sensitivity in middle school students. The issue was whether experiences in the related arts would stimulate musicianship and creativity. A realization of inter-relatedness of the sensory capacities, and of the arts, were thought to support learning and creative development in musical improvisation, although no previous studies were known to have addressed this issue. . . While little or no correlation was noted between improvisational performance and musical sensitivity within the Music-Only group, a significant association between these factors was seen in the Multiple-Arts group.

Ginocchio, J. (2003). Making composition work in your music program. Music Educators Journal, 90 (1), 51-55.

The author shares perspective on the benefits of teaching composition in the performance classroom setting. Examples

of the direct benefits to students' overall musicianship are discussed, and specific guidelines and suggestions are given for implementation. Ideas for lessons, which are aligned with the National Standards, are also discussed.

Goetz, L. (1981). Compose at the first lesson. Clavier. 20 (7), 54.

Goetz encourages piano teachers to have students compose and notate little pieces as a way of learning the fundamentals of music, playing and note reading. Teachers should set guidelines, such as the number of notes and the intervals or range of notes to be used, and offers the student a choice of accompaniment and meter once the notes of the piece are chosen. In Goeltz' studio, the first lesson consists of the student establishing one-hand finger position on the keys and progressing toward learning the traditional notation of those pitches and composing a 12-note composition.

Golkestad, G., Lindstrom, B. & Hargreaves, D. (1997). Young people's music in the digital age. Research Studies in Music Education, 9, 1-12.

This study was designed to examine the process of computer-based composition by 15-16 year olds. The students worked alone, with minimal software instruction, and were all successful in creating compositions. The researchers systematically collected information during the composition process, and interviewed each participant about their work. They found six different ways these students formed their compositions, which they sorted in two categories: horizontal and vertical. The manner in which students composed were related to gender and previous musical training.

Gonda, J. (1983). Jazz education: Improvisation and creativity. International Journal of Music Education. 2. 19-22.

The article focused on ways to make jazz a more widely accepted idiom for the public and in education. It stressed the variety of skills needed to be proficient in this field including ear-training and improvisation. The author included many strategies for developing these skills and advocated teaching jazz as well as classical in the classroom. The author's pedagogic approach included composition and improvisation to enhance both solo and ensemble playing.

Goodkin, D. (2002). Creative education. In Sullivan, T. & Willingham, L. (Eds), Creativity and music education. (pp.2-15). Edmonton, AB Canada: Canadian Music Educators' Association.

Anecdotes from an annual 5-day nature-oriented outing taken with 4th and 5th grade students are connected to activities in the music classroom, as a means of illustrating how creative instincts can be channeled into music learning and be nurtured into lifelong creative habits. The article includes specific correlation between the creative instincts displayed by children in the natural setting and the ways they might be translated into a school environment. The author's perspective on creativity and music is best summarized in his statement, "The core idea is to bring the child's deep need to create out into the world through the vehicle of music."

Gorder, W. (1976). An investigation of divergent production abilities as constructs of musical creativity. Dissertation Abstracts International. 37 (1), 177. (University Microfilms No. DDJ76-16136)

See also: Gorder, W. (1980). Divergent production abilities as constructs of musical creativity. Journal of Research in Music Education. 28 (1), 34-42.)

This study was based on the work of J.P. Guilford and was an attempt to "construct a test of musical creativity with which to assess the relative strengths of fluency, flexibility, elaboration, originality and musical quality in junior and senior high school instrumental music students as demonstrated by tasks of improvised musical divergent production." Using the Torrance Tests of Creative Thinking as models of creative tasks, musical tasks were developed to provide for improvisation using a familiar instrument or by singing or whistling. Five constructs were defined: fluency, flexibility, elaboration, originality and quality. This test was named Measures of Musical Divergent Production (MMDP). The results of this study indicated that four of the creative abilities identified by Guilford may have parallels in musical creativity.

Gordon, E. (1989). Audiation, music learning theory, music aptitude, and creativity. In C. P. Doane & J. W. Richmond (eds.). Proceedings of the suncoast music education forum on creativity. University of South Florida.

Gordon suggests that creativity per se cannot be taught, but that readiness for creative thinking can be fostered. Audiation is a prerequisite to creative thinking in sounds, according to Gordon. Rather than retaining all tonal and rhythmic patterns in memory, "Only the essential patterns are retained in audiation" (p. 77). It is through the process of audiation that musical meaning is given to imagined sounds. Music Aptitude, meanwhile, is a developmental measure of a person's potential of audiate tonal or rhythmic patterns. Gordon makes many comparisons between his music learning theory and language learning theory. He suggests that "without acquiring an audiation vocabulary that includes a large number of tonal patterns and a large number of rhythm patterns in as many tonalities and meters as possible, levels of music aptitude notwithstanding, one will not have the necessary readiness to become musically creative" (p. 80).

Gorka, J. (1994). Encouraging children to compose. Clavier, 33, (1), 16-18.18-19.

The author, an independent piano instructor, encourages integration of a holistic approach to composition instruction into a private piano lesson setting. Concrete programmatic ideas to initialize student composition are provided. An analogy is drawn between a beginning visual artist and a beginning composer. Integration of composition will enable harmonic theory retention. Compositions of children can be performed, taped and sent to relatives.

Graham, D. (1998) Teaching for Creativity in Music Performance. Music Educators Journal. 84(5), 24-28.

Graham examines the creativity in music performance. He explains creativity as the production of the unexpected and calls on teachers to encourage to try to think beyond the expected. Believes that by going beyond the technical foundations at all levels of teaching we will increase creativity. Suggests other strategies for encouraging and developing creative thinking in the classroom. Claims that creativity is essential to fully developing as musicians.

Granat, H. (1979). Creativity in the field of music. The American Music Teacher. 29. (2) 14-16.

The author takes a sociological viewpoint of creativity by showing that "one could know much about a nation's people and where a society was heading by the creative expressions of its people." She delves into how society undermines many creative people and their products because they are outside the norm. It also explores how many people have overcome these obstacles and flourished, and how society can and should tap resources such as the older population.

Green, B. et. al. (1986) The Inner Game of Music. Garden City N.J.: Anchor Press/Double Day.

The author of this book worked closely with W. Tim Gallwey, the author of *The Inner Game of Tennis*. Green identified the divisions of "self 1" and "self 2". "Self 1", in most simple terms, inhibits our potential for creating music, and "self 2" helps us to express our potential for creating music. The musical goals of performance, experience, and learning are developed through relaxed concentration in the skills of awareness, will and trust. Musical performance, composition, improvisation, and listening contain inhibitions which must be creatively overcome through the "letting go" to our "self 2". There are several short tests and activities included for the development of a "global" method of thinking, improvisatory skill, and a relaxed physical approach to performance.

Green, L. (1990). The assessment of composition: style and experience. British Journal of Music Education, 7, 3, 191-196.

The author suggests that methods for assessing student compositions may not give good evaluations of young composers. Works of two student composers are presented and each is then assessed in two ways. First the author assesses the composition as musical output, next he assesses the compositions from the experience of music composition. Both assessments present significant issues related music education.

Greenhoe, M. (1972). Parameters of creativity in music education: an exploratory study. Dissertation Abstracts International. 33 (4), 1766A. (University Microfilms No. 72-27467)

This philosophical study began with an extensive review of the literature in the areas of personality and intelligence. A working definition of creativity and the four stages of creativity was generated from the review and related to the areas of music performance and composition. Important in this study was the inclusion of a three dimensional model of creative thinking in music based in part on the writings of Guilford. A review of music education methods is presented and recommendations for a method of music education that might help to foster creativity was suggested.

Greshiw-Nardi, T. (1994). Creativity with instant feedback. Teaching Music, 2 (3), 36-37, 55.

The author is a strong supporter of the use of technology in the music classroom setting in order to make music accessible to all students, including those who are not musically gifted. Technology makes it easier for all students to compose and improvise as required by the MENC National Standards. The author discusses various music technology programs including Encore, Finale and Band-In-A-Box. Also, the benefits of music technology and of the instant feedback it provides are presented as are the potential problems which may arise in implementing technology programs.

Gromko, J. (2001). In a Child's Voice: An Interpretive Interaction with Young Composers. Bulletin of the Council for Research in Music Education. 128, 37-51.

The purpose of this research was to capture in the voice of children their understanding of inversion, retrograde, and retrograde-inversion, techniques used by composers to transform or transpose a musical idea. The speakers were five children, ages 6 to 9, all of whom had shown themselves to be symbolically fluent within the systems of math, language, and music. In a quantitative study, Bruner and Kenney (1996) asked five, six, and seven-year-olds to reproduce and then transform a visual 3x3 matrix. The children were asked to make something like what was there before. Children 5 to 7 performed similarly on the reproduction task, but older children performed significantly better than younger ones on the transposition task. The most interesting finding was that all children first defined the problem and then sought solutions.

Gromko, J. (2003). Children composing: Inviting the artful narrative. In Hickey, M. (Ed.), Why and How to Teach Music Composition: A New Horizon for Music Education (69-90). Reston, VA: Music Educators National Conference.

This chapter addresses the need for music educators to embrace diversity by providing an environment in which children can draw on their own cultures as they create original compositions. Gromko believes that the inclusion of composition in our curricula should be based on a view of 'musical narrative' which includes a sequence of musical events with a beginning, middle and an end that is communicated through musical sound and recorded within a system of symbols. This article includes numerous examples of composition assignments used with students between the ages of three and twelve.

Gromko, J. E. (1994). Children's invented notations as measures of musical understanding. *Psychology of Music*, 22(2), 136-147.

The purpose of the study was to investigate the relationships between children's performance skills, perceptual discrimination skills, and age, and their effects on the quality of children's invented notations of song. Results indicate that children's perceptual discrimination abilities and performance skills are significantly related, and that the ability to invent a notation for a song that reflects rhythm and pitch is related to musical development and not necessarily student age.

Hagen, S. (1996). An examination of the effects of audiation on the compositional processes and products of fifth graders. Third International Conference on Technological Directions in Music Education. San Antonio, Texas: IMR Press.

This study explores the relationship between audiation and the ability to compose. A group of 38 fifth-graders took the Gordon IMMA test and then each student was asked to compose a song using a limited number of percussion sounds on a Korg keyboard. Hagen concludes that students who are better able to audiate are likely to spend less time in exploration and more time in development and repetition. The author concludes that students should engage in activities that encourage the skills of audiation, development, and repetition, as proficient use of these skills led towards the best compositions in the study.

Hagerdorn, V. (1997). An investigation into musical thinking of deaf children. Unpublished doctoral dissertation, University of South Florida.

Twenty children who were deaf, grades 1-5, participated in a study to examine the four factors of musical thinking outlined in Webster's MTCM-II. In addition, home musical environment was investigated through the use of a survey completed by parents to see if it affected the students' willingness and ability to complete the musical tasks on the MCTM. Results from the scores of the deaf students were compared descriptively to scores of hearing students. Results demonstrated that deaf students were able to complete the musical tasks in MCTM. They scored slightly lower than the hearing students in musical extensiveness, flexibility and syntax, but higher in musical flexibility. Case study data was also included.

Hamann, D. (Ed.). (1991). Creativity in the Music Classroom. Reston, Virginia: Music Educators National Conference.

This book consists of a collection of 13 articles on creativity by writers Robert Sherman, Peter Webster, Alfred Balkin, John Kratus, Lyle Davidson, Hollis Thoms, Saul Feinberg, Thomas Regelski, and Arthur Welwood. The articles are presented in 4 sections; philosophical support for creativity in the music classroom, definition of creativity, creativity and the curriculum, and creativity in the classroom.

Hamann, D., R. Bourassa, & M. Aderman (1991). Arts experiences and creativity scores of high school students. Contributions to Music Education, 18, (Fall), 36-47.

This study was designed to determine whether any significant differences existed between creativity scores of subjects by (a) gender or grade point average, or by (b) varying degree of participation in the arts. The dependent variable of creativity was measured by the Guilford and Guilford's (1980) *Consequences* Form A-1, in which subjects are asked to imagine as many as possible consequences of an hypothetical situation. Data were analyzed utilizing ANCOVA with the covariant being the GPA. No significant differences were found. However, significant creative mean score differences were found by subjects' musical and theater experiences after the influence of the covariant (GPA) was considered.

Hanley, B. (2002). Evaluating creative processes and products: Targeting musical outcomes. In Sullivan, T. & Willingham, L. (Eds.), Creativity and music education (pp. 129-139). Edmonton, Alberta, Canada: Canadian Music Educators' Association.

The author identifies a need to assess creativity of student composition; however, Hanley is not satisfied that creative products should or need to have a cultural need/appreciation, as established by Gardner (1993) when dealing with

elementary aged children. Instead, Hanley proposes that utilizing imagination and then applying that to the craft is a better approach. The author concludes that only through many experiences of imagining and creating, will students progress musically and creatively.

Hargreaves, D. (1999) Developing musical creativity in the social world. Bulletin of the Council for Research in Music Education, 142 , 22-34.

Hargreaves focuses his article on how musical creativity can happen outside of music classrooms and such environments. He talks about the idea of “music conservation,” which is the ability to distinguish similarities and differences in a musical sequence in its original format and one that has been altered. He then speaks to some studies done in this mode of thinking and also discusses the correlation between the Piagetian Model of Development and musical development. Sawyer (1999) is quoted with the concept of “improvised conversation” in transitioning between musical creativity in a musical environment and a social context. With this knowledge, Hargreaves dives into the idea of composing and improvising music in a social environment, and speaks to an exercise as demonstrated by his two sons. In this exercise, Hargreaves describes the processes that occurred during a blues jam with his two non-musically trained sons, ages 4 and 5. Through their own musical creativity, they were able to successfully improvise and accompany two choruses of a 12-bar blues form.

Hargreaves, D. J., Cork, C. A., & Setton, T. (1991). Cognitive strategies in jazz improvisation: an exploratory study. Canadian Journal of Research in Music Education, 33, 47-54.

Jazz improvisation is believed to be a fruitful medium for the study of creativity in music because it allows the researcher access to the processes of musical composition. The article describes an exploratory study to investigate the cognitive processes involved in the improvisations of novice and expert jazz pianists. Protocol analysis was conducted after the subjects (4 novice and 4 expert jazz pianists) had improvised a right-hand solo to "backing tracks" varying in speed and musical structure using a digital sampling piano and midi. Results indicate that there was a difference in strategies between the novice and expert improvisers; unlike the novices, each expert approached each improvisation with an overall plan.

Haroutounian, J. (1992). Creatively teaching the artist within. American Music Teacher, 42 20-23,75-80.

This article encourages studio music teachers to allow students to become artists through creative avenues: discovery learning, perceptual awareness, and artistic reasoning. The author specifically targets these strategies for work with the gifted music student. She suggests a model of musical problem solving that includes fact-finding, problem finding, generation of ideas and alternative solutions, evaluation and acceptance. She concludes that the teacher must value the process of teaching with equal importance as the product.

Harrison, J. (1996). Nurturing creativity: The what ifs. American Suzuki Journal, 24, (2), 28-29.

The author presents some creative teaching ideas for individual and group classes. Harrison also explores the usage of “what if” questions to draw creative thinking and problem solving out of students.

Hassler M. & Feil, A. (1986) A study of the relationship of composition/improvisation to selected personal variables. Differences in the relationship to selected variables: an experimental study. Bulletin of the Council for Research in Music Education. 87, 26-34.

This study reports results from a second stage of a longer work. This stage was concerned with relationships between three modes of creative behavior in music (composition, improvisation extempore, and improvisation on a melody) and scores on: Wing test, measures of spatial ability, lateral dominance test, dichotic listening test, verbal ability measures, and a measure of psychological androgyny. From a pool of 51 boys and 52 girls, 17 boys and 13 girls were chosen as having creative behavior in music based on their performance on measures of actual composition and improvisation. (Not all of the selected children performed all music tasks.) Selected children ranged in age between 10 and 15. These measures used past research by Webster and Gorder as a bases for evaluation. Four musicians were used as judges of musical performance using a 5-point Likert scale. (No reliability or validity reported on these measures.) Correlation data revealed: In boys: nearly sig. relationship between composition and visualization of spatial ability; sig. relationships between composition and psychological androgyny. Left handedness in boys was also sig. related to composition. Verbal ability was also sig. related to improvisation extempore and nearly so with improvisation on a given melody, but not composition. This finding confirms research by Webster. Additional findings were reported for girls.

Hassler, M. (1991). Creative musical behavior in adolescence. Canadian Journal of Research in Music Education. 33, 55-64.

Author’s abstract: “Creative musical behavior was observed in boys and girls during a seven year period in adolescence. A dramatic decrease of the creative aspect of musical talent in the course of puberty was not related to a decrease in general musical ability as measured with Wing’s Standardized Tests of Musical Intelligence. The decrease

of creativity was also not related to changes in the psychological aspect of androgyny which was even found in boys and girls with mean age of 12.5 and 11.7 respectively. The physiological aspect of androgyny as assessed with testosterone in saliva may have been important for creative musical behavior. Boys exceeded a postulated optimal testosterone level at the mean age of 16. At that time, the ability to compose/improvise reached a minimal level. In girls, the postulated optimal testosterone levels had not been attained in children whose pubertal development is still progressing.” (p. 55) The author notes that the subjects continued to play instruments and to listen to music, but their compositional output declined.

Henry, W. (1996). Creative processes in children’s musical compositions: A review of the literature. Update: Applications of Research in Music Education, 15 (?), 10-15.

The purpose of this article was to review previous literature concerning creative processes in children’s musical compositions. Henry began with the MENC goals of creativity in its handbook, which stated that teachers should continuously try to “understand and encourage” creative thinking in children and to nurture the creative process. Henry comments that so far practice and philosophy have not been in agreement perhaps because of several reasons: lack of knowledge of the creative process and lack of adequate means of measurement and evaluation of divergent musical behavior. He continues the review of the literature with the intention of providing a better understanding of the creative process. He provides an overview of several researchers including Guilford, Torrance, Kratus, Balkin, and DeLorenzo.

Henry, W. (1996). The effects of pattern instruction, repeated composing opportunities, and musical aptitude on the compositional process and products of fourth-grade students. Dissertation Abstracts International. 56 (7) 2560.

Author’s abstract (edited): The purpose of this study was to determine how the students’ processes and products of four, intact, fourth-grade classes were affected by musical aptitude and different instructional methods. Varied instruction was given over a twelve-week period. One group received repeated composing opportunities and pattern instruction, another received only repeated composing opportunities, another, only pattern instruction, and one group served as the control group. After the instruction period, students composed and recorded an original song. Two judges analyzed the compositional process based on the presence of exploration, development, repetition, and silence. Two other judges analyzed the products for its cohesiveness, pattern use, and extensiveness. They also rated the students' ability to replicate their song. The class that received pattern instruction and repeated composing opportunities used significantly less exploration than all other groups. High aptitude students used less exploration than low aptitude students. The class that received repeated composing opportunities and pattern instruction, and the class that received pattern instruction used significantly more development than the control group. The class that received pattern instruction used more repetition than the class that received only composition opportunities and the control group. No significant differences were found in students’ use of silence. The group that received pattern instruction took more time to compose. No significant differences were noted for metric cohesiveness, rhythmic pattern development, repeated melodic pattern, or length of finished product. Significant interactions among treatment groups and aptitude were found for tonal cohesiveness, repeated rhythmic pattern, range, and replication.

Henry, W. (2002). The effects of pattern instruction, repeated composing opportunities, and musical aptitude on the compositional process and product of fourth-grade students. Contributions to Music Education, 29 (1), 9-29.

This research study examined how repeated composing opportunities, pattern instruction, and musical aptitude effected compositional product. The study used four classes from the same school, but several students from the classes were not used in the study due to previous keyboard instruction (though they did participate in class activities). All classes received general music instruction, but three classes received additional treatments: one class received both pattern instruction and regular keyboard composition opportunities, one received pattern instruction, and one received regular keyboard composition opportunities. Musical aptitude was measured using the *Intermediate Measures of Music Audiation*. Henry concluded that repeated compositional exercises combined with pattern instruction may be the most effective way to facilitate student composing. When keyboards are not available, teachers should use pattern instruction to facilitate student composing. Music aptitude did not seem to effect the composing process of these students; however, Henry acknowledges that these results may not be reliable because the students with the highest musical aptitude (those who had studied keyboard privately) were removed from the sample.

Hermelin, B. , Lee, S. , O’Connor, N. , Treffert, D. (1989). Intelligence and musical improvisation. Psychological Medicine, 19, 447-457.

This study compared differences in improvisational abilities and intelligence. Two subjects, one mentally handicapped and one normal control, performed musical improvisations in the style of two different composers. Both subjects were able to complete the task. The study concluded that cognitive processes such as musical analysis and inventiveness are independent of general intelligence.

- Hewitt, A. (2002). A comparative analysis of process and product with specialist and generalist pre-service teachers involved in a group composition activity. *Music Education Research*, 4 (1), 25-36. The study compares and contrasts the compositional processes and products of undergraduate level students with no musical background and those with three or more years of music studies. These two groups of students, labeled as 'specialists' and 'generalists', broke into smaller groups to create original pieces of music. After studying the process by which the groups composed as well as the products they crafted, the author came up with several differences in students' use of stimuli, compositional methods, and in their application of melody, harmony, tempo, instrumentation and form. The biggest distinction between the specialists and generalists was the generalists' lack of confidence in the composing process and evaluation of other projects. The results of the study are then related to the use of compositional activities in the classroom.
- Hewitt, A. (2008). Children's creative collaboration during a computer-based music task. *International Journal of Educational Research*, 47, 11-26. Hewitt investigated the effect of a shared computer-based composition activity on the dialogue of ten to eleven year olds. The researcher observed the partners compose as many melodies as possible in a 20 minute time period. Using Kruger's (1992) framework for transactive dialogue (where collaborative dialogue is characterized as building on one's own or partner's idea), Hewitt found that students used transactive dialogue frequently, but the amount of such dialogue often depended on the role of the student during the activity (either controlling the mouse or sitting by the partner's side), or whether the student had a dominant personality. Friendship and level of previous experience with the partner appeared to have no effect on the transactive dialogue. From this study, it is clear that transactive dialogue is achieved in music composition, but it does not display whether transactive dialogue based on music activities offers anything distinctive for transactive dialogue compared to collaborative activities in other subjects.
- Hickey, M. (1998). Exploring music collaboration over the internet. In Lipscomb, S. (Ed.), *Technological Directions in Music Learning* (pp. 85-89). San Antonio, TX: Institute for Music Research. This paper describes general models of electronic music composition communities, specifically Music Internet Collaboration (MICNet!) at Northwestern University; outlines research goals for MICNet!; and addresses questions regarding the implications of electronic collaboration communities on the future of music composition teaching and learning. Some of the features of MICNet! discussed are collaboration between composer, school music classes, and pre-service music teacher; to serve as a lesson plan database; and to gather information for research. The concluding paragraph identifies future implications and issues that will need to be addressed with regards to Internet collaboration communities.
- Hickey, M. and Lipscomb, S. (2006). How different is good? How good is different? The assessment of children's creative musical thinking. In I. Deliege and G. Wiggins, (Eds). *Musical creativity*. (p. 97-110). New York: Psychology Press. Hickey and Lipscomb begin by outlining a brief survey of mainstream creative assessment practices in music since 1950. Cantometrics, proposed by Lomax in 1959, is exploited here as a rule for measuring the musical differences between a fixed musical idea and those composed and varied from it. The data gathered and subjected to a modified list of cantometrics is from 86 fifth-grade student compositions based on a standardized musical idea. The general conclusion gives measures for composition assessment not based on a strict theory or rule-based system, but rather a system that is more objective and promotes healthy creative thinking in students of music.
- Hickey, M. (1995). Qualitative and Quantitative Relationships Between Children's Creative Musical Thinking Processes and Products. Ph.D. Dissertation, Northwestern University. The purpose of the study was to analyze the relationship between creative musical thought processes of children and the quality of their resulting compositions. A secondary purpose was to examine the relationship of the process analyses and product ratings with subject's a) scores on a measure of creative aptitude (MCTM-II), b) musical experience, and c) music teacher ratings of creativity in music. A consensual assessment technique was used for assessing the creativity, craftsmanship, and aesthetic appeal of the children's music compositions. A researcher-designed computer program collected subjects' procedural information in the form of recorded MIDI data. Subjects were twenty one 4th and 5th grade students. Results indicate that the ability to creatively develop musical ideas in a variety of ways is the most crucial skill for any type of quality composing.
- Hickey, M. (1997). The computer as a tool in creative music making. Research Studies in Music Education, 8, 56-70. Author studied musical creativity as linked to motivation. Two 11 year-old male subjects were studied from a pool of

thirty children, grades 4 through 6, enrolled in a composition program. These two were chosen for their perceived lack of skill and interest in making music. Students were guided through use of an author-designed software program with the ultimate goal of producing a final composition. Unique to the program was the ability to record student work both knowingly (high external reward) and unknowingly (low external reward). Results indicated that when the external reward was removed their creative output increased in quality. Indications for music educators include exploring ways for musically “at-risk” students to realize creative potential.

Hickey, M. (1997). Teaching ensembles to compose and improvise. *Music Educators Journal*. 83(6), 17-21.

This article is written to provide practical ideas for using composition and improvisation as a means for developing musical thinking in an instrumental ensemble rehearsal. Hickey addresses the concern that traditional performance music classes do not provide all the musical experiences of performing, creating, listening, evaluating, and analyzing. The ideas presented in this article provide a format for a comprehensive approach to teaching the instrumental ensemble. Creative activities such as composition and improvisation are incorporated to help foster conceptual skills and elicit musical thinking. In addition to providing practical techniques for creative instrumental work, Hickey provides insight on how technology can be used to encourage composition.

Hickey, M. (1999). Assessment rubrics for music composition. *Music Educators Journal*. 85 (4), 26-33,52.

Hickey describes the use of rubrics as assessment tools for guiding music composition. By building rubrics and providing these to students, the teacher can focus student development and provide opportunities for creative work. Rubrics consist of component elements (e.g. creativity, form, etc.) placed in a grid with qualifying descriptors. Hickey gives guideline descriptors for evaluating/guiding student compositional creativity, ranging from “needs work” (familiar/cliche musical ideas, no variety or exploration of musical elements) to “terrific!” (very original, unusual, or imaginative ideas exploring or varying at least two musical elements). Five examples of composition assignment rubrics are provided.

Hickey, M. (2001). Creativity in the music classroom. *Music Educators Journal*. 88 (1), 17-18.

This article is an introduction of the July 2001 MEJ issue which focuses on composition and improvisation. This brief article also discusses some of the highlights from the *Music Educators Journal* which feature creativity or creative thinking in music as early as 1929. Three major developments are noted that make creative-thinking activities in the music classroom exciting for the future: availability of materials and information, the expansion of knowledge of how children learn (and overall knowledge of creative thinking), and technological advances which will only expand a child’s ability to create music. This article should be read in conjunction with “Creative Thinking in Music” by Peter Webster and Maud Hickey, “A Personal Retrospective on the MMCP” by Lenore Pogonowski, “Guidelines for Coaching Student Composers” by Dana Wilson, “Developing Improvisation in General Music Classes” by Timothy Brophy, and “Tools for Thinking in Sound” by Sam Reese. All above mentioned articles can be found in the July 2001 MEJ.

Hickey, M. (2001). An application of Amabile’s consensual assessment technique for rating the creativity of children’s musical compositions. *Journal of Research in Music Education*, 49 (3), 234-244.

Amabile proposes that assessment of creative products is most valid if appropriate judges independently agree on the same level of creativity. In this study, the author applies this idea of “consensual assessment” to music by determining the appropriate group of judges for assessing student compositions. Groups of music teachers, composers, theorists, seventh-grade children and second-grade children assessed the compositions of eleven fourth- and fifth-grade children. General music teachers agreed most on the creativity level of the compositions, while the professional composer’s scores had the least correlation out of the different groups.

Hickey, M. (2002) Creativity research in music, visual art, theater, and dance. In: Colwell, R. and Richardson, C., (Eds.) *The new handbook of research on music teaching and learning* (pp. 398-415). New York: Oxford University Press.

This extensive chapter reviews the empirical research of creativity in music, visual art, dance, and theater in order to better understand what is known about creative development, learning and thinking in these disciplines. It primarily uses examples of studies conducted within the last twenty years. Also, compelling current and possible future issues of the creativity research agenda are discussed. The parameters for studies to be included in this review were having an operational definition of creativity which included the cognitive creative act of thinking or 'process', and the tangible, novel, and domain appropriate 'product'. No studies that offer theoretical, philosophical, biographical, or autobiographical perspective were included. A brief review of the historical literature from Guilford's 1950 APA address on creativity and extending into the late 1970's is given. There are only 5 studies of theater and dance education

reviewed. The recent empirical studies are organized into developmental, assessment, cognitive, and confluence studies. The developmental studies include general creativity, creativity development in visual art, and development of creative thinking in music studies. The assessment studies include specific assessment tools, the consensual assessment technique, problem finding, and assessment of improvisation studies. The cognitive studies include creative thinking processes in music, relationships between creativity and aptitude or achievement, effect of task design on artistic/creative product, and arts experiences on creativity studies. The confluence studies section is limited to a description of what confluence means and two studies that deal with confluence. The promising topics of creativity research are the areas of children's play, and improvisation. There is a small section at the end looking towards the need for more longitudinal and confluence studies of creativity.

Hickey, M. (2003). Creative thinking in the context of music composition. In Hickey, M. (Ed.), Why and how to teach music composition: a new horizon for music education (pp.31-53). Reston, VA: Music Educators National Conference.

This chapter focuses on the psychological construct of creativity and all of its components and how these relate to teaching music composition, specifically to children. The author provides links between recommended classroom applications and the research that supports it. The definition of creativity is explored both from the perspective of person, process, product and place as well as from a more broad perspective. The author provides an adaptation of Amabile's Componential Model of Creativity to illustrate its applicability within the context of music composition. The chapter concludes with a recommended sequence for teaching music composition formulated by the author as a result of both concepts found in the research literature on creative thinking as well as personal experience in teaching music composition to children.

Hickey, M. & Webster, P. (2001). Creative thinking in music. Music Educators Journal, 88 (1), 19-23.

In this article Hickey and Webster review the basic tenets of creative thinking in music: the creative person; the creative process (which includes the Wallace Model of preparation, incubation, illumination, and verification); the creative product; and the creative press (environment). The article continues with practical advice on how to utilize creative thinking in the classroom.

Hickey, M. & Webster, P. (1999) MIDI-Based adaptation and continued validation of the Measures of Creative Thinking in Music. Bulletin of the Council of Research in Music Education , 142, 93-94.

This abstract summarizes the first effort to create a computer-adapted version of Webster's MCTM-II. The researchers used the HyperCard authoring environment on a Macintosh Powerbook computer attached to a MIDI synthesizer and set of drum pads. Subjects are given directions completely from the synthesized speech files from the computer and all responses are recorded as MIDI data. Changes were made in certain aspects of the MCTM itself, including the introduction of abstract images rather than line drawings of a space story. Preliminary results were encouraging. Further testing is necessary before the computer version can be distributed for use.

Hill, D. (1996). The creative spirit, the creative process, and you. The Horn Call. 27.1 (11) 27-33.

Mr. Hill explores the power of thought to bring meaning to what we do. "To be creative is to be in contact with your own best thoughts." Performers must be able to empathize with composers if they are to be effective, thus they themselves must compose. To that end Mr. Hill gives practical advice in applying the creative process steps of identification, preparation, frustration, incubation, illumination, and translation to the process of composition.

Hill, Willie L, Jr. (2004, April). Connections. Teaching Music, 11 (5), 5

The creative discipline of music exists within the rehearsal, the performance, the improvisation, or the composition. Through a MENC project called "Creativity in the Classroom," sponsored by the ASCAP Foundation, National School Board Association, National Association of Elementary School Principals, National Association of Secondary School Principals, and the U.S. copyright office, students learn to value their creative output, as well as the creative output of others by marking their creation with the copyright symbol (©). Adjoined next to their name and the year it was created, the copyright symbol encourages students to obey copyright rules and promotes the ethical use of intellectual property.

Hirt-Manheimer, J. (1995). Making Music Big For Little Folks. Teaching Music. 30 (2) 38, 39, 62

Through a program of encouraging many types of musical appreciation, the author seeks to develop young children's taste for diverse music of many world cultures. She states that this development must be started early, as peers begin to shape more exclusive tastes later in life. The author teaches a class where parents and young children participate together, making use of similar elements each time, with subtle changes. Within this framework she allows for much individual expression and says that she sees nearly all responses to the music as valid and "correct."

Hitz, R. (1987). Creative problem solving through musical activities. Young Children, 42 (2), 12-17

This article discusses how young children can engage in problem solving through various musical activities. The author describes the concept of problem solving as well as characteristics of problem solving in music before introducing

specific examples of musical activities for problem solving. The activities discussed are finger plays and actions songs, music games, writing words for songs, and composing melodies. The author also provides the reader with guidelines to “help you establish and maintain an environment that enables children to solve problems creatively through music.” (pg. 15)

Hoerack, P. (1971). Unleash creativity--let them improvise. Music Educators Journal. 57 (9), 33-36.

As a foundation for creativity, several methods of improvisation in the music class are discussed, using whatever instruments or rhythm accessories are available. Development of these skills in early grades supports the art of composing and listening as a child learns to communicate with others through art.

Hoffman, M. K. (1990). Music composition: Tonebars and computers showing musical growth from ground level to ground bass. General Music Today. 3 (3), 3-5.

This was a description of an elementary school composition program using tone bar instruments for improvisation over a ground bass. Students notated ideas by letter names and later recorded them into the computer for evaluation, editing and storage. Students submitted a written evaluation of strengths and weaknesses of their product and the computer stored the results for later comparison of growth.

Hogg, N. (1994). Strategies to facilitate student composing. Research Studies in Music Education, 2, 15-24.

During an qualitative (ethnographic) study of classroom music, more than 50 music teachers at 43 secondary schools in England and Australia were observed. In identifying the values of the music teachers, three perspectives emerged: music as knowledge, music as accomplishment, and music as empowerment. Music as empowerment was singled out as being the most effective perspective. Lesson plans guided by this perspective had characteristics of being expressive, resulting in a musical outcome, and creating a personal meaning for the participant. Sixteen strategies for facilitating student composition are listed as a practical extension of the musical perspectives presented.

Holderried, E. (1969). Creativity in my classroom. Music Educators Journal. 55 (7), 37-39.

Edgar Varese's Ionisation and Poeme Electronique served as the stimulus for a creative project that would require knowledge of the printed notes to be performed, using the playing of the instruments as a motivating factor. Various classes suggested various approaches, including giving a unique title. Instruments were selected and instructions on how to play them were developed by the class. The score was written with original notation. The project included live performances by a prominent percussion ensemble. Author cited the following as musical and non-musical results: (1) contribution to a whole, (2) development of music reading ability, (3) development of an understanding of performance, (4) knowledge of instruments, (5) development of enthusiasm and interest toward music in general, and (6) value of the teacher.

Hollander, L. (1984). Music, creativity and the path to enlightenment. Symphony, 35 (4), 13-17, 91-95.

This article is adapted from keynote speech to the 1984 American Symphony Orchestra League National Conference. Hollander speaks in response to 1984 governmental report on education, *A Nation at Risk*, which did not include music and art as basic to developing creativity and humanity. Hollander suggests we hold the key in music—that music can nurture the creativity needed to transform our 'nation at risk.'

Holliger, Y. (1987). An investigative study on developing divergent thinking responses in children using a cognitive approach in music education. Ed.D., Teachers College, Columbia University.

A call and response test is administered to eight subjects who study with the author. The responses are evaluated on rhythmic security, feeling for tonality, feeling for melodic contour, and musical quality. Evaluators are graduate students at Teachers College, Columbia. The study concludes that divergent thinking can be developed and that call and response may be an effective method to achieve divergent musical thought.

Houchell, R. (1985). A study of creativity and music reading as objectives of music education as contained in statements in the “Music Educators Journal” from 1914 to 1970. Dissertation Abstracts International. 46 (12A), 3643. (University Microfilms No. AAC8602407)

Author's abstract: The purpose of this study was to collect, organize, and synthesize information concerning creativity and music reading as objectives of music education. The five most prevalent concepts of creativity were enumerated and four perspectives on music reading were developed. Observations and conclusions were then formulated.

Conclusions regarding creativity: (1) There is no clear definition of creativity, but there is a common usage referring to the behavioral-type objective of teaching students to compose music. (2) Although very little is written about the nature of creativity, many valid ideas are expressed regarding the teaching and performance of music. (3) Generally, the term tends to be used in a casual, unnecessary, and sometimes gratuitous manner. (4) The most significant conclusion is that, to varying degrees, the word “creativity” is used as a hortative term to encourage the acceptance of ideas regarding music education.

Howard, J. & Martin, J. (1997). Developing musical creativity: the Singapore young composers' project as a case-study. Research Studies in Music Education, 8, 71-80.

This paper outlines a study of the development of composition within music education in Singapore, describing action research together with two case profiles. The purpose of this study was to, evaluate the effectiveness of strategies adopted to teach composition; learn about students' musical decision making; and to see how creative approaches can enhance music learning. The Young Composers' Project is separate from the school curriculum and students needed to pass a test to be admitted. Methods of investigation used were observation, video, interviewing, and document analysis. The paper begins by outlining the first three years of the project and then outlines differing approaches to composition in two case studies. The conclusion drawn by the authors is that the Young Composers' Project allows for personal growth in creativity. Since there is a wide range of abilities, some of the students involved in the project may need more direction. In addition, the group approach to composing worked well for some.

Howard, J. & Martin, J. (1997). Developing musical creativity: the Singapore Young Composers' Project as a case-study. Research Studies in Music Education, 8, 71-80.

The authors, under the auspices of the Singapore Ministry of Education, developed a composition program for young people first introduced in 1993. The paper describes the strategies employed from the program's inception through 1995 and profiles two participants in the program. The authors discovered that the Project was well served by the inclusion of students with a wide range of abilities and backgrounds and that group work provided a means for effectively initiating the composition process. Areas for further investigation should include balancing group work with the need for more individual attention and tailoring.

Humphreys, J. T., (2006). Toward a reconstruction of 'creativity' in music education. *British Journal of Music Education*, 23(3), 351-361.

The author gives an overview of the history and philosophy of the origins and evolution of creativity to gain insight into the current emphasis on creativity—especially in music education. The author determines the factors that he believes have encouraged and discouraged the teaching of creativity in school music programs. Ultimately, the author recommends that the definition of creativity be expanded to encompass more aspects of music than simply composition and improvisation.

Idea Bank, The. (1976). This month: creative activities in general music. Music Educators Journal, 76 (1), 81-89.

Several classroom teachers gave their ideas for creative music activities they have successfully used in the general music class. The topics addressed included composition rhythm rondos, adapting the mathematical Cuisinart Rod for teaching rhythmic concepts, multimedia composition projects, creating movements and accompaniments for songs, improvising, form and rhythmic compositions, sound pieces, paper and pencil listening activities, art activities, and learning activity areas.

Jackson, A. (1986). Discovery: An ancient alternative. The American Music Teacher. 36. (1) 36-37.

The article presented a definition of creativity and explored an old approach to teaching creatively in the classroom. "Discovery: that approach which allows one to learn through the use of one's own mental, physical, and emotional faculties." The author gives new strategies as an alternative to the traditional teacher-learner role. The article focus' on piano pedagogy but can be translated to many fields.

Jensen, E. (1969). Creativity and its sources. Music Educators Journal. 55 (7), 34-36.

This article defined creativity using the Wallas four-stage theory. The characteristics of the creative person are discussed as well as the creative process. The four stages are described in detail and a general theory of operation is expounded.

Johnson-Laird, P.N. (1987). Reasoning, Imaging, and Creating. Bulletin of the Council for Research in Music Education. 95, 72-87.

Johnson-Laird supports the belief that reasoning is an imaginative process. However, if one is to assume that reasoning depends on creativity, creativity itself must be defined. Johnson-Laird offers three possible algorithms regarding the creative mental process: neo-Darwinian, neo-Lamarckian, and multi-stage. Johnson-Laird hypothesizes and offers proof that the neo-Lamarckian is an acceptable model for certain types of creative behavior through experiments with computer-generated jazz improvisation. The author admits that the Neo-Lamarckian model cannot account for the invention of a set of rules, but possibly for creation within a set of rules.

Jones, E. M. (1963). Discovering values of music through creative experiences. Music Educators Journal. X (X), 71-72.

This was a transcription of a speech given at the 1962 MENC convention in Chicago. The author emphasized the

importance of motivation, intelligence, individualization and personal ownership in the development of creativity and recommended the learn-by-doing approach to teaching creative expression in the arts.

Jones, Patrick M. (2005). Music education and the knowledge economy: Developing creativity, strengthening communities. *Arts Education Policy Review*, 106 (4), 5-8.

This article discusses Pennsylvania's inability to retain young educated creative professionals which as a result, inhibits the state from attracting high-paying jobs and promoting entrepreneurialism. Research indicates that the solution to this problem lies in improving the arts and culture of the community since this is what attracts young educated creative professionals. The role of school-based music education in fostering vibrant communities is examined, revealing that community-based cultural offerings and cultural participation needs to be encouraged. The role of school-based music educators in helping their students become creative workers is also examined, revealing that producing creative workers in the classroom involves embracing individuality, creativity, technology and innovation, participation, project orientation, and eclecticism and authenticity. A model music program is proposed exploring the areas of curriculum, courses, ensembles, pedagogical approaches, and facilities.

Jones, T. (1986). Education for creativity. *British Journal of Music Education*, 3 (1), 63-78.

Jones plays the role of the skeptic in his discussion of children's creative thinking abilities. He states that children cannot be creative, because they do not possess the foundational musical skills that enable them to exhibit truly creative products. Jones defines creativity in terms of the quality and the value of a person's product; therefore, only adults have the potential to be creative. It is during youth that children need to learn technique and musical skills. He also suggests that current "creative activities" that occur in the classroom actually hinder the child's creative potential as an adult, for the activities promote instant gratification and the temporary experience, instead of emphasizing musical skill. Jones argues that although "creative activities" are supposed to allow students to work as a composer works, the process and environment are virtually impossible to replicate. Famous composers' compositional habits are diverse, and each one had a solid foundation of musical skills which enabled them to become creative. Concluding this portion of the argument, Jones also notes that the composers had a formal musical education in which music was an academic study, the teacher was the expert, and there was an assessment of compositional skills. Jones submits that the cognitive model of learning and teaching provides students with exploratory activities which do not promoted technical skills and conceptual knowledge.

Josuweit, D. (1992). The effects of an audiation-based instrumental music curriculum on beginning band students achievement in music creativity. *Dissertation Abstracts International*, 52, 3213A.

The purpose of this study was to examine the effect of an audiation-based curriculum on the music creativity of beginning band students and the relationship between music aptitude and music creativity. Twenty-one fourth graders were divided into groups and used as subjects in the study. The study found that other than a negative correlation between rhythmic aptitude and fluency in creativity, there was no significance between aptitude and creativity. The study also produced no evidence that an audiation based curriculum has an effect on creativity.

Kalmar, M. (1991). Young children's self-invented songs: effect of age and musical experience on the singing improvisation of 4-7 years-old. *Canadian Journal of Research in Music Education*, 33, Special ISME Research Edition, 75-85.

This research study examined the age differences in melody improvisation within the age range 4-7 years, and the role of experience on the performances of children of different cultural-educational backgrounds. Twenty-two Hungarian and 40 South Australian children participated in this study. The children were taught simple rhythms, then asked to sing one of the rhythms as a song. They were also instructed to try a different song with the same rhythm. Each session was tape-recorded and the products were transcribed, if possible, using standard notation. The results indicated that the age factor had a great impact upon the products. There was a clear diversity of the children's performances across nationalities. Cultural variations were reflected by different understanding of the task to sign the rhythm as a song. "This diversity is interpreted in the context of a constructivistic approach to the acquisition of the tonal system and regarded as an outcome of different principles and methods in early childhood music education".

Kalmar, M. and G. Balasko (1987). "Musical mother tongue" and creativity in preschool children's melody improvisations. *Council for Research in Music Education*. 91 (1), 77-87.

This study investigated divergency in melodic improvisations sung by Hungarian preschool children. 3 groups of 10 children (1 control group, and 2 experimental) participated in curriculum designed by Katalin Forrai. Improvisations produced in the test reflected musical material taught in school (evidence of a "musical mother tongue"). Further, children taught in the most creative environment exhibited the highest creative productivity. Torrance measures of creativity were applied. Several charts illustrate findings.

Kaltsounis, B. (1973). Effect of sound on creative performance. *Psychological Reports*. 33 (3), 737-738.

This study investigated the ability of a subject to complete creativity tasks while listening to tapes of speech, music, industrial sounds and quiet (no sounds). Subjects were 15 fifth-grade boys from the top group of a suburban Midwestern school system. Subjects were asked to complete a set of incomplete figures while listening to a tape of each sound environment. Four equivalent forms of the measure were developed. Results showed that the mean performance of the tasks was highest for the subjects when listening to music. Possible explanations for this included the prior experience of the subjects (studying to music) and the samples above average intellectual standing.

Kampmeier, V. (2007/2008) Intuitive improvisation: A guide for beginners. *American Music Teacher*, 57(3), 22-23.

In this article, the author advocates the implementation of improvisation activities into piano lessons in order to give students “an appreciation of themselves as creative beings, not just as ‘re-creators’ of other people’s music.” (p. 2) Some examples of improvisation games for beginners are provided for the reader.

Kanellopoulos, P. A. (2007). Children’s early reflections on improvised music-making as the wellspring of musico-philosophical thinking. *Philosophy of Music Education Research*, 15(2), 121-141.

This article is an exploration of the philosophy of listening to student discourse on musical meanings associated with improvisation. The author reflects on the importance of studying children’s discourse on music and music making as one avenue of reflecting on philosophical issues in music education since students are actively immersed in the process of making musical meanings. Specific examples of eight-year old children’s reflections of their personal experiences and meanings with improvisation are included, and implications for music education are discussed.

Karafelis, P. and Hugh, R. (1995). Integrated Arts and Music Composition at Wolcott Elementary School, In S. Stauffer (ed.). Toward Tomorrow: New Visions of General Music, 111-120. Reston, VA.: Music Educators National Conference

The authors chronicle the implementation and structure of an integrated arts curriculum. The school's philosophy is based on Dewey’s proposal that schools structure should reflect societies. This elementary school maintains a theater company, dance company, music studio, post office, audio tech engineers and a fully functional student government. Integrated and co-curricular activities are prevalent in all subject areas. The school believes the “arts seem to offer the best alternative to providing meaningful motivation” (p.112). The school has four base beliefs in supporting their position. “Teaching is not a job. It is a calling”, “There are people who open doors and there are people who close doors”, “Every child can learn”, and “The child is the curriculum.” Writing is central to most activities in the school. Students' writings are evaluated by students and teachers. Writings are submitted to different committees for production. Teachers and students work and perform together to make these productions available to the public through audio recordings, book publishing or public performance. Community members are also encouraged to submit to the school. Wolcott Elementary School has also taken advantage of partnerships with business and professional organizations to fulfill their curriculum endeavors.

Kaschub, M. (1997). A comparison of two composer-guided large group composition projects. Research Studies in Music Education, June/July, (8), 15-28.

The article compares two group composition projects which both used a composer as a guide. The first project (1991-1992) was the composition of a choral piece by a large high school choir. The second project involved the collaboration of six individual sixth grade general music classes with a local folk artist. The study suggests that revision is of primary importance in the group composition process.

Kaschub, M. (1997). A comparison of two composer-guided large group composition projects. Research Studies in Music Education. 8, 15-28.

Kaschub discusses two composition projects, one that involved 6th grade general music students and one that involved a high school choir with 85 members. The author describes some of the challenges faced by both groups, such as logistics, working with a guest composer who had little educational experience, finding a common ground between everyone’s creative input, and revising the composition. Kaschub explains the value of the experience for the students and possible suggestions for future attempts at this kind of a project.

Kaschub, M. (1999). Sixth grade student's descriptions of their individual and collaborative music composition processes and products initiated from prompted and unprompted task structures. (Doctoral Dissertation, Northwestern University, 1999). Ann Arbor: University Microfilms International, 2000.

To learn more about how young composers view the compositional processes and products which they generate in individual and collaborative settings, 32 sixth grade students participated in a study using prompted and unprompted task structures. The perspectives of the students were examined as they were manifested in a series of process and

product questionnaires and "letters of advice" written to other students who would be completing similar composition projects. Student descriptions of their compositional processes revealed that individual and collaborative composers differ significantly in reasons for their selection of instruments, in their planning processes, and in their overall interest in compositional projects. Additionally, prior compositional experience was found to be more influential than task structure. Descriptions of compositional products indicate that individuals and collaborators differ on their attention to musical elements and craftsmanship, although both groups did comment on the challenge of setting the text of the prompted task. Overall ratings assigned to musical ideas and performance were higher for products emerging from the unprompted and collaborative task. These scores reflected the student's desire to generate their own ideas and to work with their friends for additional support.

Kassner, K. and Tengowski, R. Your band can compose, too. *Teaching Music*, 2 (3), 32- 33.

Through personal observations, the authors hold that composition improves student listening skills, performance skills, and understanding of musical concepts. Involving students in compositional tasks has been shown to have a positive effect on thinking skills and motivation. The authors suggest ways of working composition into band settings including music technology and artists-in-residence.

Kemp, A. (1981a). The personality structure of the musician, I. The Identifying a profile of traits for the performer. *Psychology of Music*. 9 (1), 3-14.

The purpose of this research was to identify personality trait profiles for performing musicians at three distinct stages of development: secondary school (ages 13-17), college music students (ages 18-25), and professional musicians. All data collect from subjects in Great Britain. Data were collected from various measures of personality. Multivariate analyses were performed. Results indicated a group of primary factors for all age groups: intelligence, introversion, and pathemia. Anxiety is seen as more present in older subjects.

Kemp, A. (1981b). The personality structure of the musician, II. Identifying a profile of traits for the composer. *Psychology of Music*. 9 (2), 69-75.

This study pertained to the personality characteristics of student and professional composers. Thirty-three student composers of college age (18 - 25) were compared to another group of college students who were non-composers. Both of these samples were music majors. Also, two separate groups of professional composers (28 males and 10 females) were recruited from the Composers' Guild of Great Britain. A comparison group of professional performers was also used. Cattell's 16PF questionnaire was the main testing instrument. Multivariate analyses of variance were employed. Student composers demonstrated the following characteristics: introversion, pathemia, independence, naturalness, subjectivity, poor upbringing. Professional composers demonstrated: independence, intelligence, poor upbringing, introversion. The author argues for a pattern of independent introversion and imagination in the creative musician.

Kemp, A. (1982). The personality structure of the musician, III. The significance of sex differences. *Psychology of Music*. 10 (1), 48-58.

Past research on differences between males and females in respect to personality variables was briefly reviewed. It was generally determined that sex was an important variable to include in future analyses. The author explored sex differences using music subjects at three age levels: secondary school, college and professional (adult). Comparison groups of non-musicians were also used. Sex differences were revealed, particularly at earlier stages of maturation. The data also confirmed speculation that stereotyping may occur in terms of instrument choice.

Kennedy, M. (2000). Creative music making since the time of the singing schools: Fringe benefits *Journal of Historical Research in Music Education*, 21 (2), 132-148

This article traces the growth of creativity and creative music making in music education from the time of the early American singing school to the present. The following sections form a framework in which the author organizes these developments: The Early American Singing School, The Child-Centered Movement in Education, The Early Twentieth Century, Changes at Mid-Century, Methodologies from Abroad, and Technology and the Future. References are made throughout the article to developments in the larger field of education as well as situations outside of education such as the launching of Sputnik I by the Soviet Union. (pg.141) It is the author's contention that the history of creativity and creative music making is similar to the creative act itself (pg. 132) and that creative music making has not become a mainstream and commonplace occurrence in school music programs in the United States.

Kennedy, M. (2007). Principal themes – The Holland project: Introducing composition to grade five students. *Canadian Music Educator*, 49(1), 29-33.

The article summarizes a study done in April of 2005. University students developed a lesson unit that was taught to fifth grade students. The goal of the project was to create a pre-service field experience to bridge the gap between theory and practice of teaching composition. Interpretation of the data suggests that progress was achieved for this goal.

Kennedy, M. A. (2002). Listening to the music: Compositional processes of high school composers. *Journal of Research in Music Education*, 50(2), 94-110.

The purpose of this study was to investigate the process of composing in high school age students and to identify effective strategies for implementing composition activities in high school music programs. Four high school instrumental music students completed two tasks: setting a short poem for voice and acoustic instrument(s) and creating a non-stimulated open-ended composition using electronic workstations. Data collection consisted of semi-structured interviews, observations, and document analysis. Analysis consisted of studying interview and field-note texts, making marginal notes, sorting, and coding. A model was created in which listening, thinking time, exploration, and the improvisatory nature of the final product were highlighted as important components. Implications for the classroom suggest that music teachers can encourage student composition skills by exposing students to diverse listening experiences and assisting with revision.

Kennedy, M.A. (1999). Where does the music come from? A comparison case-study of the compositional processes of a high school and a collegiate composer. *British Journal of Music Education*, 16 (2), 157-177.

This study compared the compositional product and process of a high school music student studying composition with that of a graduate student majoring in composition. Both were commissioned to set a 2-stanza poem by Robert Frost for voice and piano. Data collection was taken through semi-structured interviews, observation, and document analysis by the author and two practicing composers. Many instances of evolution in compositional product and process were discussed.

Kennell, R. (1989). Musical thinking in the instrumental rehearsal. *Dimensions of Musical Thinking*. Music Educators National Conference. 83-89.

In this chapter, the author presents a variety of suggestions for enhancing thinking skills within the music classroom. Attention is paid to the issues of gradually passing some classroom executive control on to the student, engaging the student in music problem solving and utilizing creativity in musical tasks. These ideas are presented with applicable suggestions for the classroom along with suggestions for the role of the teacher as mediator and facilitator.

Keyes, N. (1969). Study of the values of original composition in the training of public school music teachers. (Report No. BR-8-F-023) Emporia, KS: Kansas State Teachers College. (ERIC Document Reproduction Service No. ED 031 507)

This project was based on the belief that the study of original composition should be included in the undergraduate music education curriculum. Seven subjects were enrolled in a summer composition seminar which consisted of discussion by a composer, instruction in compositional techniques and performance of original works. The effects of the seminar were rated by the participants six months later by a questionnaire. Participants were asked to rate their growth in the areas of musical knowledge, creative skill, musicianship, and understanding of musical structure and compositional processes. The main conclusion drawn from this study was that study in composition allowed the student to understanding the essential nature of music and the compositional process in a manner that could not be duplicated in any other way.

Khatena, J. (1971). Evaluation and the creative potential in music. *Gifted Child Quarterly*. (Spring), 19-22

The purpose of this article was to raise questions about the degree to which pre-conceived and pre-determined principles effect evaluations of original works of art. Cited are statistics from a study in which the evaluations of musical compositions for graded course requirements and non-course requirements were correlated with several tests of general creativity. A change of direction from negative to positive relationships between course required and non-course required compositions led author to raise questions for future research concerning causes for this finding.

Kiehn, Mark T. (2003). Development of Music Creativity Among Elementary School Students. *Journal of Research in Music Education*, 51 (4), 278-288.

The primary purpose of this research project was to compare the musical creativity of students in grades 2, 4, and 6 through a series of improvisational activities. The project would seek to determine if there were significant differences between the results of different grade levels, different genders, and to examine if there were other relationships between music improvisational creativity, figural creativity, and academic achievement. Eighty nine students in grades 2, 4, and 6 were selected randomly from three randomly selected schools in a large public-school district in the western United States and administered both the Vaughn Test of Musical Creativity (TMC) and the Torrance Tests of Creative Thinking (TTCT). The TMC utilized six open ended improvisational activities, including both rhythmic and melodic question and answer activities, both rhythmic and melodic improvisational activities where the subject was presented an accompaniment with which to perform, and a final improvisation based on how they subject felt during a thunderstorm.

Two independent, musically trained educators were trained to score the test using researcher-modified scoring procedures. The TTCT is a standardized test of divergent thinking which measures figural/artistic creativity through pictorial drawing tasks, and was scored by the publisher. In conclusion, the author found several limitations to the study, and offered several suggestions, including: further adjudicator training and reliability and musical instrument choice. The results of the study suggest that music creativity abilities vary with both grade level and gender, but not in academic achievement. The study also suggests that there is a significant positive correlation between music creativity and figural creativity, and calls for further longitudinal that would provide more information, as well as an in-depth view of the creativity process.

King, G. (2002) Unleashing the “Ganas” in the large ensemble: developing a mindful pedagogy. In Sullivan, T. & Willingham, L. (Eds.), Creativity in Music Education (pp. 206-216). Edmonton, AB Canada: Canadian Music Educators’ Association.

King begins his article by compiling several scholars’ definitions of creativity. The author decides upon the idea that the creative approach begins with the idea that nothing is as it seems. He also concludes that adaptation of an idea can be creative when used in such a matter, so originality does not always mean creativity. King then focuses on the atmosphere of a large ensemble, talking about two perspectives of teaching. The first deals with information coming from the teacher and going to the student (teacher-centered). The second deals with the student-centered continuous cycle of information between the teacher and student. Studies have shown that students learn more effectively in this second method. King then looks at score study as “peeling an onion” in that there are many layers within a piece of music. In doing so, we as teachers have the ability to ask our students what they think about the relationships between melodies, harmonies, and other musical concepts within the score. King also outlines the process of a collaborative score study between all the members of the ensemble and the teacher, where the exploration of a variety of musical concepts are discussed and reflected upon. By placing students at the center of their own learning, King believes that students’ “ganas,” or spirit, for music can be awakened.

Koizumi, K. (1994). Creative Music Education in Japan during the 1920s: The Case of the Elementary School Attached to Nara Women’s Higher Teachers College. British Journal of Music Education 11 (2), 157-162.

This article describes music education approaches designed to develop creative thinking which were used at the Elementary School Attached to Nara Women’s Higher Teachers College in Japan during the “Taisho Democracy” era (1912-1927). The author traces Japanese music education from 1907, when “shouka” (singing) became a required subject. The article discusses Shigenao Konishi’s advocacy of child-centered educational techniques in 1914; Konishi’s efforts increased interest in art, dance, and music education throughout the country. The influence of Akai Tori nursery rhymes, European music, and the work of Takeji Knoshita and Jun Ikuo at the Nara College elementary school are highlighted. At Nara, music was taught in conjunction with science; children used xylophones, violins, pianos, kotos, harmonicas, bells, and other instruments to study both acoustics and musical composition. The author suggests that these early efforts helped Carl Orff’s methods to become popular in Japan.

Konowitz, B. (1973). Music improvisation as a classroom method. New York: Alfred.

Music teachers at all levels are encouraged to involve their students in improvisatory activities. Improvisation is defined as “the spontaneous act of organizing, varying, creating, and performing” (p. 1). Konowitz has organized the book in three phases: Phase I, in which students explore parallel and contrasting answers through variation in rhythm, pitch, dynamics, tempo, and timbre; Phase II, in which students refine and develop their improvisational and notational skills; and Phase III, in which students explore an extended range of musical experience, often involving more in depth listening to and analysis of recorded music of varying styles. Each phase offers strategies and enrichment activities for voice, instruments (natural, traditional, and electronic), and keyboard. Emphasis is placed on student expression of emotion, programmatic features, and musical concepts.

Konowitz, B. (1988) The Jazz Experience in General Music. Readings in General Music. Reston, VA: Music Educators National Conference. p.24-29.

This article addresses the general music teacher who is a non-jazz musician. Opening remarks encourage the teacher to try some jazz activities as a way of becoming familiar with the language of music. Several exercises are presented which will help the teacher become familiar with basic jazz rhythms and the blues scale. Suggestions for introductory activities with a secondary level general music class are given.

Koutsoupidou, T. (2008). Effects of different teaching styles on the development of musical creativity: Insights from interviews with music specialists. *Musicae Scientiae*, 12(2), 311-335.

Eight music teachers with a minimum of five years of teaching experience at the primary level were enlisted to participate in semi-structured interviews for this exploratory study. The participants watched

six pairs of video clips from a previously conducted experimental study showing similar musical activities taught to two different groups of six year old children in two different ways; one group was taught in a “creative” way with improvisational opportunities and the other in a “didactic” way with no improvisational opportunities. Considering thirteen teaching objectives (control, originality, flexibility, etc.), the participants rated to what degree the activities in each setting promoted those objectives on a Likart scale. Different teaching styles were rated as having different outcomes. From the list of teaching objectives, the participants identified development of children’s creativity, raising their confidence, and developing the ability to play with others as the most important music teaching objectives. The participants valued creativity in music teaching and expressed beliefs about the various positive effects on children of a creative approach to music teaching. Various considerations in employing creative teaching were explored such as cultural background, level of technical skill, and the use of improvisation. The author provides a description of each version of the six music activities shown in the video clips in an appendix.

Kratus, J. (1988), *Evaluating children's creative processes and products in music*. In J. Braswell (Ed.), *The proceedings of the 1988 Southeastern Music Education Symposium* (pp. 10-22). Athens, Georgia: University of Georgia.

This paper discusses the problem of evaluating children's creative products and processes and proposes a framework for measuring creative behaviors in music. More direct measurement of a music lesson's objectives or a music program's goals in terms of students behavior on specific activities may be conducted by focusing on the process or product instead of the person. The methods of evaluating students' created products (compositions and improvisations) and creative processes are presented. Also discussed are the reliability, validity, and reasonableness of the methods proposed

Kratus, J. (1989a). A time analysis of the compositional processes used by children ages 7 to 11. *Journal of Research in Music Education*. 37(1) 5-20.

The purpose of this study was to examine the amount of time that children of different ages, sexes, and proficiency levels spent on various compositional processes while creating a melody. The author gave 60 children (ages 7, 9, and 11) 10 minutes to compose a song on an electronic keyboard and asked each child to play his or her song and repeat it. Analysis of the 10-minute compositional periods indicated the amount of exploration, development, repetition, and silence subjects used while composing. No significant difference was found between sexes. Subjects who demonstrated proficiency in replicating their songs differed significantly in the use of repetition and exploration from those subjects who did not.

Kratus, J. (1991b). Growing with improvisation. *Music Educators Journal*, 78 (4), 35-40.

After a brief introduction emphasizing the merits of incorporating improvisation into early music learning, the article proposes and outlines a seven-step way of teaching the process of improvisation. The steps parallel both musical and age development, and explain how the student most likely experiences these stages. The stages also provide a continuum for the student's education over a long time period. Through learning to improvise, the author feels that students are provided with a unique way to synthesize performance, listening, and analysis of music.

Kratus, J. (1983). Musical characteristics of children's original songs. In Tallarico, P. (Editor). *Contributions to symposium/83: the Bowling Green State University symposium on music teaching & research*. (pp. 125-152). Bowling Green, Ohio: Bowling Green State University.

See also: Kratus, J. (1985a). Rhythm, melody, motive, and phrase characteristics of original songs by children aged five to thirteen. *Dissertation Abstracts International*. 46 (11), 3281A. (University Microfilms No. 8600883) (Northwestern Library)

The purposes of this study of 80 children from four schools were (1) to describe the ways in which students aged 5-13 with no previous composition experiences apply learned concepts of rhythm, melody, and motive to a creative song writing task and (2) to determine whether there are significant developmental differences in the ways children use these elements to solve a musical problem. Two judges utilized a five point evaluation scale to analyze the rhythmic and melodic characteristics of compositions which were produced by children during a ten minute period with a small Casio keyboard. Analysis of variance, Duncan Multiple Range Tests as well as tests of inter and intra judge reliability were used to provide summaries of musical characteristics of children's songs by age and to determine whether there were significant differences by age in use of particular elements. Results showed that children in these age groups can compose and there are differences between the age groups that indicate a developmental sequence for musical understanding.

Kratus, J. (1985b). The use of melodic and rhythmic motives in the original songs of children aged 5 to 13. Contributions to Music Education. 12 1-8.

This was a descriptive study to examine how children use musical patterns in a musical context by analyzing the use of rhythmic and melodic motives in songs composed by children aged 5 to 13. The procedures involved having eighty children aged 5,7,9,11, and 13 create songs on an electronic keyboard which were eventually recorded and later analyzed by two judges to determine which songs employed melodic and/or rhythmic patterns. Results of the study implied an overall gradual pattern of increased use in both rhythmic and melodic motives between the ages of 5 and 11. Using melodic motives seemed to occur more frequently than the use of rhythmic motives. A decline in the incidence of the use of melodic and rhythmic motives among 13-year-olds may have been the result of less performance emphasis in favor of theoretical knowledge in the general music program.

Kratus, J. (1989b) Orientation and intentionality as components of creative musical activity. In C. P. Doane & J. W. Richmond (eds.). Proceedings of the Suncoast Music Education Forum on creativity. University of South Florida.

Kratus examines creativity from a developmental perspective and suggests the creative process may be qualitatively different for children (who tend to be process oriented) and adults (who tend to be product oriented). He offers a model showing two process oriented activities (exploration and process oriented improvisation) and two product oriented activities (product oriented improvisation and composition). Kratus suggests that these activities may be further characterized by the degree to which each manifests intentionality (the closeness of fit between what the person audiates and the sounds that are actually made). The activities listed in order of increasing intentionality are exploration, process oriented improvisation, product oriented improvisation, and composition. "For researchers, it may be inappropriate to analyze the created products of process oriented children as products. Instead, analysis and description of children's creative processes may be more appropriate" (p. 101). Teachers are advised to incorporate "expressive objectives" which describe the process children undergo (which may inconsequential produce a product) rather than traditional behavioral objectives, which tend to focus on the products or outcomes of an activity.

Kratus, J. (1990). Structuring the Music Curriculum for Creative Learning. Music Educators Journal. 76 (9), 33-37.

The author describes a system of long-term goals and specific objectives to guide creative learning in music programs. Goals and objectives revolve around the three elements of creativity: person, process and product. Objectives for each are described generally, concrete examples are given, and sequences for learning are suggested. Assessment is based on achievement of behaviors described in the objectives. This article is a useful guide for music educators to provide focus, structure and sequence for their creative activities

Kratus, J. (1991a). Characterization of the compositional strategies used by children to compose a melody. Canadian Journal of Research in Music Education. 33 , 95-103.

This study described the creative strategies used by children when asked to compose a song within a ten minutes interval. Sixty children, aged 7, 9 and 11 composed at an electronic keyboard. Their compositions were judged twice. Once for the successfulness of the composition, based on craftsmanship and replication, and second for the compositional strategies used. Results indicated that the successful songs used a variety of exploring, developing and repeating compositional techniques with a high degree of replication. Less successful songs used fewer compositional techniques with a low degree of replication.

Kratus, J. (1996). A developmental approach to teaching music improvisation. International Journal of Music Education. 26, 27-37.

The author suggested that every creative work begins as an improvisation and that improvisation be used for student learning in the general music curriculum. Practice of improvisation promotes growth outside the cognitive realm. The teacher has a responsibility to develop improvisation in students and to increase his own background knowledge as a base for improvisation. A series of activities involving movement, vocal improvisation and related arts are provided.

Kratus, J. (2001). Effect of available tonality and pitch options on children's compositional processes and products. Journal of Research in Music Education. 49 (4), 294-306.

The purpose of this study was to determine whether the types of melodic materials arranged on an Orff xylophone affected fourth graders' compositional processes and products. The author examined the effect of tonality and pitch options. To investigate, the author used a 2x2 factorial design. The subjects were randomly assigned into groups to compose on xylophone's that were configured differently. Following this time, each subject was tested individually. They had one minute to freely explore and then they had 10 minutes to compose. They had to remember what they composed so they could perform in twice. Musical materials made available affected certain aspects of the ways children compose as well as some characteristics of their resulting musical compositions. Results due to limited number of pitches were: less use of exploration, shorter songs, and songs they could easily replicate. The fourth

graders composing with 10 tone bars spent significantly more time exploring than did the students working with five bars.

Kurkela, K. (1988). Music in performance and study. Finnish Music Quarterly. (2), 36-43.

The author believed notation to be a "natural, written language." Therefore, performances are merely a translation of what is on the written page. Performance styles/techniques were compared to an oral tradition in that both are passed on from generation to generation. Kurkela made a plea to critics to have the insight to see the value and creativity of new interpretations rather than immediately condemning with no chance of re-evaluation.

Kuzmich, N. (1987). Research, Problem-Solving and Music Education. British Journal of Music Education, 4 (3) 211-222.

Pointing to the gap between researchers and practitioner-teachers, Kuzmich calls for a need or greater commitment to researching and exploring improvements in classroom procedures which promote long-term musical growth. The author pointed to the potential of creative problem-solving approaches by demonstrating the rewards of "getting into the problem," thus adding new awareness on the behalf of students. The concluding section of the article offered activities incorporated in the author's teaching.

Kuzmich, N. (1988). The Issue of Creativity in Music Education. Canadian Music Educator 29. (4) 35-4.

Kuzmich showed evidence of the current trend to emphasize creative thinking and discussed past evidence of creativity in folk music and improvisation. Efforts toward creative curricula in the United States (Contemporary Music Project for Creativity in Music Education and the Manhattanville Music Curriculum Program), England, and Canada are also described. Kuzmich suggested that creativity involves fulfillment in doing something different or unique, which involves both convergent and divergent thinking, as well as a combination of innate ability and skill. According to Kuzmich, creativity also involves elements of problem-solving. It is suggested that creativity can be effectively implemented in any music program. The article concluded with a statement that both the product (improvisation, compositions, etc.) and the process (growth and development) are necessary. Through creativity, the learning is made relevant to the students.

Kuzmich, N. (1974). A creative-affective aural approach to music learning. The Canadian Music Educator. 15 (4), 11-15.

In 1972, Kuzmich implemented an affective-creative program in school music for three reasons: 1) to interrelate the affective with the cognitive, 2) little previous work had been done to test the validity of such as approach, and 3) the early 1970's invited educational changes. Kuzmich experimented with two classes of eighth grade string students. Data was collected regarding piano lessons, musical preference, parental music participation, and academic performance. The control 8C, performed quite well from the outset, while the experimental group 8E, was less motivated. New activities for the 8E group included individual and group improvisation, composition, and discussions of tension-release. Through a final test including both objective and subjective questions, Kuzmich concluded that "creative and listening-type activities do influence perception, and that attempts to relate feelings to aspects of musical tension release were relatively successful" (p. 15).

Kyle D. (1988). Music of the self and others: longitudinal observations on musical giftedness. Psychoanalytic Study of the Child, 44. 87-100.

Case studies of musically gifted children and their experience in dealing with personal verses public portions of music and performance. Creativity is likened to giftedness.

Kyme, G. (1967). A study of the development of musicality in the junior high school and the contribution of musical composition to this development. Report No. CRP-H-254 Berkeley, CA: University of California. (ERIC Reproduction Service No. ED 015 532)

The purpose of the study was to measure the effect of different types of music instruction on the development of musicality in the high school student. Musicality was defined as the ability to grasp a musical idea in its totality and was measured by a number of standardized and non-standardized measures. A sample of 3,000 high school students enrolled in music courses were evaluated in a pre-post test fashion. using four different sets of standard measures, and teacher evaluations. Among the courses the subjects were enrolled in were instrumental performance (orchestra and band), choral performance, listening, music composition, and music reading. The course in composition was specifically for this study and a complete description of the course is included in this document. The results showed that participation in a performance group was the prime means of developing musicality for the average high school student. Students from lower income groups gained more from the course in music reading. The composition class seemed to have no effect in this study. Conclusions drawn from the study included the idea that musical growth is still untapped and varied approaches are needed to unlock this potential.

Laczó, Z. (1981). A psychological investigation of improvisation abilities in the lower and higher classes of elementary school. *Bulletin of the Council for Research in Music Education*. 66-67, 39-45.

This study was concerned with the identification of the types of melodies improvised by children of different ages and training, the effect of age and music education on achievement in improvisation, the difference between improvisation which is based on a text and that which is based on a melody pattern, and the relation between passive recognition and musical parameters in the activity. The sample included subjects from three different types of music instruction: normal, normal with special language instruction, and special music instruction. Subjects were asked to improvise a melody using a short poem and to provide a short melodic answer to a given melody. Melodies were analyzed for use of rhythm, intonation, form, range, length and originality. Results indicated that the amount of music education and music experience of the student does have an effect on the ability to improvise and that the differences between the improvisations of the three groups may point to the beginning of complex musical thinking.

Ladanyi, K.S. (1995). Processes of musical composition facilitated by digital music equipment. Unpublished doctoral dissertation, University of Illinois at Urbana Champaign.

The aim of this study was to provide insight into the process experienced by high school students who compose music with digital music equipment. Using a qualitative approach, the author sought to achieve a better understanding of processes, patterns, structures, and outcomes which may emerge during musical composition projects over the period of 13 weeks. Three key issues emerged from the analysis: (a) all of the students in the study completed musical compositions; (b) while the students appeared to illustrate three different types of compositional enterprise, the processes they employed greatly resembled those described by professional composers; and (c) opportunities for individualization facilitated by the equipment provided an ideal environment for intrinsic motivation which in turn permitted students to discover through immersion. (From the author's abstract.)

Landis, B. (1968). Experiments in creativity. *Music Educators Journal*. 54 (9), 41-2.

Landis speculated on the outcome of music education on account of the Contemporary Music Project for Creativity in Music Education. She stated that three skills (listening, performing and composing) must be developed concurrently to create "comprehensive musicianship." The author also cited the need for educators to study and apply the results of the project.

Lang, R. & Ryba, K. (1976). The identification of some creative thinking parameters common to the artistic and musical personality. *British Journal of Educational Psychology*. 46 267-279.

The purpose of this descriptive study was the investigation of several segments of divergent intelligence that are commonly used to characterize the expressive person. The specific areas identified were the perceptual style of liking stimulus complexity, and the cognitive production factors of fluency, flexibility, and originality of thinking. Other factors which were measured included auditory perception, rhythmic perception (auditory memory), melodic discrimination, rhythmic integration, perceptual awareness and aesthetic appreciation. The sample included 34 visual artists, 32 musical artists, and 30 undergraduate students. The *Torrance Test of Creative Thinking*, the *Revised Barron-Welsh Art Scale* and the *Munding Musical Perception Test* (pilot version) were administered. Statistical analysis of the results revealed that visual artists showed an increased ability in the areas of fluency, flexibility and original thinking, auditory acuity and aesthetic judgement. Musical artists showed an attraction to complex abstract imagery as well as heightened abilities in the areas of auditory perception, rhythmic perception, melodic discrimination, and rhythmic integration. The existence of a general intersensory factor among creative artists was indicated and it was provisionally concluded that creative persons have a heightened ability to perceive certain features that extends across sensory modes.

Lapidaki, E. (2007). Learning from masters of music creativity: Shaping compositional experiences in music education. *Philosophy of Music Education Review*, 15(2), 93-117. doi:10.2979/PME.2007.15.2.93

This article investigates the creative process in musical composition in order to provide certain philosophical groundings for compositional opportunities in music education. The study is based on the premise that it is necessary for music educators to attempt to understand the progeny of the creative process, suggesting closer relationships between educational music and real world music. The article uses mainly writings and interviews of twentieth and twenty-first century composers to find similarities within their creative processes. The author discusses the role of the conscious and unconscious mind in music creativity, how the compositional process begins, and how it progresses. It is argued that music must have a historical and cultural framework, supporting the importance of social contexts, but also provides social and cultural questioning of validity and acceptance of new musics, driving composers to crave creative freedom. The author suggests implications of music education and stresses the direct relationship between

creative freedom and person expression, as well as the importance of the educator's knowledge to provide student composers with enough tools to broaden their creative abilities.

Lasker, H. (1971). Teaching creative music in secondary schools. Boston: Allyn and Bacon, Inc.

This book dealt with techniques for acquainting children with the process of music composition, specifically stimulating the ideas and climate for composition. There are many musical examples and suggestions. The idea was not to create composers but to encourage creativity and to stimulate the imagination of all children.

Lasker, H. (1973). Why can't they compose? Music Educators Journal. 59 (8), 41-45.

Building on the program model established during the 1970's at Newton High School, Lasker described conditions which encouraged secondary students to compose. He advanced the idea that composition can be a vehicle for discovering one's creative potential and for introducing students to music theory and traditional repertoire. Also proposed are new patterns for student/student and student/teacher interaction.

Lawrence, I. (1978) "Composers and the nature of music education." London: Scolar Press.

The information presented in this book is compiled from the writings of music composers from the mid-sixteenth to the mid-twentieth centuries. Topics discussed include the scope of composers' interest in the teaching, teaching and learning environment, teaching notation, teaching singing, teaching instrumental skills and the use of improvisation, the place of composition, aesthetics, and the context of music education. Improvisation is discussed in relation to teaching the performer how to create music within the context of a work, and also as a method (Orff) for teaching young students. The extensive bibliography (p. 202-225) includes materials spanning four centuries.

Lee, Y. (1994). Teaching young children music fundamentals in a complete learning environment. Dissertations Abstracts International. 55 (11), 3444. (Publication No. AAC 9511053).

This study focuses on the development and evaluation of a computer music instructional program. The author has looked at various questions surrounding the issues of computer assisted learning. In development of the computer program, the author makes use of a multisensory learning environment and aims to help students develop discriminating musical listening skills while given the opportunity to manipulate musical variables. The observations of the students thinking processes and sound exploration in order to aide in the development of the program.

Leibowitz, L. (1978). The relationship of continuation in applied music study to musical aptitude, creativity, and scholastic average in four New York City schools. Dissertation Abstracts International. 40 (1), 147A. (University Microfilms No. DDJ 79-11249)

The relationship between persistence in applied music study and: 1) aptitude, 2) creativity, and 3) scholastic average were examined. Tests used were the *Seashore Measures of Musical Talents* to measure musical aptitude, *Torrance Test of Creative Thinking* to measure creativity and the scholastic average of the subject's most recent term. Results indicated: 1) a significant relationship between musical aptitude and persistence in applied music study, 2) security in decision making for those who continued study of applied music study vs. mixed feeling with those that did not continue. Creativity scores appeared not to play a dominant role in the findings.

LeJeune, D. (1995). General Music in the Middle School Develop Student Creativity Using Music and Technology. In S. Stauffer (ed.). Toward Tomorrow: New Visions of General Music, 99-101. Reston, VA.: Music Educators National Conference

This article contains the author's application of technology in the middle school general music classroom. It contains a brief overview of MIDI, and describes the implementation of the program. The author summarizes composition activities for 6th, 7th and 8th grade students. Lejeune claims that with proper enabling skills in technology, these lessons and exercises will engage students creatively and stimulate extended explorations into music.

Letts, R. (1972). Creative musicianship and psychological growth: bases in some theories of personality, creativity, instruction, aesthetics, and music for a music curriculum for the late twentieth century. Dissertation Abstracts International. 33 (1), 278A. (University Microfilms No. 72-19867)

This dissertation argues for a philosophical basis for music education in education as a whole. It draws from Maslow and Jung and places creative thinking (primarily improvisation) as a central element. The author presents a model for instruction that draws upon psychological theories. Creativity is cited as an important factor in psychological health. Mental imagery is also discussed at length. Part Three of the dissertation contains information about a curriculum in music for the late twentieth century that employs creative thinking and improvisation. An appendix contains a proposal for a taxonomy of fundamental concepts of music.

Levi, R. (1991a). A field investigation of the composing processes used by second grade children creating original language and music pieces. Doctoral Dissertation, Case Western Reserve University.

This study is an attempt to identify, describe and compare components of the composing process both in music and language. A working model of the "composing process" inspired by research and practice in language teaching, was developed to serve as a framework for observation and analysis of the data. The social nature of the creative process was acknowledged in the design of this naturalistic research, in which 6 second grade students participated. Students were asked to compose both stories and music pieces. No time limitations were set for completion of pieces. Several data gathering techniques were used that are consistent with the design of naturalistic studies. Results indicated that the phases of the composing process can be described in both language and music domains. The model describes five similar, recursive phases: exploration, focus, rehearsal, composing, and editing.

Levi, R. (1991b). Investigating the creativity process: The role of regular musical composition experiences for the elementary child. *The Journal of Creative Behavior*, 25 (2), 123-136.

Specific questions which framed this study were: What kind of scores are produced by children who are asked to provide written representations of their original compositions? Is the writing process necessary? Does writing interfere with the composition process? Twenty-two second grade children participated in this study. Students were asked to compose original pieces which could be replicated for the investigator. No time limit was established, and the compositions were completed within a naturalistic setting, during eight weeks. Once a piece was completed, they were asked to notate it using any system of representation. Scores were collected as well as anecdotal records. The discussion of the results focuses on the frequent use of melodic motives, and the observation that seven and eight year old children can find ways to record (write) their pieces in ways which do not obstruct the composition process. A number of children's notations are presented and commented by the author. Longitudinal studies with broader ranges of children's composition are recommended for further studies.

Ling, S. (1974). Missing: some of the most exciting creative moments of life. *Music Educators Journal*, 40 (3), 93-95.

The author argued that the chief function of music is to express emotions and communicate feelings in a way not otherwise expressed. The lack of emphasis on creating one's own music and of helping children to be directly involved with composing and improvising music is a serious problem in music education today. Children need a musical vocabulary to be sure. But the opportunity to be original should set the stage for various types of musical involvement. The only way these experiences can be implemented in today's educational environment is if teachers are trained to "do" music rather than simply talk about it.

Loane, B. (1984). Thinking about children's compositions. *British Journal of Music Education*, 1 (3), 205-231.

The object of this study was to examine composing as a thinking process, and how we in turn think about children's compositions as art. This article discussed 12 pieces produced by small groups of 11-14 year-old pupils in 1-hour classes (3-4 times weekly). A recording accompanied the paper. Detailed analysis/interpretation of individual pieces was interrupted to provide notes on "meaning" in children's compositions (music as metaphor), thoughts on "creation and learning" in relation to skill and theory learning, and assessment. Three phases are suggested for the assessment process.

Logsdon, S. (1984). Teacher perceptions of musical giftedness in fifth- and sixth-grade children compared with a theoretical model of musical giftedness. (Doctoral Dissertation, University of Iowa, 1984). *Dissertation Abstracts International*, 45 (9), 2793.

The purpose of this study was to construct a theoretical model of musical giftedness that could be generalized, based on mainstream understanding, and be flexible, to allow for some latitude in its implementation in various programs. The models of Sloat and Renzulli which refine and extend the work of Marland and others, are the basis for the present model, which includes four traits: Task commitment, General ability, Creativity, and Musical ability. Two groups of music educators, elementary school teachers and university professors, were sent a questionnaire containing items grouped into four categories representing the four traits of the model, including stereotypical items acting a foil. Results indicated that while the respondents understood the theoretical model, few strictly followed it, mainly stressing the trait of Musical giftedness. Logsdon concluded that music educators are disassociated from the current information about giftedness and its implications for music, and remain so during their professional lives.

Lorentzen, B. (1970). Electronic music means switched-on creativity. *Music Educators Journal*, 57 (3), 56-57.

The author argued that, in order for man to function in modern society, he must learn to solve problems and think in a creative way. The author's view is that one way to help students develop creative thinking skills in music education is through the use of tape recorders and electronic sounds. By involving children in recording and manipulating sounds, their creativity will be stimulated as they become actively involved with sound-altering experiments such as music

concrete, tape speed manipulation, backwards sounds, recording environmental sounds and creating sounds electronically. These experiences will provide students with many problem solving opportunities.

Lowe, G. (2002). Creativity and motivation. In Sullivan, T. and Willingham, L. (Eds). Creativity and music education. Edmonton AB: Canadian Music Educators' Association

This chapter seeks to explore the relationship between creativity and motivation. Terms are clearly defined and expectancy-value theory is both employed and explained. Motivation is linked to creativity through review of the literature. Several student responses that support this relationship between motivation and creativity are included. The author leaves the reader with several practical recommendations concerning the role of task design.

Lowery, J. (1980). The effect of three creativity instructive methods on the creative thinking of gifted elementary school children. Dissertation Abstracts International. 41 (10), 4360A. (University Microfilms No. DDJ81-08262)

This research study was done to observe any differences in 3 creativity instructional methods: New Directions in Creativity, New Directions in Creativity Enhanced, and Music and Imagery. An experimental study was performed on a sample population of 36 gifted 3rd-5th graders. According to data received through testing of various methods, the Music and Imagery method appeared to be the most effective of the three methods of instruction.

Ludowise, K. (1985). Movement to music: 10 activities that foster creativity Childhood Education. 62, 40-3.

This article stated that the use of movement in the elementary level music class enables all students to become listeners. Movement is an action all can participate in easily. Ludowise divides the ten activities into three categories: steady beat, tempo and meter. Recordings to be used with each project are also listed.

Lund, N. L., & Kranz, P. I. (1994). Notes on emotional components of musical components of musical creativity and performance. Journal of Psychology, 128 (6), 635-41.

Authors interviewed ten composers on how the creative process affected emotional well-being. The cycle seemed to fall into three stages: preparation for the performance, the performance itself, and after the performance. The range of emotions went from excitement and anticipation to volatility and hyper-sensitivity during dress rehearsal and initial performance to satisfaction or despair depending on the reaction to the performance, both by the audience, performers, and composer. Several composers encouraged music education to teach about these aspects in order to better prepare students for the "emotional roller-coaster" associated with creativity.

MacDonald, R. and Miell, D. (2000). Creativity and music education: The impact of social variables. International Journal of Music Education, 36, 58-68.

The authors conducted two studies of different groups for the effect of social interactions on the musical product. The conceptual base came from several studies of the process and products of musical creativity), and studies on the interactions between music and social environment. In the first study, ten to eleven year old students composed music in groups of two. Half of the groups were comprised of friends, while the other half of the groups was comprised of students who were not friends. The groups were compared for the type of communication during the composing and the quality of the composition product. The students who worked with friends utilized more transactive communication, talked more and played music more during the composition time than groups of non-friends. Their compositions were also scored higher in evaluations. The second study compared the level of social communication skills of two groups of adults with special needs. The first group participated in a Gamelan workshop, while the second group participated in non-musical group activities, such as a cooking workshop. All group were given a pre-test and post-test. The Gamelan group demonstrated more improvement in complex social skills in the post-test than the non-musical groups. The results of these studies are similar to those found by previous studies of younger children.

Madachy, F. , (1978). A comparison of two methods of teaching fundamentals of music to college elementary education students: programmed and creative. (Doctoral dissertation, Indiana University, 1978). Dissertation Abstracts International, 39 (03), 1404A.

The purpose of the study was to see if a method based primarily upon creative activity was better than one in a programmed textbook for the teaching of fundamentals of music to future elementary teachers. The act of creating was described as consisting of the four stages of preparation, incubation, adjustment or revision, and finalization or evaluation. The investigator devised a method of teaching fundamentals of music to the experimental group by direct involvement in the creating of musical examples. Pretests and posttests were administered which showed that, although there was a slight difference favoring the experimental group, there was no statistically significant difference. The experimental group did gain significantly in keyboard proficiency however, and had a slightly more positive attitude toward music than did the control group.

Madsen, C. (1977). Creativity and music education: comparing two methods of teaching junior high school general music. *Dissertation Abstracts International*, 38 (2), 539A. (University Microfilms No. DDJ77-16809)

This study studied the effect of a creativity-oriented method of music education on the junior high student's academic achievement, enjoyment of music, cognitive and affective growth. Two models were constructed to aid in the development of the teaching method. One was a description of the nature of man, and the other described the process of creativity. Two junior high general music classes were selected and the same curriculum was used for both classes. The experimental group received the creativity-oriented open classroom approach, while the control group received a traditional teacher-oriented approach. Traditional measures of academic and musical achievement were administered to determine changes in these areas. Growth in creativity was measured by a researcher-developed survey. Results indicated that the experimental group showed significant changes in academic achievement, enjoyment of music and interest in musical creativity.

Madura, P. (1995). An exploratory investigations of the assessment of vocal jazz improvisation. *Psychology of Music*, 33, 48-62.

This study measured three factors: tone, rhythm, and expression, of vocal jazz improvisation in 101 college students enrolled in a vocal jazz class or ensemble. Each student improvised for one minute to both a blues and a ii-V7-I progression. Three judges then listened to the tapes made by the students and rated each student using a five point scale ranging from very poor to excellent. Data analysis showed a high correlation between the three factors of improvisation; suggesting the possibility for a standard jazz improvisation assessment tool.

Madura, P. D. (1996). Relationships among vocal jazz improvisation achievement, jazz theory knowledge, imitative ability, musical experience, creativity, and gender. *Journal of Research in Music Education*, 44(3), 252-267.

A study of 101 American university students, participating in vocal jazz collegiate activities, examining the correlation between multiple predictor variables: [jazz theory knowledge, jazz experience (both measured by a researcher-constructed instrument), general creativity scores (Torrance test of Creative Thinking), gender, voice/instrument lessons taken, and musical imitative ability], and scores on two vocal jazz improvisation tests (blues and ii-V7-I harmonic progressions). The only three variables that showed significant predictability of vocal jazz improvisation scores were jazz theory knowledge, jazz experience, and musical imitative ability. No relation was demonstrated between score on the Torrance creativity test and vocal jazz improvisation scores.

Madura, P. D. (1996). Relationships among vocal jazz improvisation achievement, jazz theory knowledge, imitative ability, musical experience, creativity and gender. *Journal of Research in Music Education*, 44(3), 252-267.

Operating from the premise of improvisation as being the most important element in jazz, the author engaged in an experimental study of collegiate jazz vocal students. The purpose of the study was to discover relationships that might exist between several variables related to tonal, rhythmic and expressive concepts. Each student was given an improvisatory assignment, following two types of jazz harmonic chord progressions. While the results suggested that several variables were predictors of vocal jazz improvisation proficiency, the variable mentioned by the author as "general creativity" was described as an insignificant predictor of improvisatory achievement. The author recommended that more college courses in jazz theory, increased imitation of melodic material, and student participation in jazz ensembles might prove beneficial to vocal jazz improvisation proficiency, and suggested further research is necessary to confirm the study's findings. A list of 25 references concluded the article.

Madura, P.D. (1996). Relationships among vocal jazz improvisation achievement, jazz theory knowledge, imitative ability, musical experience, creativity, and gender. *Journal of Research in Music Education*, 44 (3), 252-67.

The author studied several factors for their influence upon vocal jazz improvisation. The conceptual basis for the study came from both jazz and non-jazz research. The study used five different tools for data collection: a recorded performance of two different vocal improvisations by the subject, test of imitative ability, jazz theory test, jazz experience survey, and the Torrance Test of Creative Thinking - Verbal Form A. Using a Pearson correlation, Madura found that jazz theory knowledge, imitation ability, and jazz experience consistently predicted the quality of vocal improvisation. Instrumental lessons, voice lessons, creativity, and gender were not consistent predictors of improvisation quality. These conclusions were supported by past research.

Mandelbaum, J. (1977). A study of the relationship of an in-service program in music and movement to opportunities for creativity in selected kindergartens. Dissertation Abstracts International. 39 (8), 4883A. (University Microfilms No. DDJ78-24095)

This study looked at the effect of an in-service program in music and movement on classroom interactions. Using the Classroom Creativity Observation Schedule, data were collected from a control group and an experimental group in a pre-posttest fashion. Results showed an increase in teacher support for creativity during music and movement activities, increases in the amount of time that small group activities took place and an increase in the amount of time given to music and movement during the school day for the experimental group.

Marcellino, R. (1995). How do you teach composition? In H. Lee, & M. Barrett (Eds.), Proceedings of the Australian Society for Music Education, 10th National Conference: Honing the craft: Improvement in music education.

The author points out philosophical, theoretical and practical issues surrounding composition that should be addressed in a school setting. Models of the Postmodern concept of composition, as well as the process of teaching composition as a dialogue are illustrated. Other components in teaching composition include how to place limits on musical creativity and the function of form, and the definition of a compositional problem. Four practical examples of compositional activities done with students ranging from elementary to high school levels are presented: 1) Numbers and Music: Pulse and Metre, 2) Orchestral Colors, 3) Pulse and Metric Modulation, and 4) Klangfarbenmelodie.

Marsh, K. (1995). Creative processes in children's play; the playground and the classroom. In H.L. Lee & M. Barrett (eds.), Honing the craft: improving the quality of music education. Conference proceedings, Australian Society for Music Education, 10th National Conference, pp. 184-191.

Marsh presents an ethnographic study of Australian children's improvisatory/compositional processes and products as children make up play games, songs, and movement patterns on the playground. The goal of the report is to challenge the "invariable models" of developmental sequences proposed by Swanwick and Tillman, and Kratus. Among her findings are: 1) the composition process is linked to performance, 2) composition is a group process in this setting, 3) children engaged in this process move through several of S & T's developmental stages in a short period of time, 4) materials for the play songs and movements come from several sources, some invented, many from learned materials, 5) composition and improvisation are linked. Her paper ends with recommendations for teaching.

Marsh, M. (1970). Explore and discover music: creative approaches to music education in elementary, middle, and junior high schools. New York: Macmillan.

Creativity is defined as the ability to utilize materials and ideas in new ways. This book is based on the premise that it is essential to find more creative ways of teaching music in order to develop the creative potential of each student. The teaching process that is advocated is one that organizes activities so that the student discovers the concepts of music as the student is involved in the activity. For each of the major subject areas in music education, specific teaching strategies, and examples of how various students reacted to the activities of these strategies are given.

Martin, J. (2002). Categorizing the compositional thinking of tertiary-level students: a provisional taxonomy. *Research Studies in Music Education*, 18, 2-11.

The author of this research study examined the compositional thought and production processes of tertiary-level students. The subjects were eight third-year BA music students at National Institute of Education in Singapore who were enrolled in an introductory composition class. The students were asked to create a piece using a pitch set of only four notes. Each of the students was given a small recording device that documented in full each of the composing sessions. Students were asked to think-out loud. From the recorded transcripts, the author created a "taxonomy of composing context and process categories". After examining the contributing factors to creative composition, the author documented some important conclusions. Martin observed the process to be highly reflective, devoted to the needs of the scheduled activity, largely involved in exploration, and challenging for the subjects as they often had to search for further ideas. The proposed taxonomy has been established by the author to provide a resource for further study and development of compositional processes in teaching and in learning.

Martín, M. (1973). Creativity in music education. International Music Education ISME Yearbook. 1, 69-72.

As an attempt to provide creative opportunities for children, projects in improvisation were structured by the author using traditional Orff instruments, original instruments made by the students themselves, their voices, body movements, and even radios. First, students explored and experimented the making and interaction of sounds and body movements. Then students worked on dramatizing "themes" musically in group improvisations. These themes included "The Desert," "A Café," "A Voyage to the Moon," and others. The results showed that this activity did promote creative thinking, though a cohesive musical product was quite difficult to achieve.

Martin, M. (1973). Creativity in music education. International Society for Music Education Yearbook. 1, 69-72.

Through exploration of instruments and body expression the author has students improvise a theme. Four of the themes are presented in the article and evaluated for effectiveness. The author believes in the themes concept as a simple method for teaching improvisation.

Matesky, R. (1966). A study in children's creativity. Perspectives in Music Education: Source Book III. Washington D. C.: Music Educators National Conference.

Creativity requires motivation, talents, direction, implementation skill, and achievement. Each of these is defined in the article. "Want to, plus Have-to linked to What-to and guided by How-to is a sound formula for achievement and genuine creativity." (p. 231). The article concludes with a description of a spontaneous visual art creative activity executed by a group of children.

Mauldin, M. (1988). Composition for all music students. American Music Teacher, 37, 24-26.

The author argues for developing musicianship through composition in the private piano lesson. Problems of traditional notation and student attitude are addressed.

McClellan, L. (1977). The effects of creative experiences on musical growth. Dissertation Abstracts International. 39 (1), 16A. (University Microfilms No. DDJ78-10090)

This experimental study examined the possibility of increasing creative musical skill on college level non-music majors. Control and experimental groups were taught alternately by a graduate assistant and professor; the control being taught textbook material in lab sessions while the experimental group was given creative music learning experiences. Results confirmed that an increase in creative musical skill can be developed.

McCord, K. (2004). Moving beyond "That's all I can do:" Encouraging musical creativity in children with learning disabilities. Bulletin of the Council for Research in Music Education. 159, 23-32.

In this case study, the author explores ways to encourage a child with learning disabilities to be creative in composition and improvisation. Technology is used to create a multi-sensory learning environment in which enabled the child to be creative with less interference from the learning disability. The author asserts that children with learning disabilities often exhibit learned helplessness, and seek conformity in social settings, which causes students to give up quickly, and to seek the "right answer." The author believes that if these obstacles to musical creativity are overcome, children with learning disabilities can be creative in music.

McCoy, P. (1999). Effects of variable task structuring and guided self-reflection on compositional quality, self-assessments, and attitudes of novice student composers. (Doctoral Dissertation, Northwestern University, 2000). Ann Arbor: University Microfilms International.

The purpose of the study was to examine the effects of type of task structure and guided self-reflection on musicality ratings assigned by experienced music teachers to compositions, student self-assessment profiles, and student attitudes and understandings about their own composing experiences. Three sixth-grade public school classes (N=63) were randomly assigned to one of three treatment conditions, labeled Problem-Solving, Problem-Solving with Guided Self-Reflection, and Problem-Finding with Guided Self-Reflection. All participants completed a researcher-designed pre- and posttreatment questionnaire designed to measure attitudes toward and understandings about composing music. The Problem-Solving condition was characterized by teacher-directed scope and sequence as well as predefined assessment criteria; The Problem-Finding condition was characterized by emergent scope and sequence, as well as initially ill-defined assessment criteria. Participants in the Guided Self-Reflection groups also responded daily to questions about their processes and strategies, and completed product self-assessment forms after hearing their taped compositions. Three music educators with experience in classroom-based composing rated the musicality of 83 compositions using a computer-based researcher-designed instrument. Participants in the Problem-Solving with Guided Self Reflection group displayed a substantial (but statistically no significant) trend of decreasing Musicality ratings over time, while Musicality ratings for the other two groups increased over time. Participants in the Problem Solving with Guided Self-Reflection group displayed significantly lower self-efficacy and global product self-assessment profiles than participants in the Problem-Finding with Guided Self-Reflection group. Participants in the Problem-Finding with Guided Self-Reflection group appeared to develop increasingly stringent criteria against which local product aspects were assessed, a trend that was not observed in the Problem-Solving with Guided Self-Reflection group. Participants in the Problem Solving with Guided Self-Reflection group were less likely to indicate that they looked forward to composing in the future and were less likely to change their beliefs about compositional closure than were participants in either of the other groups.

McKeachie, W.. (1983). National symposium on the applications of psychology to the teaching and learning of music: Session 3, motivation and creativity. American Psychologist, 38, 855-857.

This article summarizes the proceedings of the Third Ann Arbor Symposium on the Applications of Psychology to the Teaching and Learning of Music. Major themes of this symposium included the complexity of the extrinsic/intrinsic motivation concept, choice, and self-concept in relation to creativity and motivation.

McLennon, S. (1996). Defining musical creativity: A critical examination of concept and measurement. *Canadian Music Educator*, 38 (1), 10-14.

The article discusses the various definitions of creativity and the impact these definitions have on research in the field of musical creativity. The author examines two models of musical creativity; first, Peter Webster's conceptual model of creative thinking in music, and second, David Elliott's (1990) "head and shoulders" model of musical creativity. The Webster model identifies goals to creative thinking as "product intentions" such as composition, performance/improvisation and analysis. "Enabling skills" and "enabling conditions" are identified as the model explains the "thinking process" which must take place before the final "creative product" is achieved. In the author's discussion of the Elliott model three dimensions are identified: a producer, the product produced, and the activity whereby the product is produced. Elliott's model relies on society and evolution in order for creativity to be completely understandable. The possibility of measuring musical creative ability is discussed through a comparison of Webster's *Measure of Creative Thinking in Music* (MCTM) to other tests of musical creative ability. The article concludes with the considerations of similarities between creative thinking and critical thinking in music.

McLennon, S. (2002). Defining musical creativity: A critical examination of concept and measurement. In Sullivan, T. & Willingham, L. (eds.), *Creativity and music education* (pp. 35-51). Edmonton, AB Canada: Canadian Music Educators' Association.

This chapter begins by examining two models of musical creativity: Webster's *Conceptual Model of Creative Thinking in Music* and Elliot's "*Head and Shoulders*" *Model of Creativity*. The author then compares these models to current literature. The chapter continues by concentrating on the measurement of musical creativity and identifies some of the problems in doing so. The author examines the following measurement tools: Webster's *Measure of Creative Thinking*; Gorder's *Measures of Musical Divergent Production*; and Torrance's *Torrance Tests of Creative Thinking*. In conclusion, McLennon proposes areas in need of further study.

McMillan, R. (1997). Finding a personal musical 'voice': The place of improvisation in music education. *Research Studies in Music Education*, 9, 20-28.

While music making has long included improvisational activity, it has only recently been discovered as a valuable tool in the learning of musical concepts and skills. This article is based on a study conducted at the Victorian College of the Arts in Melbourne, Australia, seeking to enlarge the understanding of the development of a personal 'voice' in improvisation. First, McMillan looks at musicians and educators who have been influential in promoting creative activities including improvisation. Additionally, he discusses available writings and research on the subject. Finally, McMillan examines the specific research study conducted at VCA followed by some of the study's results.

McMillan, R. (1999). 'To say something that was me': Developing a personal voice through improvisation. *British Journal of Music Education*, 16 (3), 263-73.

In this study, McMillan searches for the conditions which make it possible to find one's own personal voice. He looks for this information through student compositions and performances via a study he conducted in Australia which followed the development of ten students over three years.

McNicol, R. (2003). What is the importance of creativity in schools?. *Music Teacher*, 82(2), 7.

The author describes how the London Symphony and Berlin Philharmonic Orchestras have paired up with a small number of schools for their "Music Maker" programs which demonstrate how the arts can affect the whole ethos of the school. He discusses how this partnership allows for both the students and the orchestra musicians to develop their creativity. Statements are also made as to the inequality of opportunities for creative music in the British schools over those in Berlin, and suggestions offered as to how Britain can improve.

McPherson, G. (1998). Music education: broader issues- wider perspectives. In Sundin, B. et.al (Eds.), *Children composing*. Malmö, Sweden: Lund University.

In this chapter, the author attempts to illuminate some of the issues surrounding creative thinking, definitions of creativity and creative product, and how these things influence music education. One important theme in the literature being reviewed here is the developmental nature of creativity- that creativity in children is different from creativity in adults and thus must be studied differently. He also discusses models of creative thinking, which include not only the thought process but also the musical skills and aptitudes on which that process much draw. He points out that further research is needed with reference to the social and situational environment, as well as personal characteristics and cognitive abilities.

McPherson, G. (1995). Honing The Craft: Improving the way we teach the musically gifted and talented. Connections for the New Century, Australian Society for Music Education, 10th Conference, Proceedings

The author seeks to explain the role of musical ‘gifts’ and ‘talents’ in childhood musical education. He sets forth the view that there are clear distinctions between gifts and talents, as they represent the respective areas of ability and performance. The five aptitude domains of Gagne (1993) understanding these areas well is to facilitate future generations in discovering those children that should be specially aimed toward musical education.

McPherson, G.E. (2005). From child to musician: Skill development during the beginning stages of learning an instrument. *Psychology of Music*, 33 (1), 5-35.

This research study examines the mental strategies that children use in skill acquisition during their first three years of learning a musical instrument. In a previous study the author identified five aspects of music performance related to children’s ability to perform music: performing rehearsed music, with an emphasis on the home practicing process; sight-reading; playing from memory; playing by ear; and improvising. These aspects support the idea that children must develop a capacity to “think in sound.” Each aspect has several strategies associated with it to serve as measuring tools. Over the course of the three-year study, students with low skill level ceased instruction early on, and a wide difference in performing ability in the five skills developed. The development of the performing skills was related to past musical experience and the type of formal instruction.

Meadows, E. (1991) Improvising jazz: a beginners guide. Music Educators Journal, 78 (4) 41-44.

This primer for jazz improvisation recommends listening to several approaches to a given tune and a number of compositions based on specific harmonic structures. Teachers should introduce students to a small selection of scales including major, pentatonic, dorian, blues, mixolydian, and diminished. Students should begin to improvise on C major pentatonic and gradually progress through twelve bar blues using melodies improvised in dorian and mixolydian modes. The student can then apply the melodies of those scales to the ii, V7, I progression found in several bebop chord progressions. Illustrations with functional harmonic analysis are included.

Mellor, L. (1999). Language and music teaching: the use of personal construct theory to investigate teachers’ responses to young people’s music compositions. Music Education Research. 1 (2), 147-158.

Mellor discusses the difference in music teaching between teachers who are music specialists (mostly in secondary schools) and teachers who are music “novices” (mostly in primary schools). Mellor uses verbal responses to music as data to better understand the role of language in music education. The Personal Construct Theory (Kelly, 1955) explains that people are all different in that they will interpret events differently according to their own perspective on the world. The author uses different techniques to determine what these constructs are for specialists and for novices. Mellor discovers that the experts use more technical tools to assess and “file” music, while the novices communicate more about the feeling and personal value of music.

Mellor, L. (2007). Computer-based composition in the primary school: An investigation of children’s “creative” responses using the CD Rom *Dance eJay*. *Musicae Scientiae*, 11(1), 61-88.

Four girls and four boys aged 10-11 years old with varying degrees of formal instrumental music tuition (FIMT) participated in this study examining children’s creative strategies when composing with the computer program Dance eJay. The author collected three forms of data: onscreen “mouse” manipulations recorded on a video camera using a Corio Scan Converter Unit, Retrospective Verbal Protocols (RVP) where children took control of the video of their onscreen manipulations and selected moments to comment upon and to explain their creative decisions, and interviews related to the children’s music experiences outside of the music classroom and their environmental backgrounds. All participants, regardless of FIMT background, used vertical compositional strategies for their mixes. Results tentatively suggest students with less FIMT engaging in more exploratory behavior than those with more FIMT who focused on creating more explicitly structured compositions. Students enjoyed the immediacy of the task and the professional sound of their work, valuing it in aesthetic terms.

Mellor, L. (2007). Creativity, originality, identity: Investigating computer-based composition in the secondary school. *Music Education Research*, 10, 451-472.

Mellor investigated the compositional strategies of eight students in England, ages 13-15 using a CD-Rom program, *eJay*, for music mixing that was readily available for free through promotions within cereal boxes. The program used sound blocks similar to dance music that were easily moved about, and as many as eight tracks can be combined. Mellor analyzed the teenagers composition strategies for influences from

prior music experience (if at all), and for creative problem solving. Creative decision-making was seen as encompassing both divergent and convergent thinking. Mellor found that students with prior musical training were less creative in their composition strategies, and seemed to be more conformed to their understanding of musical structure and sound. Students without musical training took a more exploratory approach to their compositions. Not all students found their work original, but all students saw their work as creative.

Merrill, J.D. (2004). Rhythmic and vocal creativity builds music skills. *General Music Today*, 17(3), 14-17.

Students can develop musical skills through creative practices rather than acquiring skills before attempting creativity. The article presents ideas on developing rhythmic and vocal skills through creative movement and phase singing, along with titles of works that effectively work with such activities, and examines how students are encouraged to invent creative activities and share newly developed music skills with their peers. The author emphasizes the role of teacher guidance in the development of such skills.

Meske, E. (Ed.) (1989). Dimensions of Musical Thinking. Virginia: Music Educators National Conference.

The editor suggests this volume seeks to demonstrate ways teachers can "learn how to learn" to think musically. Written directly in response to Marzano, R., Dimensions of Thinking: A framework for curriculum, the first part of the book explores processes and types of musical thinking. The second places musical thinking in various teaching situations. The final chapter marries musical thinking and technology.

Miller, B. (2004). Designing compositional tasks for elementary music classrooms. *Research Studies in Music Education*, 22(1), 59-71.

This article is a study of compositional techniques used at an elementary school in rural America. The researcher was also the teacher involved in the project. The article details classroom techniques used with different grade levels during the study as well as their theoretical justifications. Sample work from compositional assignments is also included. The study found that students were all able to participate in composition despite their academic level. It also found that teaching composition seemed to aid in student retention of musical concepts.

Miller, L.. (1986). A description of children's musical behaviors: Naturalistic. Bulletin of the Council for Research in Music Education, 87, 1-16.

Recognizing the need for developmental research of the young child, Miller utilized naturalistic techniques to investigate the individual and interactive musical behaviors of young children. Ninety-five three through five year old children from a variety of settings were observed for thirty minutes. A musical behavior observation matrix of the thirty most common behaviors was developed and used to code the data. Salient findings revealed that young children are able to utilize a variety of instruments; demonstrate musical preferences; accompany recordings with singing, moving, chanting, or instruments; listen attentively; create songs and rhythms on melodic and non pitched instruments; show increased response to fast tempos; and experiment with sound combinations. Students can interact appropriately in an unstructured music environment, imitating musical responses during some social interactions. Findings demonstrated age related skill differences. Study suggested that young children should be given the opportunity to explore musical sounds, with four and five year olds needing more time to explore and three year olds needing guided instruction.

Modugno, A. (1971). Electronic creativity in the elementary classroom. Today's Education, 60(3), 62-64

This paper suggested various ways for the use of electronic music as a means to develop creativity. Employing a variety of sound materials the elementary student can further develop an understanding towards shape, timbre, and texture and how each can be altered to become a meaningful experience. This creative experience is fostered by the non intimidation of traditional music notation such as notes, key signatures, and clefs. Using tape recorders that are generally found in all schools provides unlimited sounds sources that may be explored. These sounds sources may range from voice, oral sound, instruments, and other types of natural materials. Creativity may be enhanced by altering the recorded sounds during playback. Electronic music encourages the students to think of sounds as most composers do in creating meaningful music.

Mojola, C. (1989). Composition, interpretation, improvisation: a proposal for integral study. Canadian Journal of Research in Music Education, 30 (2), 95-99.

In this article, the author proposed a musical education project which consists of improvisation, composition and interpretation activities. The author had in mind adults and older adolescents for this project and stressed that it is not

meant as an initiation into music but is an intermediate degree of learning. The plan proposed at the end is organized into four large lesson-blocks in which a gradual will take place from improvisation to composition to interpretation and ending with a synthesis of these activities.

Molenaar, M. (1996). *Creative thinking in piano lessons*. Doctoral dissertation, Northwestern University, June 1996.

Molenaar's dissertation compares what experts in the field of creative thinking have written with the opinions and published materials of contemporaries in the field of piano pedagogy. The first section broadly examines the historical and contemporary definition of creativity and the value of creativity from a philosophical platform. The second section organizes practical applications by composition, performance-improvising, and analysis-listening, and explores ideas for activities and means of assessment from piano pedagogues and music educators. The final section addresses published materials, including software, available for piano teachers that regularly sequence creative thinking activities.

Moore, B. (1986). *Music composition and learning style: The relationship between curriculum and learner*. Unpublished Doctoral Dissertation, University of Wisconsin-Madison Moore, B.. (1990). *The relationship between curriculum and learner: Music composition and learning style*. Journal of Research in Music Education, 38(1), 24-38.

This study investigates the relationship between composition, as measured by a researcher-constructed test (Ability to Compose Music Exercise) and learning style, as measured by two inventories (Gregorc Style Delineator and Edmonds Learning Style Identification Exercise). The test measured intuitive and rational musical abilities, while the inventories measured mediation ability and perceptual modality. The subjects were sixty-four eleventh and twelfth grade instrumental music students. Scores on the composition test and two learning style inventories were correlated with significant correlations found between (a) intuitive musical ability and the abstract random learning style (negative correlation), (b) intuitive musical ability and perceptual modality and (c) rational musical ability and perceptual modality.

Moore, B. (1987) *Music and computers in the middle school*. Dialogue in Instrumental music Education, 11 (2). 86-94.

The author describes the use of a computer lab to teach music literacy, instrumental performance skills, and musical creativity. This article is the third of its kind by the same author dating back to 1981, the inception of the computer assisted music instruction lab at the Verona Wisconsin Middle School. A federal grant helped establish the project for the 7th and 8th grade band and orchestra students, and the program has expanded to include the entire sixth, seventh, and eighth grade band, choral, orchestral, and general music program, including a course in electronic music and composition.

Moore, B. (1989) *Musical thinking processes*. In Boardman, E. (Editor). Dimensions of musical thinking. Reston, VA: Music Educators National Conference.

The author reviews the eight dimensions of thinking (Marzano et al. 1988), and expounds the assumptions which impact the interaction of musical content with thinking processes. "An understanding of these assumptions - the context of each process - will assist toward developing a working model for musical thinking". (34)

Moore, B. (2003). *The birth of song: the nature and nurture of composition*. In Hickey, M. (ed.). Why and how to teach music composition: a new horizon for music education. (pp.193-207). Reston, VA: Music Educators' National Conference.

In this chapter, the author describes the musical experience in terms of composer, performer, and listener, and related it to the learning experience in terms of curriculum, teacher, and learner. The author then describes four different types of technology- notation, sequencing, digital audio, and the internet. These definitions and the prior discussion of music and learning frame a discussion about how each technology facilitates creativity in several curricular models, including a discipline-based model, an expert-thinking model, and an inter-disciplinary model.

Moore, J. (1986) *Understanding music through sound exploration and experiments*. Lanham, MD: University Press of America.

This book is designed as a guide for junior and senior high students who are interested in exploring fundamentals of music through experimentation. It outlines 26 experiments using tape recorders and other sound devices, placing emphasis on creative exploration of sound. Composition and improvisation are stressed throughout.

Moore, J. (1990). *Strategies for fostering creative thinking*. Music Educators' Journal. May, 38-42.

The author encourages longitudinal development of creative thinking. Experimentation in sound and silence takes place from birth throughout childhood, and is made up of free and rhythmic movements associated with play. Children thus engage in composition, performance, and listening from an early age. Two specific lists of plans for creativity are provided, one for elementary level and one for secondary.

Moorhead, G. & Pond, D. (1978). Music for young children. Santa Barbara: Pillsbury Foundation for the Advancement of Music Education. (Reprinted from the 1941-1951 editions.)
(see Pond, 1981)

Morgan, L.A., Hargreaves, D.J. & Joiner, R.W. (1997). How do children make music? Composition in small groups. Early Childhood Connections, 4 1, 15-21.

These studies examined the process of peer collaboration in composition and the affect on the music produced. The first study involved 88 children aged 9-11 years that were divided into 22 groups of four. Their composition task was to create a piece based on a story that was told to them. Each group used a xylophone, drum, triangle and cabasa and was given 20 minutes to work collaboratively on their piece. The second study involved 72 children aged 9-11 ears that were divided into 18 groups of four. The assignment was to create a piece that contained a beginning, middle and end. The instruments used were the same as the first study as well as the length of time for composing. Communication was found to be an integral part of the group's productivity, but different forms of communication were found to be apparent in the different compositional tasks.

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Morgan, R. (1949). The creative experience in music education. Music Educators Journal 35(6) 30, 32.

The article stated the creative approach in music was for the purpose of vitalizing and making more significant the musical experience of every child. The creative aspect of music education was not confined to writing music, but concerned itself with every aspect of the developmental growth in music: interpretation, rhythm, dramatization and listening. Examples in these areas were given. The author concluded with the essence of art values in music as being "closely tied in with the creative program; where such a program is not in operation, it is to be expected that the musical experience will be largely sterile and uninteresting." (p.32)

Morgan, S. (1984). Dimensions of Musical Problem Solving by High School Instrumentalists.

Dissertation Abstracts International. 46(06), 1551-A. (University Microfilms No. DA8500838).

The author reviewed the construct of problem solving and its relationship to musical independence, then proposed a model representing problem solving as a process combining generalized intellectual abilities with task-specific skills and knowledge. Musical variables were assessed with the *Watkins-Farnum Performance Scale* and Colwell's *Music Achievement Test*. Non-musical variables were assessed with the *Hidden Figures Test* and the *Group Inventory for Finding Interests* test. The criterion measure developed by the investigator was the *Musical Problems Test*, consisting of three tasks: (1) Learning an Unfamiliar Piece, (2) Transposing, and (3) Creating an Ending. Results showed that performance on the MPT was more strongly linked to musical variables, performances were somewhat more strongly associated with scores on independent measures, and that the three sub-tests showed different patterns of relationship to independent variables.

Morin, F. (2002). Finding the music 'within': an instructional model for composing with children. In Sullivan, T. & Willingham, L. (eds.), Creativity and Music Education (pp. 152-177). Edmonton, AB Canada: Canadian Music Educators Association.

This article discusses the three-component instructional model for composing music with children. This consists of: (a) developing and expanding the compositional base; (b) selecting aesthetic content for children's musical works; and (c) outlining a sequential composing process. A sample learning plan for children's creative idea development in the music classroom will be shared to provide a context for illustrating the model. Creative idea development is an important component of the music curriculum that deserves more attention in the music classroom. Music can become a viable communicative choice for children, moving from playing a marginal to more central role in the literacy development of children in our schools.

Moser, S. (1986). Springboards to composition. Clavier, (September). 22-25.

Moser's article gives practical activities, method books, and motivational ideas for adding composition to the traditional

piano lesson. Through composing the student is exposed to theory, formal analysis, musical terminology, notation skills, and ear training.

Mroz, R. (1982). Investigating curriculum planning practices for the cultivation of individual creative potentialities in secondary school instrumental music in selected school districts of Erie County. (Doctoral Dissertation, State University of New York at Buffalo, 1982). Dissertation Abstracts International, 43, 2920A.

Author's Abstract (Edited):The purpose of this study was to ascertain the extent to which teachers of secondary school instrumental music plan curriculum for the cultivation of individual creative potentialities. Further, the study sought information about how teachers perceived creativity, problems inhibiting implementation, and the evaluative procedures utilized. Findings: (a) many teachers do not have or follow a written curriculum plan for their program; (b) teachers plan curricula which engage students in activities of musical interpretation and analyzation regularly. To a lesser degree, opportunities for musical improvisation and composition are provided; (c) many learning opportunities conducive to creative expression are scheduled outside normal school hours; (d) teachers perceive creativity as an important concomitant in the performance of a musical instrument; (e) teachers report that lack of time, scheduling difficulties, large classes, student over-involvement, and lack of adequate teacher preparation serve as the deterrents in planning creative music curricula; (f) teachers seldom evaluate individual creative growth in music. When evaluation is conducted, personal observation is the device utilized.

Muller, B. (2000). Principal themes - the connected moment of music: A reflective account of a first attempt to teach creativity. Canadian Music Educator, 42 (1), 6-9.

The author is new to teaching and writes about attempts to interject creative music making into existing music courses during student teaching. In a band class, Muller teaches the students to write a twelve-tone composition using historical material, such as Greek Mythology and Paleolithic era cave paintings, as inspiration. Although the associate teacher was pleased with the product, the pieces were not performed at the school's Music Night. Instead the associate teacher returned to the usual curriculum to prepare the students for Music Night. Another experience is related from a guitar class. The associate teacher was dubious about the author teaching students how to write a canon, but was pleasantly surprised by the outcome. The students were also very excited about their compositions. The author encourages other teachers to introduce students to composing in different styles and challenges them to program the new music on concerts.

Murphy, C. (1999). How far do tests of musical ability shed light on the nature of musical intelligence? British Journal of Music Education, 16 (1), 39-50.

Psychometry, which deals with measurable factors, is used to develop tests of musical ability. Terms are defined through Lundin such as: musical talent: the capacity for musical performance; musicality: the capacity for musical reception; musical capacity/ability: reference to "inborn traits". The author suggests that the widely accepted view of intelligence is to be good at Math, Science or English. He asks the question whether we can talk of musical intelligence and if so, do our tests for musical ability identify this trait or measure it? Theories of multiple intelligence and learning are discussed. The author expresses frustration regarding the media's influence on society in defining intelligence. The emphasis on quiz shows that display intelligence as mental recall of facts rather than the ability to use knowledge "creatively" has had a profound impact on music curriculum in our schools placing it low on the list of educational priorities. The author believes that all people possess the potential for "intelligent" engagement in music.

National Curriculum; England, (Music). (1995) London, England: Department For Education.

The British school system's content guidelines are presented in this manual. The program of study for each successive level of music education is outlined. There are two main divisions of the guidelines for the area of music. They are: Performing and Composing, and Listening and Appraising. These two areas increase in expectation for teacher and student as the three levels progress toward the goal, which is "Exceptional Performance."

National Standards for Arts Education. (1994) Reston, VA: Music Educators National Conference.

A context for the development of the material in this book is presented in the introductory section. The main body of the document outlines content and achievement standards for Dance, Music, Theatre, and Visual Arts Education, divided into sections by grade level: K-4, 5-8, and 9-12. Within each music section, Content Standard 3 involves "improvising melodies, variations, and accompaniments" and 4 involves "composing and arranging music within specified guidelines". For each content standard 3-5 achievement standards are stated in the form of objectives appropriate for the grade level. An appendix outlining sequential development shows the transition from a standard at one level to its corresponding standard at the next level.

National symposium on the applications of psychology to the teaching and learning of music: Session 3, motivation and creativity. (1983). Reston, VA: MENC.

Contributors include John G. Nicholls, Martin L. Maehr, Stanley S. Gryskiewicz, Joel O. Raynor, Jacquelynne Eccles

(Parsons), Dean Keith Simonton, Martin V. Covington, Donald J. Treffinger, Wilbert J. McKeachie. Key themes of the symposium include the complexity of the extrinsic/intrinsic motivation concept, choice, and self-concept in relation to creativity and motivation. Gryskiewicz's "Directing Creativity: Marching with Different Drummers" describes the finding of adaptive and innovative creativity styles from problem solving research at the Creativity Development Program. Wallach's "Creativity and Talent" states that creativity is tied to competence in a subject area, and cannot be adequately assessed through general measurements. Simonton suggests, in "Aesthetics, Biography, and History in Musical Creativity" that "emotion does play a very significant role in musical creativity since aesthetic success of a melody depends on the capacity of a theme to provoke an optimal level of emotional arousal". Also, creativity can be traced in the increasing originality of melodies composed throughout a composer's life. In "Fostering Creativity and Problem Solving", Treffinger offers a model for creative learning which serves as a framework for instructional and curriculum development strategies. Treffinger applies the model to a problem solving approach of attribute finding, fact finding, problem finding, and idea finding.

Nelson, S.L. (2004). Creativity in U.S. music textbook series: 1912-1953. *Journal of Historical Research in Music Education*, 25 (2), 128-141.

This purpose of this study was to examine the opportunities that textbooks in American music education from 1912-1953 presented for creativity. The author studied four separate textbooks identified as *Hollis Dann Music Course* (1912-1929, pub. American Book Co.), *Music Hour* (1927-1938, pub. Silver Burdett), *The World of Music* (1936-1940, pub. Ginn & Co.), and *New Music Horizons* (1944-1953, pub. Silver Burdett). The teacher's manuals, as well as one student textbook, from each primary level (kindergarten through third grades) and intermediate level (fourth through sixth grades), were analyzed. Conclusions were that the definition of creativity varied across the four textbook series in the study. It was also observed that teachers' manuals discussed and encouraged creativity but did not appear in the student text books until the 1940's.

Nicol, E. (1990). Creative criticism. *Music Teacher*, 69, 22.

While music educators must continually argue for music being an integral component of education, recent attempts to capture student interest through "creative" activities do a disservice to the profession. The author challenges some activities on three points: the use of electronic equipment without giving attention to constructing legitimate products, curriculum which fail to provide musical experiences of several historical/stylistic genres, and the lack of varying aesthetic experiences in a narrow curriculum.

Nicolls, J. (1991). Freedom and structure: the acquisition of language in a musical education. *British Journal of Music Education*, 8 (3), 271-291..

In this article, Nicolls proposes that improvisation and imitation skills that are utilized during composition tasks are tools that enable children to acquire musical language. The author suggests that learning language parallels learning music: 1) the basis is sound, 2) young children learn by experimenting and obtaining a response, 3) when written work is stimulated, then learning occurs, 4) learning is enhanced through performance and success, 5) ensemble work is a fun method of learning, and 6) written sounds stimulate the imagination of other sounds. Nicolls states that "freedom and structure" are equally important in creative musical development. As in verbal language, music has phonology, syntax and semantics. During the creative process, children need to experience their sound worlds in order to access these elements of the musical language. Illustrating the practical implications of the language/music theory, Nicolls provides anecdotal accounts that illustrate teaching strategies for young composition students. Of utmost importance is providing students with the opportunity to explore sounds in conventional and unconventional manners, student-teacher interaction with sounds, and audio-taping musical performances of student compositions. She also provides thematic ideas with which the students might create compositions. Nicholls firmly believes that if students sing, conduct, play, compose, and improvise at an early age and continue throughout their formal education, then as older students they will be able to perform these tasks as easily as speaking their native language.

Nicolls, J. (1990) Techniques and creativity, Part 3: making notes. *The Music Teacher*, 69, 14-15.

The author suggests that every young musician has a plentiful supply of ideas for creating music. We, as music educators, must tap into our students' imaginations to help them express themselves musically. She stresses the training of the "inner ear" (p.14) in combination with practical ability and literacy in order to promote confidence and development of technique, interpretation, and performance skills.

Nilsson, B. & Folkestad, G. (2005). Children's practice of computer-based composition. *Music Education Research*, 7(1), 21-37.

This article summarizes an empirical study of computer-based composition. Nine students in a Swedish school were instructed on the use of synthesizers and the computer software and then lead through several opportunities to compose. The students were interviewed and observed during the process. The study found five variations of the children's creative processes. The article discusses these variations and their implications for teaching methods. The article suggests that children are more creative when given some guidance when asked to compose.

Nolan, E., Hinz, B., Wilcox, E., Rudaitis, C., and Kenney, S. (1995). Focus on Improvisation. Teaching Music 2 (5), 27-37.

This set of related articles provides a rationale and activities for teaching improvisation in various settings, including orchestra, jazz, chorus, general music, and early childhood. Suggested approaches include the use of Baroque structures, swing rhythms, alternating instrumental and vocal phrases, study of scales, emphasis on melody rather than chord structure, and developing improvisations from young children's spontaneous songs. The articles reflect a spectrum of thinking, including both the "skills before creativity" and the "create first, notate later" perspectives.

O'Brien, J. (1972). Stop the conveyor belt-- the kids want to get off. Music Educators Journal. 58 (9), 25-29.

O'Brien questions five educational assumptions that focus on what children should learn which he believes divert attention from how children learn. Building on works by John Holt, Carl Rogers, and Herbert Kohl, he suggests that schools would be more effective if they encouraged child involvement with material, exploration, mistakes, and problem solving.

Obenshain, K. (1974). An information-processing approach to the assessment of creative ability in college music majors. Dissertation Abstracts International. 35 (5), 2777A. (University Microfilms No. DDJ 74-23819)

Research into the nature of musical ability and a "pure" measure of creativity were two of the three areas of investigation which formed this study in answer to these two important questions: (1) Are creative processes independent of intelligence? and (2) If so, what are they? The author found a significant relationship between creativity and the process variables. The implication of this study is that it may be possible to train people to be more creative and more productive, not only in music, but other areas as well.

Odam, G. (2000). Teaching composing in secondary schools: the creative dream. British Journal of Music Education, 17 (2), 109-127.

Composition in secondary schools in England and Wales is an obligatory activity as outlined in the National Curriculum. Research on the effectiveness of this program was conducted through observation of teachers and students in twenty-six secondary schools across England. Group-work was found to be the dominant work method. This method is proven to be stressful to both teachers and students as composing is insufficiently acknowledged as a largely individual activity. The author acknowledges Paynter's (1982) comments of the challenges of teachers lacking composing in their training. As they visited the twenty-six schools it was found that many of the teachers had been left to learn on the job without any strategically planned in-service education to comply with the standards outlined in the National Curriculum. The objectives of the "Creative Dream" research project were to observe and document effective composition teaching methods; to undertake an in-depth appraisal of the use of keyboards for composing; to identify, document and define progressive learning in composition; and to recommend ideas of good practice. The research concluded that composition is firmly established in the music curriculum in England and is envied by many other countries. When composing is taught well, the students look forward to this activity.

Odena, O., & Welch G. F. (2007). The influence of teachers' backgrounds on their perceptions of musical creativity. A qualitative study with secondary school teachers. Research Studies in Music Education, 30, 71-81

The authors examine the relationship between teachers' backgrounds and their perceptions of musical creativity. Participating teachers watched video of their students participating in a composition or improvisation activity and discussed the students' performance. After this, the participants gave biographic interviews and filled out Musical-Career-Path response sheets. Using NVivo analysis, the authors found that three factors had a significant effect on the teachers' perceptions of musical creativity: musical experience, teacher education, and professional teaching experience. Participants with composing experience and knowledge of different styles of music were the most successful at describing the environment needed for creativity and assessing the pupils' work.

Oehrle, E. (1986b). Creativity: support for and forces against this basic educational idea in Western music education. British Journal of Music Education. 3, (2), 165-174.

This article presents evidence from socio-economic studies that creativity, although valued by educational theorists, is not really valued as a positive "personality trait" by the system. The author does not present empirical data, but does review traditional views of psychologists and philosophers. She finds that . . . "western society has become so specialized and economically orientated that it is discouraging the development of creative potential in education, a factor which is as essential to education as is intelligence . . ." p. 173.

Oehrle, E. (1984). A case for creativity in elementary music education. Dissertation Abstracts International. 46, 371A.

Author's abstract (edited): Creativity is an important and vital aspect of music education. Solid and unambiguous backing for this idea comes from influential bodies of music educators in England and the United States, and from philosophers Whitehead and Dewey and psychologists Bruner and Piaget. This study explores the extent to which current elementary music education texts are likely to encourage the development of creative potential in children. A set of questions is derived, i.e. an evaluation form, which is used to assess the extent to which a representative selection of music education texts support the importance of creativity in music education. This assessment of a selection of texts, which are representative of the spectrum of thought in elementary music education in England and the United States, reveals that the majority have little, if anything, to do with creativity.

Oehrle, E. (1986a). A method of evaluating the extent to which music education texts support creativity--an important aspect of contemporary music education. International Society for Music Education, 13, 169-178.

After presenting a short history of the creativity movement in music education, the author discussed twelve questions regarding the nature of creativity. Specifically addressed were creative behavior, the creative process, the creative person, creative thinking based on J.P. Guilford's model, the creative product, classroom processes, and music and creativity.

Owens, P. (1986). The contemporary composer in the classroom. British Journal of Music Education, 3 (3), 341-352.

Two aspects of music education are discussed in the article; the role of modern composers as teachers and the use of their music in schools, and the idea of students themselves involved in the activity of composition. Listening to, performing, and composing modern pieces should constitute an integral part of children's music education. Modern composers can provide children with "ways in" to their music by considering musical and extra-musical factors such as narration, use of unusual instruments, theatrical elements, programmatic outline, or using a pre-existing piece. In allowing opportunities for students to compose, teachers need to address the problems of method and motivation; the method of "teaching" composition and how children may be motivated to compose. The exclusion of composition from the music classroom will lead to an unbalanced music education which is incapable of "providing the appropriate pattern of growth that is essential to the musician".

Oyens, T. (1992). On the composer provoking student creativity. International Society for Music Education Yearbook, IX, 152-157.

The author believes that creativity is a universal gift. The professional artist's creativity does not necessarily exceed that of the listener, reader, or spectator. Because humans have so many inhibitions against artistic self-exposure, a highly intimate and vulnerable process, we should involve more composer-teachers in music education. The composer-teacher can introduce students to contemporary music as a natural extension of historical music, while providing critical evaluation skills.

Pachet, F. (2006). Enhancing individual creativity with interactive musical reflexive systems. In I. Deliege and G. Wiggins, (Eds). *Musical creativity*. (p. 359-375). New York: Psychology Press.

This chapter describes *interactive reflexive musical systems* (IRMSs), which are computer systems designed to generate a feedback loop that interacts with user input. The goal of IRMSs is to create interactive systems that enhance musical creativity by learning the musical material of the user, allowing user material to become gradually more complex, while avoiding the need for the user to manipulate a graphical user interface. The article provides technical detail concerning the architecture of such systems, the guiding parameters, and variable options. The aim is to create systems that provide seamless responses to user's musical input, with the system learning the musical personality of the user as a means for more meaningful interaction. Modes of analysis, listed as *segmentation*, *gradual learning*, *analysis of global patterns* and *generation*, are illustrated to describe the forms of learning that the system can engage in. Interactive protocols are presented, explaining how the user and the system will collaborate, based on user input and various interactive parameters. Finally, applications of these systems are presented. The author describes question and answer, accompaniment, and experiments in song composition as three examples of IRMS applications, telling how users, including children and professional musicians, interacted with the IRMSs.

Pautz, M. (1989). Musical thinking in the general music classroom. Dimensions of Musical Thinking. Music Educators National Conference. 65-71.

The author discusses some of the problems which a music teacher may face in a general music class. Issues addressed include the rationale behind general music education, the goals of such education and the options for content in these courses. A guide is presented in order to facilitate development of curriculum and classroom organization and the roles of the teacher within this unique educational setting. A detailed lesson plan is provided.

Payne, D. & Halpin, W. (1974). Use of a factored biographical inventory to identify differentially gifted adolescents. Psychological Reports. 35 1195-1294.

The purpose of the study was to investigate the usefulness of a biographical data inventory to describe differences in the past experiences of eight highly select groups of differentially gifted adolescents. Data demonstrates the uniqueness of academically and artistically talented students in comparison with average children of comparable age. Using ANOVA tests subjected to Duncan's Multiple Range Tests, the author indicated clusters of past experiences which describe academically and artistically talented boys and girls.

Paynter, J. (1972a). Music and imagination I. Music Teacher 51 (1), 11-12.

First in a six-part series. Educational change relies on individual teachers and their opportunities for experiment. In this article the author encouraged music teachers to engage the imagination of students rather than teach by older methods of aural skills, memorization and formulas. Techniques are useless without a sense of adventure. By asking questions of ourselves week adventure.

Paynter, J. (1972b). Music and imagination II. Music Teacher 51 (2), 10-11

Second of a six-part series. The author encouraged immersing oneself in a subject and making it ones own. Knowing details gives insight to other possible imaginative music-making. The teacher should develop ideas in a way that is his own, drawing on imaginative resources and following up with exclusive reference work. It is not possible to help children towards an achievement in music if the teacher is not simultaneously developing his own creative and imaginative skills.

Paynter, J. (1972c). Music and imagination III. "musical moonwalk." Music Teacher 51 (3), 11-12.

Third of a six-part series. The author describe the educational system as one that offers people the chance to use innate gifts, develop as individuals and think for themselves. As music educators we need to nurture this desire. The author, by imposing questions about melody, harmony and rhythm, suggested that a new world of possibilities could open.

The author encouraged experimentation and exploration (just as composers of music do) to teach children music.

Paynter, J. (1972d). Music and imagination IV. "things to do." Music Teacher 51 (4), 12-13.

Fourth of a six-part series. Being that the principle aim of music education is to open childrens' ears and draw upon individual resources of imagination, the author presented ways teachers can work with students. Creative listening and composing exercises were offered which facilitated perceptive and imaginative development in children. While creative exercises are a necessary aspect of teaching, the author warned not to turn everything over to "creative work."

The article presented practical materials for creative teaching and learning.

Paynter, J. (1972e). Music and imagination V. "writing it down." Music Teacher 51 (5), 10-11.

Fifth in a six-part series. Drawing on the history of western music the author recalled the distant past when music was passed through generations in the form of folk songs--without notation. Sound and song were most important. The same is true today. Notation and theory should not get in the way of the music. With this basis the author suggested an activity where students invent their own notation for their musical creations.

Paynter, J. (1972f). Music and imagination VI. "planning the programme." Music Teacher 51 (6), 14-15.

Sixth in a six-part series. The author gave a broad outline for planning a music curriculum. It was provided as an initiative for teachers to compile their own plans to make music class is imaginative and adventuresome.

Paynter, J. (1978). Sound tracks series. New York: Cambridge University Press.

This series, intended for students age 9-13, provides complementary instructional material for Paynter's 1970 series, Sound and silence. The purpose of this series is to stimulate imagination and problem-solving skills via first-hand experience in creating music. The role of the teacher is to provide questions that stimulate creative thinking, without providing the students with ideas or rules, in a "controlled improvisatory" environment. Series 1 is comprised of five packets of "broadleaves" (creative activity sheets) which may be utilized by individual students or small groups of students. The five broadleaf units are pattern music, short/long sounds, shape music, word sounds, and cymbal music. Each broadleaf provides compositional parameters with which the students experiment with musical sounds. The series also encourages independent or group composition projects that emerge from the students' work with the various packets. Series 2 addresses rites and ceremonies, Series 3 deals with sound poems, and Series 4 presents magic songs.

Paynter, J. (1992). Sound and Structure, London: Cambridge University Press.

Sound and Structure builds on the principals first established in the 1970 book, Sound and Silence. Paynter's exercises encourage children to create original music by experimenting with sound. By experiencing the compositional process first hand, children appreciate composers of past time periods. Sound and Structure outlines projects that examine the structural aspects of music while utilizing the technique involved during the compositional process. The book is divided into four musical concepts: sounds, techniques, musical structures, and musical ideas. Lesson plans, exercises, and teaching points guide educators and students through each concept. These four sections can be explored in any order and a listening tape supplements the book.

Paynter, J. (1982) Music in the Secondary School Curriculum--trends and development in the classroom. University Press, Cambridge.

In association with the Schools Council Project for Music in the Secondary School Curriculum, the author offers the collective opinions, observations and recommendations of the SCP. Music in the Secondary Curriculum is an extensive examination into the historical, social, organizational, and curriculum prospective. The author addresses creativity in the chapter entitled, "Creativity and the Music Curriculum." A definition of creativity is offered. Applicable suggestions and guidelines are incorporated to provide the professional music teacher with the awareness of the following creative techniques: composition, improvisation, interpretation, listening, and imagination.

Paynter, J. (2000). Making progress with composing. British Journal of Music Education, 17 (1), 5-31.

The author seeks to provide music educators with tools to strengthen their abilities in facilitating composition and growth for student composers in the general music classroom setting. Using a student composition (available on cassette tape through BJME) and Schumann's 'Eusebius' as examples, Paynter illustrates ways that teachers might maximize opportunities to discuss pupils' compositions by connecting their choices with those of other compositions in a post-performance evaluative manner. Specific approaches toward facilitating the composition process and reflecting on student compositions are suggested and are founded upon the author's belief that the most successful way to help students improve their composing efforts is to help them think about their process.

Paynter, J. and Aston, P. (1970). Sound and silence: classroom projects in creative music, London: Cambridge University Press.

This book is a manual for teaching creative composition in the classroom, based on the method of empirical composition. A composition emerges from the exploration of materials improvisation. It is expected that these composition will grow in complexity over time. A progression through thirty-six organizing ideas for exploration is presented, which includes silence, word sounds, exploring pentatonic melody patterns, heterophony, and modes.

Peck, S. (1980). Anti-creativity: A consideration of the factors which inhibit creative process. Canadian Music Educator. 21(2), 25-28.

Peck discusses the opposing forces of creativity and the concept of non-growth. The focus is on the removal and understanding of anti-creative forces rather than on creativity. This is supported by Krippner's "Ten commandments" that block creativity.

Perkins, W. (1981). Enhancing music-compositional flexibility. Dissertation Abstracts International. 42 (05A), 1847. (Publication No. AAC8123534)

Author's Abstract: The purpose of this study is to present certain pedagogical techniques for enhancing flexibility of thinking applied to the task of writing music. The formation of pedagogical strategies was based upon ideas, derived from a review of the literature on creative thinking, which have been successful in enhancing flexibility in problem-solving tasks in a wide variety of applications outside of the field of music. An experimental class was constructed for the purpose of evaluating the effectiveness of such instruction and its possible role in undergraduate music programs. The highly significant improvements found in the students' attitudes toward the field of composition and toward their ability to compose were probably an indication that the instruction was effective in ways which were not separately measured.

Petree, K. (1994) Tapping students creativity. Clavier, 33, (1), 16-18.

The author, an independent piano instructor, encourages teachers of piano to get beyond learning notes during instruction and delve more into students' creative thinking. Specific examples using many facets of music (dynamics, rhythm, text movement, timbre, articulation) provide activities which can enable creative thinking during piano performance. The article contains practiced instructional examples hoping to encourage imaginative instruction.

Pfeil, C. (1972). Creativity as an instructional mode for introducing music to non-music majors at the college level. Dissertation Abstracts International. 33 (5), 2415A. (University Microfilms No. 72-30028)

This study emphasized the creative involvement of students by (1) "doing" and allowing for independence of judgment, and by (2) emphasizing present experiences rather than abstractions. The evaluation is based on test scores from a specially designed graphics-based measure using factors of ideational fluency and flexibility as scoring factors. Groups included a traditional music appreciation class and a class in which creative thinking was encouraged. In this creative thinking class, the author experimented with several techniques, including brainstorming and non-traditional notation. Though the study does not claim that the creativity class increases creative ability, it does have some persuasive data on how students view the creative potential of music.

Pilsbury, C. & Alston, P. (1996). Too fine a net to catch the fish? An investigation of the assessment of composition in GCSE music. British Journal of Music Education, 1996 (13), 243-258.

Assessment of musical composition in the General Certificate of Secondary Education (GCSE) was studied. Criteria and marking system included that of a 'typical' examining board. The moderating procedure was found to be of little help in removing discrepancies between awarded marks. Statistical analysis of similarities and differences between assessors included an Analysis of Variance Test, a Multiple Range Test, a Least Significant Difference (LCD), and a Duncan Test of the final marks. Scores were scaled to the mean of the scores and the standard deviation and interquartile range were then recalculated. Findings included a wide variation in the marks awarded to all candidates, folios receiving marks near the mean tended to show greater variance, folios receiving marks away from the mean tended to show less variance, and it appeared some assessors may have used some of their own criteria in forming judgments.

Plude, P. (1996). Creative musical training: Learning from the inside out. American Music Teacher (October/November), 12-15.

The author suggests that students need to be given time and opportunities to discover musical elements through experimentation. Mastery of the gained knowledge must be developed through "perseverance and creativity" in teaching strategies. Creative application through activities such as improvisation and composition is the third step of the three step creative process presented in this article.

Plummeridge, C. (1980). Creativity and music education, - the need for further clarification. Psychology of Music, 8 (1), 34-40.

Plummeridge presented a dense summary of the various approaches to creativity. He discussed both "traditional" and "new" ideas, but was unable to come to any solid conclusions about the true nature of creativity. He did, however, point out that the issue definitely cannot be one of product vs. process, since the two are essentially intertwined. His main intention in writing the article was to stimulate further questioning on the part of the reader and to confirm the genuine need to continue to explore this area in greater depth.

Pogonowski, L. (1989). Metacognition: A Dimension of Musical Thinking. In Boardman, E. (Ed.). Dimensions of Musical Thinking. Reston, VA: Music Educators National Conference.

Metacognition in the study of music is seen as involving the skills associated with individual awareness and personal thinking, where students regard themselves as designers of their own learning. Metacognition is described as involving knowledge and control of self, as well as knowledge and control of process, which includes evaluating, planning, and regulating. Creative strategies are those which invite students to pose or solve a problem. The author advocates the use of a tape recorder for recording and playback during performing and creative activities. A process oriented, experiential, and generative music curriculum is advocated.

Pogonowski, L. (1983). The anatomy of a creative music strategy. Soundings. 3(1), 1-6.

By capitalizing on the natural curiosity of the human being, it is possible to design a music teaching strategy that sparks this curiosity and provides incentive to investigate the processes involved in music making. This teaching strategy is called a creative music strategy. By employing this type of strategy, students' musical ideas can have a chance to evolve during interaction with each other and the teacher. This method allows the student to exercise choices as they develop musical ideas, thus the student is learning musical problem solving skills as well as creative musical behavior. The strategy is a long term process and contains progressive stages that are experienced by the class as a whole. The stages outlined in this article include establishment of an aural frame of reference, individual and guided exploration, exploratory and planned improvisation, and re-application of the skills learned in these activities to a new setting.

Pogonowski, L. (1985). Attitude assessment of upper elementary students in a process-oriented music curriculum. Journal of Research in Music Education. 33(4), 247-257.

The purpose of this study was to investigate whether the attitude of students in a *Process-Oriented Music Curriculum (POMC)* differed due to gender, grade, socio-economic status, and music aptitude. The overall goal of the *POMC* is the involvement of students in learning music with the processes that most musicians associate with creative musical behavior. The *POMC* is experiential in nature and students assume the roles of composer, conductor, listener and performer. The sample (N=411) was selected from intact fourth-, fifth-, and sixth grade classes in three different elementary schools where a *POMC* had been used for at least 2 years. The *Music Class Attitude Index* and the melody and rhythm subtests of the *Music Aptitude Profile* were used to collect data. The findings of the study were: 1. Classroom music attitudes vary as a function of grade, SES, and gender. 2. Classroom music attitudes and musical aptitudes are unrelated to each other. 3. Students' global attitudes toward music class and their attitude towards music activities are related, and 4. Classroom music attitudes are not strongly influenced by participation in performing groups or private instruction.

Pogonowski, L. (1987). Developing skills in critical thinking and problem solving. Music Educators Journal. 73 (6), 37-41.

This article explores the development of critical thinking skills by problem-solving strategies. The notion of "higher

order” thinking is discussed. Definitions of “critical thinking” are reviewed. Some examples from the general music setting are given.

Pogonowski, L. (1988). Bridging the gap from the podium to the general music class using concert percussion. In: Music in the High School. Washington, D. C.: MENC, 55-63.

This article provides an approach for teaching music to high school general music students. It allows the student to be actively involved and socially interactive in the classroom by performing, composing, improvising, conducting and evaluating music. Concert percussion instruments are used because of their accessibility and easy of use by those not able to read music. Specific strategies for implementation are included.

Pogonowski, L. (2001). A personal retrospective on the MMCP. Music Educators Journal, 88 (1), 24 - 27.

This article reflects on the innovative initiatives which emerged from the Manhattenville Music Curriculum Project of the 1960's in relationship to current curriculum theory. Two intentions emerged from MMCP which began in 1966. First, to identify the general principles by which students could gain a sense of making music without extensive skill development. Secondly, to provide a curriculum framework that remained stable, yet responsible to the changing nature of music and to the society in which music exists. The creative thinking process was the essence of MMCP, as they sought to center the classroom's purpose on ensuring that students became personally involved with and gain an understanding of music as result of their active involvement. Current curriculum theories are consistent with the initiatives of MMCP. Yet, comprehensive music curriculums continue to exist in only a minority of classrooms in this millennium.

Pond, D. (1980). The young child's playful world of sound. Music Educators Journal. 66 (7), 39-41.

Pond identified the questions which motivated his work as a participant observer conducting research about young children's improvisation in a naturalistic setting. Summaries of findings based upon his anecdotal notes are provided, focusing upon the ways in which children explore sound, the nature of children's chant and song, their rhythmic inventiveness, the apprehension of form, and the social nature of improvisation. Implications for future research are also indicated.

Pond, D. (1981). A composer's study of young children's innate musicality. Council for Research in Music Education Bulletin. (68), 1-12. (also see Moorehead, G. & Pond, D.)

This ethnographic study was based on the hypothesis that children possess musicality innately, that this musicality contains its own characteristics and is structured by its own nature, and that this musicality is naturally rooted in the young child's being. Pond undertook a naturalistic observation of young children involved in music making activities at the Pillsbury School in the 1940's. Results showed that young children have an innate understanding of formal procedures when sounds are being structured, improvisation is the "heart of the matter" in the development of this innate musicality, and that harmonic organization of music is completely alien to young children. Descriptions of the types of behaviors are included in this article.

Pressing, J. (1988) Improvisation: methods and models. In J. Sloboda (ed.), Generative Processes in Music: The Psychology of Performance, Improvisation and Composition. (pp. 129-178), New York: Oxford.

Improvisation is seen as a mental process utilizing intuition, memory and decision-making skills which is combined with the physical, motor processes that bring it to fruition through performance. The article includes a brief examination of some relevant neurological and physiological theories to aid in the explanation of his model. Five methods of teaching improvisation from around the world are surveyed. A comparison with the oral tradition of epic poetry as far as a means of formulaic composition is made and it is pointed out that the process is the significant element. A discussion of the cognitive process and artificial intelligence draws upon the reductionist way of thinking in that an improvisation can be broken down into a number of smaller steps that could be handled by general problem solving techniques. In his formula for improvisation, a number of events are grouped into events clusters from which the improvisation is formed. The article provides numerous graphic illustrations of these points.

Prevail, M. (1976). Helping children build their own music. In Callow, F. (Editor). Challenges in Music Education. Perth, Australia: Department of Music, University of Western Australia.

This article describes the author's research on children's composition and the developmental stages that can be found in young children's compositions. Initially, the child composes with a great deal of motor energy, and control of gestures is achieved very early in the age of the child. Once control is gained the child begins to show the beginnings of a formal consciousness through the use of dynamics, rhythmic patterns, accent. Repetition and contrast in identifiable sections develops into an easily recognized A-B-A form. At this stage in development, auditory awareness and emotional involvement are the next essential elements that must be present if the development of a musical consciousness is to take place. At this point, it is often necessary for the teacher to intervene and provide means of

including these elements in the child's compositional process. One way to accomplish this type of intervention is to ask the child to compose a second contrapuntal theme for the original composition. Another way is to suggest possible subjects as the basis for the composition. Subjects used for this purpose should include the aspects of life with which the child is most likely to be familiar.

Prevail, M. (1979). Emergent patterning in children's musical improvisations. *Canadian Music Educator*, 15, 13-15.

Sound "scribbling" is defined as the young child's play with sound and is analogous with the young child's graphic scribbling. This article is concerned with the development of a music pedagogy based on the child's sound "scribbling." In this new approach to music education the musical instrument would be viewed as a vehicle for self-expression rather than an object for skill development. In two separate experiments, children were given the opportunity to explore with graphics and with sound. In the first experiment, it was discovered that initially children preferred sound exploration to graphic exploration, but with time graphic exploration was engaged in more often as the child preferred the concrete product that results from graphic scribbling. In the second experiment, a tape recorder was provided for the recording of the sound exploration. The results showed that children engaged in both types of exploration on a fairly equal basis. The compositions of the child reflect the stage of mental, physical and emotional development that the child has achieved.

Priest, T. (2001). Using creative assessment experience to nurture and predict compositional creativity. *Journal of Research in Music Education*, 49 (3), 245-257.

This study examined students' assessments of musical creativity in relation to their ability to function creatively as composers. Compositions collected from 54 non-music majors enrolled in music fundamentals classes were used as a measure of compositional creativity. The researcher utilized both Creativity and Craftsmanship Assessments (CCA) completed by the students and Amabile's Consensual Musical Creativity Assessment (CMCA) completed by 8 independent judges and used the results of these assessments to categorize differences between high-, middle-, and low-creativity groups. The author's findings suggest, "students in the high-creativity group were more likely to cite temporal factors as contributing creativity and craftsmanship than were students in the middle- or low-creativity groups ($p < .01$); students in the low- and middle-creativity groups were more likely to use metaphors than were students in the high-creativity group ($p < .05$)."

Priest, T. (2006). Self-evaluation, creativity, and musical achievement. *Psychology of Music*, 34 (1), 47-61.

This study investigates the relationship between self-assessment of musical compositions and expert's assessments of the same works. The study begins with a discussion of intrinsic and extrinsic motivation, stating that students who are intrinsically motivated often yield much more creative products. Fifty-four undergraduates composed three compositions for the solo soprano recorder. The pieces were then assessed by the student in areas of creativity and craftsmanship. The third composition was then used to measure each student's creativity by eight independent judges. There was no statistically significant correlation between the judge's evaluations and the student's. More creative composers from the group of students commented on experimentation and were highly optimistic, while students who were less compositionally creative exhibited little intrinsic motivation.

Priest, T. (2006). The reliability of three groups of judges' assessments of creativity under three conditions. *Bulletin of the Council for Research in Music Education*, 167, 47-60.

The purpose of this study was to examine the reliability of judges' assessments of compositions under three conditions: only using audio recordings, only using traditional notation, and using both simultaneously. 47 undergraduates were assigned to compose a piece for soprano recorder using a teacher-generated grid for criteria. 5 compositions were selected based on criteria completion, diverse response to the assignment, and good performance of the work. After completing the Creativity and Craftsmanship Assessment, 21 undergraduates were asked to rate the selected compositions based on creativity and craftsmanship. Music teachers completed the Consensual Musical Creativity Assessment and were randomly assigned to one of three treatment conditions. Similar to the undergraduates, the teachers were asked to rate the compositions based on creativity and craftsmanship. Reliability analyses were calculated for creativity and craftsmanship, as well as for expressiveness, personal preference, rhythmic interest, and melodic interest. Results found that all groups agreed on the most creative composition, with discrepancies in the subsequent rankings. In reliability testing, the judges were most reliable when provided with only the audio recording, less reliable with both the score and audio recording, and least reliable with only the score. This test supports the consensual assessment technique as a moderately reliable tool for measuring creativity in different situations.

Prieto, R. (2002). Creativity and its origin in music improvisation. In Sullivan, T., Willingham, L. (Eds). Creativity and music education. (pp. 110-115). Edmonton, AB Canada: Canadian Music Educators' Association.

Prieto's article begins with a brief overview of creativity as it relates to music education and agrees that creativity is teachable and for this reason it is assessable. Also included, there are some practical applications of teaching creativity through improvisation and additionally some thoughts on assessment. Prieto concludes that improvisation is a good way to begin the composition process and that music educators should concentrate on this process, rather than on the results to assess the students' progress.

Racana, A. (1991). Creativity, Computers, and Music: Promoting Creativity in the Fourth and Fifth Grade Students. Unpublished Masters Thesis, San Francisco State University, California.

This study showed the influence of a computer-based music program on students' creative thinking skills. Fourth and fifth grade students were given ten weekly computer-based lessons using the MICROSHAPES (Apple Digs) program as the framework. The students were pre- and post-tested using Webster's MCTM. The conclusions showed that students who took part in the study were excited about their new compositions and gained creative thinking skills.

Ream, D. (1986) Developing critical thinking through rehearsal techniques. Music Educators Journal, 72 (7) 29-31.

This article offers many practical suggestions for encouraging critical thinking in the rehearsal. The author discusses questioning techniques that create divergent thinking.

Reese, S. (2001). Tools for thinking in sound. Music Educators Journal, 88 (1), 42-46, 53

As the title suggests, this article is about using technology as a powerful tool for teaching students to compose and improvise music. It includes strategies for teaching improvisation and composition, some of which do not require computer technology. These strategies are appropriate for a wide variety of teaching situations. This article also contains a brief list of software tools for using improvisation and composition, as well as suggestions for implementing technology in a variety of classroom settings—from one computer for an entire class to a dedicated music technology lab. This article is very helpful for music educators.

Reese, S. (2001). Tools for thinking in sound. Music Educators' Journal, 88 (1), 42-46, 53.

This article advocates for the use of technology in teaching composition and improvisation as well as offering practical advice for doing so. The author defines and gives examples of "creativity tools and "MIDI tools" and offers suggestions for their use in the music classroom. The author also suggests several strategies for specific technological resources. For example, involving the whole class in a project when there is only one workstation available, using just a handful of workstations as one of many "music stations" in the rooms, and leading the class with a teacher workstation when in a full lab.

Reese, S. (1994). Music technology: Tools for extending and sharing minds. American Music Teacher, 43 (6), 12-15

This article illustrates the relationship between psychological concepts and computer programs. Specifically, the connection of Behaviorism to drill and practice software and Constructivism to interactive multimedia or hypermedia. He then begins to explore technology in terms of teaching, future technologies, and technology intergration. Two vignettes are also included in to illustrate some of these concepts as they apply to creative teaching situations.

Reese, S. (2003). Responding to student compositions. In M. Hickey (Ed), *Why and how to teach music composition: a new horizon for music education* (pp 211-232). Virginia: MENC: The National Association for Music Education.

This article informs and guides teacher educators and neophyte teachers of music composition on how to respond appropriately and effectively to student's original works. It proposes strategies and skills to successfully teach music composition and discusses the challenges of teaching and incorporating composition into the curriculum. A large portion of the document focuses on the analysis of teacher's responses to student's work and suggests constructive ways to give feedback. The last section of the article offers advice to teacher educators on how to help neophyte teacher s give constructive and meaningful criticism.

Regelski, T. (1986a). Concept-learning and action learning in music education. British Journal of Music Education, 3 (2), 185-216

Regelski discusses the differences between activities (which he defines as preliminary short term experiences with concepts) and action learning. Activities lead to generalizing abstraction; action learning leads to individualizing abstraction. Action learning stresses the process; activities stress the product. Action learning, however, does not separate the process from the product the way activities often do. "Also, in distinction to the 'activities approach' paradigm where a teacher *teaches* an activity, the Action Learning teacher *uses* an activity. The activity, then, provides

the occasion for the learner to experiment with this or that musical hypothesis in solving a musical problem that has evoked that learner's intentionality." (p.201) Regelski then distinguishes between meanings and definitions. Definitions are linguistic and must be commonly agreed upon. Meanings "arise from the sum of all experiences and thus the personal relevance a person associates with a word. Individualizing abstraction. . . 'makes sense' of and derives meaning from experience" (p.209) and this leads to aesthetic experience. Regelski then lists ten areas for these experiences to occur as opposed to the traditional concept areas of music education and suggests that involvement with them leads to unique personalized, self-actualized experiences significant for the individual. Creativity for Regelski has at its center an "unwillingness to accept the conventional and familiar as desirable or sufficient." (p.214) This must go hand in hand with "the ability to sustain a certain degree of doubt when daring to venture into the creative unknown." (p.214)

Regelski, T. (1981). Teaching General Music: Action Learning for Middle and Secondary Schools. New York: Schirmer Books

Written as a textbook, this volume supports a theory of action learning. Regelski stresses that "knowing and learning are actions whereby the mind reaches out and acts on the music with or on what has come to be known" (p. 16). Supporting this theory, Regelski offers a view of creativity which is equated with problem-solving and decision making; he does not claim that the activities included will develop the students' creativity, but that it will have significant results for students' understanding and appreciation of music. Regelski additionally offers a list of ten advantages of creative activities: 1) involves personal action, 2) adjusts to varied abilities, 3) permits multiple results, 4) encourages discovery and problem-solving, 5) encourages discovery of relationships between past and present experiences, 6) integrates learning into life, 7) synthesizes all aspects of music learning, 8) prepares students to understand music of the future, 9) facilitates tangible evidence for teacher evaluation, and 10) nurtures individual artistic creativity.

Regelski, T. (1986b). A sound approach to sound composition. Music Educators Journal, 72 (9), 41-45.

Sound compositions are compositions using sounds not often classified as music since these sounds are usually generated by non-traditional instruments. These sounds are organized and arranged by the formal purposes and expressive qualities that are considered a part of music. This article contains a rationale for including sound composition activities in a music curriculum and concrete suggestions as to the implementation of these activities. Models of action learning, activities approach, and problem solving skills in music are given.

Reichling, M. (1990). Images of imagination. Journal of Research in Music Education, 38 (4), 282-293.

The author's abstract provides a definition of imagination as a "power of whole of human consciousness that employs intuition, perception, thinking and feeling. A definition for each of the four facets is suggested and explored. These facets are then combined in various ways leading to the tentative formulating of three types of imagination...A developmental sequence is implied based on research in aesthetic and cognitive developmental theory. Suggestions for the cultivation of imagination through music are offered along with implications for further research."

Reichling, M. (1992). Imagination and musical understanding: A theoretical perspective with implications for music education. The Quarterly Journal of Music Teaching and Learning, 3 (4), 20-31.

The author's intent is that of stimulating exploration concerning the relationship between imagination and music by showing that imagination is essential to understanding the musical symbol; music, in turn, cultivates imagination. In this process, imagination effects several epistemological continuities: linguistic and musical; ambiguity and certitude; literal and figurative; intuitive and reasoned; thinking and feeling; theory and practice, and social and individual. Imagination is central to both music making and study about music.

Reid, S. (2002). Creativity: a fundamental need of adolescent learners. In Sullivan, T. & Willingham, L. (Eds.), Creativity and music education (pp. 100-109). Edmonton, AB: Canadian Music Educator's Association.

Reid believes every child should be taught to create. Regardless of barriers to creativity, students flourish in an environment that values creativity. The author provides several methods to start teaching creativity in music education. Performance and creative decision, journals, and fooling around are suggested as methods for continuing creativity in the classroom.

Reinhardt, D. (1990). Preschool children's use of rhythm in improvisation. Contributions to Music Education, 17, 7-19.

This study sought to describe the rhythmic elements and to determine age related differences of these elements in improvisations by three, four, and five year old children. Children (n=105) from three contrasting settings improvised individually on a xylophone. Improvisations were analyzed for use of steady beat, meter, note duration, and rhythm

patterns. Results demonstrate that all children were able to maintain a steady beat and meter while the use of different note durations and rhythm patterns increased with age.

Rhodes, E. (1971). A comparative study of selected contemporary theories of creativity with reference to music education in the secondary schools. Dissertation Abstracts International. 31 (9), 5610B. (University Microfilms No. 71-06602)

Citing the need for an interdisciplinary-comparative dissertation concerning creativity and music education, the author explored the relationships between and implications of noted philosophers, psychologists, and musicians on the subject of creative thinking and behavior. Several comparative summaries are offered, organized around "person", "process" and "education". No overall theory is given. There was substantial agreement that creative thinking is a rational process, is expressed in some material result, has stages, and involves both conscious and non-conscious mental activity.

Richan, A. (1992) Being Creative. American String Teacher, 42 (4), 56-57.

The author describes creative teaching strategies in an economically depressed environment. The specific challenges include teaching at a free summer cultural arts school in Chester, Pa.—one of the poorest cities of its size. Chester is suffocating under the weight of unemployment, crime, politics, drugs, and in many ways seems hopeless. The author calls for inventive strategies in teaching music to students in this environment.

Richardson, C. (1983). Creativity research in music education: a review. Council for Research in Music Education Bulletin. (74), 1-21.

The purpose of the article was to review literature related to creativity research written between 1962 and 1979. Introductory sections provide an historical perspective dating back to 1922 and include descriptions of work by Guilford and Torrance in the development of empirical measures of creativity. Sections directly related to music education focus on non-empirical philosophical and analytic research, measures of the effects of music instruction, using non-musical measures of creativity, and more recent attempts to develop musical measures of creativity.

Richardson, C., & Atterbury, B. (1995). The experience of teaching general music. New York: McGraw-Hill.

Chapter nine, "Experiencing Music Through Composing: Primary and Intermediate" stresses the importance of creativity in the general music classroom. Creative and composing activities help children's musical thinking and problem solving, allowing children a different way to become musical. The authors discuss different approaches to composition, from poem and sound stories to building particular forms. Sample lesson plans included.

Riley, P.E. (2006). Including composition in middle school band: effects on achievement, performance, and attitude. Update – Applications of Research in Music Education, 25(1), 28-38.

Two approaches to music instruction were introduced both including music performance and listening. One classroom left the instruction to these methods, the other introduced composition as well. Researchers gave a pre and post-test in music achievement. There were significant gains from pre-test to post-test in achievement in both groups specifically in pitch discrimination, meter discrimination, and major-minor mode discrimination. There was no statistically significant gains between the groups.

Riposo, J. (1989). Improving improvisation through understanding hemisphericity. Jazz Educators Journal. 21 (2), 28-30.

This article describes the functions of the brain hemispheres, and gives examples of right and left brain processes. The author suggests that while most teaching centers on left-brain analytical elements, the right brain and transfer of information between hemispheres must be exercised as well. It is this mental shift that allows use of the whole brain for improvisation. The author gives specific teaching techniques for encouraging right-brain activity.

Ristad, E. (1982). A Soprano On Her Head: Right-side-up Reflections of Life and other Performances. Moad, Utah: Real People Press.

This book challenges traditional music teaching by giving new insights for dealing with problems in music performance: gaining control by letting go, achieving excellence by not trying, practicing through imagery and learning by simple awareness. The author takes the reader through an adventure in attaining the kind of inner freedom everyone longs for by unlocking and freeing the creative process. When one finds the inner wisdom, there is a center in which to speak, sing, dance, make music and to live. The author's reflections are specifically about music, although her experiments and observations have to do with life itself.

Roderick, J. (1965). An investigation of selected factors of the creative thinking ability of music majors in a teacher training program. Dissertation Abstracts International. 26 (1), 409. (University Microfilms No. 65-07156)

The purposes of this study were to (1) examine the relationships among creative thinking ability, musical ability, and

general scholastic ability as measured by selected tests of music majors in a teacher training program; (2) compare creative thinking ability of music majors with students in other fields; and (3) assess the effect of one academic year of music courses on the competency of music majors to think creatively. A variety of standardized tests were used and Pearson-Product Correlation and ANOVA tests were utilized to study characteristics of the various groups. The results indicated that there were no significant relationships between general creative thinking scores and music theory grades and that academic course work in music did not effect creative thinking ability.

Rohwer, D. A. (1997). The challenges of teaching and assessing creative activities. Update, 15 (2), 8-12.

The author explored research for and against assessment, and described effective methods of assessment and their use. Rohwer concluded that if used improperly, assessments can stifle creativity and inhibit student abilities. However, appropriate assessments provide feedback that encourages creativity and inspires students to higher achievement. Effective assessments tools include checklists, rating scales, peer oral and written responses, teacher oral and written responses, evaluation forms completed by students, peers or teachers, and performance or presentation of student work. Involving the student in self-evaluation is the most important element of assessment.

Ronnefeld, M. (1984). Children's Aesthetic Creativity: An Indispensable Dimension in Human Society. International Society for Music Education, 11, 163-170. (Papers from the XVIth International Conference in Eugene, Oregon).

"The aesthetic, creative action is man's distinctive dialogue with the ego and the world. It is the life blood of the human society. It determines and confirms man's humaneness." (p. 170) The author discusses creativity as an aesthetic activity and stresses the idea that aesthetic creativity comes from within, but is influenced by society and man's environment.

Rooke, J. (1989). Constructive creations. Music Teacher, 68 (2), 19-21.

The author pursued the use of composition and improvisation in conjunction with theory and technical work for 87 of her own violin pupils. The benefits to the students and teacher were found to outweigh the extra time and effort involved in implementing the program. Applications and benefits of student composition are listed in detail. A model of pupils' musical development as enhanced by composition is included.

Rooke, M. (1991). Constructive creations. British Journal of Music Education, 8 (3), 219-244.

The author discusses the current state of violin teaching in England, sets about the task of interviewing both violin students and teachers, identifies areas that are in need of modification, and then attempts to improve these perceived weaknesses. She interviews pupils from age 10 through 18, and arrives at the conclusion that the regular routine needs to be changed. The basic approach to attempting to solve weaknesses and to stimulate interest centers around the use of improvisation and composition. Examples are shown, as are charts and graphs.

Rudaitis, C. (1994). Your Band Can Compose, Too. Teaching Music, 2 (3), 28-31.

Interviews with several public school music educators who employed composition as an experiment in their classroom that developed into successful projects for their students. Various models were introduced varying from student-generated theme and variations to hiring a composer to lead students in a group assignment to generating a group composition. Teachers listed among the benefits a heightened awareness of style and fundamentals, stimulation of creative thinking, and awareness of the composer's role and responsibilities.

Rummler, R. (1973). Direct involvement through contemporary composition. Music Educators Journal, 60 (4), 22-25.

The author developed a model of the levels of involvement with music. Operating with the belief that the most rewarding musical experience is that of creating and performing one's own compositions, the author described, developed and implemented a course of music education using twelve-tone composition. The final result was that the students achieved the behavioral objectives of the course with enthusiasm and interest.

Ruthmann, S. A. (2007). Strategies for supporting music learning through online collaborative technologies. In J. Finney & P. Burnard (Eds.), *Music education with digital technology* (pp. 131-141). London, England: Continuum.

The author points out a number of tools for collaborative internet-based musical activities for the secondary schools. Blogs, podcasts, and wikis are defined and several examples of music education projects that utilize such tools are provided (including detailed screen-shots) with a focus on collaborative composition projects (bar a few examples for performance-based settings). The author emphasizes the "democratization" that such collaborative tools enable within music education frames. Finally, the article contains recommendations for key software products and internet websites that are relevant for the described projects.

Ruthmann, S.A. (2008). Whose agency matters: Negotiating pedagogical and creative intent during composing experiences. *Research Studies in Music Education*. 30, 43-58.

This qualitative study focused on the interactions between one teacher and her general music class, taught in a musical technology classroom, over a period of ten weeks. The class contained sixteen 10-11 year olds and met every school day for the 10 week period. Data was collected through observations, interviews, collection of artifacts, and focus groups. The researcher then chose to further focus on the interactions between the teacher and one student as she composed a short soundtrack to accompany a movie clip. Findings for this study showed that the most important thing that teachers need to consider when providing feedback on compositional work is student intent.

Salaman, W. (1988). Objectives and the teaching of composition. *British Journal of Music Education*. 5 (1), 3-20.

The author discussed objectives in terms of student outcomes rather than teacher behaviors, and made suggestions for their implementation in the teaching of composition. Ideas such as parameters vs freedom, worthiness of objectives, and assessment of the quality of the finished product were discussed. Two 15-year-old students were instructed in composition through analysis of compositional devices in existing tunes, which led to the use of certain techniques in student compositions, followed by teacher assessment. It was recommended that one consider process (musical development) as well as product in evaluating student work.

Salaman, W. (2008). Reflections on progress in musical education. *British Journal of Music Education*, 25(3), 237-243.

In a philosophical contribution in his role as a past editor of this journal, the author equated the term *music-making* to encompass both music performance and composition, and posed a question as to whether music-making can be effectively assessed. He discussed the current prominence of criterion-referenced assessment of student creativity as being similar to other forms of examinations and evaluations. The author laments these forms of measuring student compositional efforts, and proposes that assessment be aimed towards what students are aiming to achieve in their creative output, not what they “should” achieve according to any pre-prescribed criteria. The author feels the function of assessment in this content area is to enrich and support student creativity.

Sanders, S.; Tedford, W.; & Hardy, B. (1977). Effects of musical stimuli on creativity. *Psychological Record*. 27 (2), 463-4371.

This study involved an experiment in which three standard measures of creativity (Holtzman Inkblot Test, Barron-Welsh Art Scale, and the Guilford Alternate Uses) were administered to a group of college age students with the idea that music stimuli would increase creativity. Recruiting was done either by volunteering or by coercion (a course requirement). Four types of musical stimuli were given to groups: MUZAK, classical, modern and no music. The ANOVA data showed little difference for the main effects of type of music, sex or type of involvement across the 3 measures. It was shown that volunteers tended to score higher on all 3 tests.

Savage, J. (2005). Working towards a theory of music technologies in the classroom: How pupils engage with and organize sounds with new technologies. *British Journal of Music Education*. 22(2) p. 167-180). Cambridge: Cambridge University Press.

Savage takes a critical look at the Information and Communication Technologies (ICT) Revolution that has advanced pedagogy in recent years. The article hopes to engage a discourse concerning music learning (primarily composition) through ICT by presenting a comparative analysis between three case studies. It is noted that ICT media increased students' exploratory drive and made them better aware of sounds in their environments as well as idiosyncrasies in sound modulations. Also, an open-ended appraisal system found students' learning curve less stifled than if negative objective views had been placed on the students' compositions.

Savage, J. & Challis, M. (2001). Dunwich revisited: collaborative composition and performance with new technologies. *British Journal of Music Education*, 18 (2), 139-149.

This qualitative study describes an electro-acoustical composition project run the Debenham CEVC High School. An earlier composition by Mike Challis about the town of Dunwhich was used as a starting point both in terms of form and content. Students worked on school wide, classroom, and individual levels to compile and select sonic material for this composition, which was facilitated by the use of technology. The authors reported a successful blend of teacher-imposed structure and student imagination and autonomy in this composition project.

Sawyer, R. K. (2006). Group creativity: Musical performance and collaboration. *Psychology of Music* 34(2), 148-165.

The author identifies three characteristics of group creativity: improvisation, collaboration and emergence. These characteristics are demonstrated in examples from music and theatre. Structure and improvisation are present in all

group creativity. Music educators should provide similar structure and opportunities for improvisation for their students' through group interactions in musical communities of practice.

Sawyer, R. K. (2008). Learning from music collaboration. *International Journal of Educational Research*, 47, 50-59.

Sawyer builds on research in social psychology and ethnographic research to create a model of the collaboration that happens within improvising ensembles. He refers to the developing improvised idea as the *emergent*. Using the interactions of jazz ensembles and improvisation theatre groups, Sawyer defines improvisation as containing four interactional forces: (1) the initial performer who utters the first emergent; (2) the other participants in the ensemble; (3) the constraints of the performance genre; and (4) the constraining forces operating in the emergent. The goal then is to create a balanced response, one that is novel in its utterance, but one that also honors the interactional forces (or constraints) working within the music. This balance is essential, and Sawyer goes on to suggest that music educators need work on providing students with performance opportunities built on scaffolds of knowledge while allowing for freedom of expression. Finally, Sawyer also addresses the need for group collaborative learning to build creative thinking.

Schafer, R. (1979). *Creative Music Education*. New York: Schirmer.

This book was originally published as five separate booklets: The Composer in the Classroom, Ear Cleaning, The New Soundscape, When Words Sing, and The Rhinoceros in the Classroom. The author, a Canadian composer, describes some dialogs that he has held with high school students, elementary students, and first-year university students. Examples of music lessons covering the topics of noise, silence, tone, timbre, texture, etc. are included. Original notation of songs is included. The author stresses three objectives in music making: (1) try to discover whatever creative potential children may have for making music of their own, (2) introduce students of all ages to the sounds of the environment, and make critical judgments, and (3) discover a gathering place where all arts may meet and develop together harmoniously.

Schmidt, C. & Sinor, J. (1986). An investigation of the relationships among music audiation, musical creativity, and cognitive style. *Journal of Research in Music Education*, 34 (3), 160-172.

The purpose of this study was the investigation of the relationship between the cognitive style dimension of reflection/impulsivity and achievement on both convergent and divergent musical tasks. The effect of gender and its interaction with the cognitive style variable was also examined. A random sample of second grade students was screened for reflection/impulsivity cognitive style by the measure *Matching Familiar Figures Test*. The resulting sample (N=34) was measured for music audiation by the *Primary Measures of Music Audiation (PMMA)* and for musical creativity by the *Measure of Creative Thinking in Music (MCTM)*. Results showed a significant relationship between reflection/impulsivity cognitive style and the Rhythm score of the *PMMA* and the *MCTM*. *PMMA* Rhythm was significantly related to two dimensions of the *MCTM* and there was a significant difference for gender on 3 of the 4 dimensions of the *MCTM*. The conclusion is that the cognitive style reflection/impulsivity has a close association with music achievements tasks but is not related to the performance of divergent thinking tasks.

Scripp, L., Meyaard, J. and Davidson, L. (1988). Discerning musical development: Using computers to discover what we know. *Journal of Aesthetic Education*, 22, (1) 75-88.

This study focused on the musical development of untrained adults and children. It used computers as a tool to research an area that has previously been unexamined because of the lack of adequate measuring tools. The use of computers allowed the study groups to compose their own accompaniment to a familiar song. The study also compared the compositions of the untrained adults with those of trained musicians. Results are given for both the process and product of the compositions.

Seddon, F. (2005). Modes of communication during jazz improvisation. *British Journal of Music Education*, 22 (1), 47-61.

This study analyzed verbal and non-verbal communication during rehearsal and performance of a small jazz ensemble. Three modes of communication were categorized as: instruction, cooperation, and collaboration. Empathetic attunement and empathetic creativity, which are based on the author's concept of empathetic intelligence, were a focus of the study. Implications for music educators lie in the potential evaluation process that could be transferable to other forms of music education that examine individual contribution to group creative performances.

Seddon, F. A. (2006). Collaborative computer-mediated music composition in cyberspace. *British Journal of Music Education*, 23(3), 273-283.

This study examines the communication processes and collaborative strategies used for computer based compositions by dyads with varying degrees of prior musical instruction. Four dyads participated in the study. Dyad one had two students (one from the UK and the other from Norway) with formal instrumental music tuition (FIMT), dyad two had

two students (one from the UK and the other from Norway) without FIMT, Dyad three had one student with FIMT from the UK and one student without FIMT from Norway, and Dyad four had one student with FIMT from Norway and one student without FIMT from the UK. The dyads participated in six composition sessions using a computer sequencing software and text communication. The compositions and the text dialogs were analyzed after the composition sessions. The results indicated that students with prior musical experience communicated with text and music more effectively, and they devised a collaborative composition strategy for their shared work. Less musical training within the group decreased evaluative comments and reduced collaborative vision and execution.

Seddon, F.A. & O'Neill, S.A. (2003). Creative thinking processes in adolescent computer-based composition: an analysis of strategies adopted and the influence of instrumental music training. *Music Education Research*, 5 (2): 125-137.

This study examined three questions dealing with compositional processes employed when adolescents completed a computer-based compositional task. Roughly half of the 48 research subjects, ages 13-14, had previously participated in some kind of Formal Instrumental Music Tuition (FIMT) other than keyboard lessons. The researchers were interested in the construction and use of different compositional strategies and whether FIMT had an impact on the strategies. After two 30 minute training sessions, the subjects were given three 30 minute time slots on three consecutive days to compose a computer-based piece. The entire process was recorded with on-screen video cards and midi files were saved after every session. The compositional process data was reviewed in context of the constant comparative method consisting of five stages. The stages, 1) immersion, 2) categorization, 3) phenomenological reduction, 4) triangulation, and 5) interpretation revealed that 12 different strategies were used in the compositional process by the 48 subjects. The meta-approaches of a) crafting, b) expressing, and c) immersing were also taken into consideration. The authors concluded that there were a number of different compositional strategies used, often by just one person. The subjects' work time was broken into an exploratory phase, rehearsal phase and construction phase as prior research suggests. These phases did not always happen in the same order and occurred in varied lengths of time. Students with FIMT often spent less time in the exploratory phase. Students with FIMT may have had skills that allowed them to compose away from the keyboard. Overall, the subjects with FIMT took less advantage of creative resources, perhaps because they felt limited to what they have been taught and could have been influenced by prior notions of what music should sound like.

Seddon, F.A. & O'Neill, S.A. (2003). Creative thinking processes in adolescent computer-based composition: an analysis of strategies adopted and the influence of instrumental music. *Music Education Research*, 5 (2), 125-137.

In this article Seddon and O'Neil share their results of a study they did with adolescent music students in the UK. Students with and without formal instrumental music tuition (FIMT) were asked to create and record a composition using MIDI keyboards and a computer. Students self-assessed, and self-evaluated themselves before and after they created the compositions. Additionally, music teachers and non-music teachers in two groups (blind and non-blind) listened to the student compositions and rated them on 'overall impression' and 'creativity and craftsmanship.' Results indicated there are no significant differences between compositions of adolescents with or without FIMT experience. Students rated their compositions higher than the teachers indicating that the students have a high self-perceived competence in computer-based composition without teacher intervention.

Shand, P.M. (2002). Creating music in the classroom. In Sullivan, T. & Willingham, L. (Eds.), *Creativity and music education* (116-127). Edmonton, AB: Canadian Music Educator's Association.

This chapter is an overview of the Canadian Creating Music in the Classroom (CMIC) program. It describes how composers worked with individuals and groups of elementary and secondary students to create music, both in person and via the internet. Students are shown to take a more active and creative role in their musical endeavors, as decision-makers and problem-solvers. Reactions of teachers, students, and artists are reported, and Shand discusses the benefits of the process over traditional music education. She concludes with suggestions for practitioners and for teacher education programs.

Shelly, S. (1981). Investigating the musical capabilities of young children. *Council for Research in Music Education Bulletin*, 68, 26-34.

Having observed that young children's own "natural" (i.e.: improvised) music sounds strange to adult ears, the author reviewed two research-related projects which reported observations of children's spontaneous music making (the Pillsbury Foundation School, 1937-1948, and the University of Maryland's Center for Young Children, N=30, 1978). Few studies of this topic have been carried out, most probably because of the difficulty in establishing a proper observational environment. Problems encountered with previous observational studies were delineated, along with suggestions for improvements, and implications for future research considered.

Sherman, R. (1971a). Creativity and the condition of knowing in music, Part 1. Music Educators Journal. 58 (2), 18-22.

See also: Sherman, R. (1971b). Creativity and the condition of knowing in music, Part 2. Music Educators Journal. 58 (3), 59-61.

See also: Sherman, R. (1971c). Creativity and the condition of knowing in music, Part 3. Music Educators Journal. 58 (4), 48-51.

This three-part series presented a case for creative thinking activities in the schools. A distinction is made between being "knowledgeable about" and "knowing" music. The former implies simply knowing about the facts that surround music. The latter involves knowing music by composing and performing. The author argues for a complete re-thinking of music education with creative activities as the central core. In the second article, the author insists that that gap between music in the schools and music in the concert halls must be closed. He argues for revision in the manner music theory is taught, both in the public schools and in colleges. Part three of the series offered some practical suggestions for improvement in music education and music theory instruction.

Silverman, M. (2008). A performer's creative processes: Implications for teaching and learning musical interpretation. *Music Education Research*, 10, 249-269.

Combining research strategies of narrative inquiry, case study, musical analysis, music criticism and music philosophy, the author spent six months with concert pianist Gregory Haimovsky as he learned and interpreted Chopin's Mazurka Op. 24, No. 4. Data collection included participant observations, semi-structured interviews, audio recordings, and journaling by author and participant. Silverman presents information about the biography of the participant and a description of the piece by Chopin selected for the study. The description of Haimovsky's learning and interpretation process is delineated, including the impact of his formal, informal, and intuitive knowledge. Interpretive decisions of specific sections are considered, and score examples are included. Implications for teaching and learning include the role of non-technical knowledge, the creation of self-efficacy in students, and a dialogic approach to interpretation, which is open to multiple interpretations.

Simmonds, R. (1988). An Experiment in the Assessment of Composition. British Journal of Music Education. 5 (1), 21-34.

This experiment was designed to test the reliability of small group consensus methods of assessing student compositions. Five varying styles of compositions were evaluated by eight groups of assessors in two slightly differing experimental runs. Criteria for judgement were given to the assessors, but were found only to modify their initial ratings of the pieces rather than to shape the evaluations themselves. The method of assessment was not found to be reliable, and the author speculates as to reasons for this outcome.

Simpson, D. (1970). The effect of selected musical studies on growth in general creative potential. Dissertation Abstracts International. 30 (2), 502A. (University Microfilms No. 699-13081).

This study investigated the effect of music study on general creative growth. The variables of type of music class, music aptitude, IQ, sex, and grade were also taken into consideration. Tests measuring 5 factors of general creativity were administered to 218 high school students in a pre-post test fashion. The control group did not receive music instruction, the experimental group did receive music instruction. Results showed that music studies can be conducive to growth in general creative potential, and certain courses in music are more likely to affect this growth. The order of effectiveness changed with the aspect of creative behavior that was being measured.

Sisk, D. (1989). Creativity: potential and progress. In C. P. Doane & J. W. Richmond (eds.).

Proceedings of the suncoast music education forum on creativity. University of South Florida.

Sisk provides a comprehensive review of the history and current state of the creativity literature. She discusses definitions of creativity (Torrance, Samples, Bruner, Koestler, Parnes, Maslow, Moustakas, Prince, Sagan, Hallman, and Guilford), stages of creativity (Wallas, Sinnott), theories of creativity (Rugg, Jung, Ghiselin), the importance of imagery, strategies for teaching creative behavior (Siske & Shallcross), conditions for constructive creativity (Rogers), tests of creativity (Torrance, Guilford, Wallach & Kogan, Getzels & Jackson, etc.), and models of creativity (Herrmann, Prince). Sisk also considers the question "Where do ideas come from?" (Osborne, Shallcross, Sisk, Bruner) and offers suggestions on increasing creativity (Sisk, Ghiselin).

Small, A. (1987) Music teaching and critical thinking: what do we need to know? Music Educators Journal. 74 (1), 46-49.

The article explores critical thinking in the classroom and rehearsal context by citing four qualities of critical thinking that can be applied to music teaching: (1) Defining the musical problem, (2) Identifying the "point", (3) Recognizing underlying assumptions, and (4) Detecting inconsistencies. Specific techniques are given as examples.

Smith, C. (1979). Techniques verses Creativity. *The Choral Journal*, 20 (3) , 13-14.

The concept of creativity in the music-making process and its application to choral music was discussed. Often the creative aspects of the music learning process have been overlooked for more technical, tangible goals, such as achieving superior ratings at contests. The author challenged choral educators to re-evaluate their thinking in terms of striving for a deeper dimension of learning and creativity in choral rehearsals.

Soderman, J. & Folkestad, G. (2004). How hip-hop musicians learn: strategies in informal creative music making. *Music Education Research*. 6(3) 313-326.

Soderman and Folkestad investigate the informal creative processes of hip-hop musicians through the observation and interview of the case studies of two groups in Sweden. A brief discussion of hip-hop culture is provided as a preface to the examination. Four principle components are depicted: breakdancing, graffiti, deejaying and emceeing. The importance of Gates' (1988) method of 'signifying' is briefly discussed as are the theories of intertextuality and Bakhtin's dialogics as they pertain to the cultural practices of hip-hop. A summary of the pre-interviews, recording session, and post-interviews is provided. The musician's stress the importance of individual lyric content; content that may be recycled by an artist at anytime. The more advanced group treated the music's beat as a rhythmic foil which they played against in the production of their vocal *flow*. The learning procedure of the emcee is expressed in the extension of ones vocabulary, itemized lyrics, and general knowledge of the hip-hop life. The beatmaker discusses the importance of technical mastery of his equipment, an economic skill set, and social component through which ideas and knowledge may be exchanged throughout a beatmaker network. The education of hip-hop 'mousike' (see greek translation) is therefore a life-long procedure which is markedly non-teleological, but rather a bricolage continually rearranged in a kaleidoscopic manner which is neither here nor there.

Southworth, J. S. (1983). Improvisation for non musicians: A workshop approach. *Journal of Creative Behavior*. 17 (3), 195-205.

"The central theme has been that non musicians, given an appropriate permissive context, encouragement, easy to play instruments and a confident and continuous musical leadership can express themselves musically." "Creative improvisation is not something to be limited to the masters of a field or to the avant-garde. It is a talent that we all share to a basic degree." (p.204). After defining what he believes is the nature of creative musical improvisation and the things that can interfere with it, the author describes his work in a variety of therapeutic settings using a workshop format where free improvisation is encouraged and nurtured. The workshop participants were usually adults (occasionally teenagers) and followed a somewhat structured format which he describes.

Speake, C. (1993). Create an opera with elementary students. *Music Educators Journal* 79 (6), 22-26.

This article gives detailed suggestions for creating and performing original opera with a second-grade class. Using cooperative activities, a teacher encourages students to "recitative" everyday conversations; students are then asked to improvise vocally, to identify and select their favorite improvised song fragments, and to arrange these into arias. This leads, over several weeks, to the composition and performance of an original 15-minute opera (in this article, the opera is based on "Ferdinand," a children's story selected by the class). The author suggests that this creative opera experience encourages cooperative learning, develops musical understanding, and promotes interdisciplinary connections to other school subjects.

Spurgeon, D. (2002). Fostering creativity in dance students. In Sullivan, T. & Willingham, L. (Ed.), *Creativity and Music Education* (pp. 140-150). Edmonton: CMEA.

The author puts forth 7 guidelines for encouraging creativity in dance students and offers various suggestions of activities for achieving said guidelines. The guidelines are: Invoke the Pretend, Encourage Chutzpah and Humor, Leave Home (go outside discipline/area of expertise), Provide Protection (from making mistakes), Just Do It (allow intuition and kinesthesia to take over), 'In Tuition' (Be aware of technique/creativity relationship), Structured Flexibility (structure vs. freedom in teaching students).

Squeglia, C. (1994). The effect of creative musical activities on general creativity, musical creativity, higher level thinking and self concept of fifth grade students. *Dissertation Abstracts International*. 33 (01), 31. (Publication No. AAC 1357854).

This study measures the effect of creative musical activities on the achievements of fifth grade students. The students were given four creativity tests and the results show statistically significant gains in areas of two of the tests, the Test of Musical Creativity and the Primary Test of Higher Processes of Thinking. The results support the authors theory that creative functioning can be systematically developed through participation in creative activities.

Stauffer, S. (2003). Identity and voice in young composers. In Hickey, M. (ed.), *Why and how to teach music composition: a new horizon for music education* (pp. 91-111). Reston, VA: MENC: The National Association for Music Education.

The purpose of this chapter is to consider identity and voice in young composers. Stauffer begins by looking at how identity and voice are studied in adult compositions and then makes a theoretical connection to young composers. The author spends the majority of this chapter illustrating several examples of student compositions and describes how she feels identity and voice are present. These examples were taken from a seven year study she conducted in a composition lab. She concludes by discussing pedagogical issues of composition in the school setting.

Stauffer, S. L. (2002). Connections between the music and life experiences of composers and their compositions. *Journal of Research in Music Education*, 50(4), 301-322.

Sixth grade students were studied to see if there was a connection between their compositions, their experiences (both life and music). Students attended an after school “computer music” course for three years and participated in this study in their third year. Students were told to free compose on their choice of music computer programs (Making Music, Julliard Musical Adventure, Rock Rap ‘n Roll, Music Time or MusicAce.). These links were indeed found and were varied. These links were apparent in life experiences and music experiences and sometimes both. Proficiency and fluency in composition showed a relationship to proficiency and fluency in performance. Sociocultural context played a significant role in their compositions

Stephens, J. (1985). Creative technology. *International Journal of Music Education*, 12, 79-82.

Stephens argued that the arts should be a positive part of a child's education in such a way that they involve technological developments rather than be treated in opposition to them. He suggested that much thought be given as to what the computer can do for music education, not only in terms of computer synthesis of sound in composition, but also in terms of providing basic training and revision of elements such as aural work and rudiments into problem solving activities. Much of the technology used in music isolates the individual from the group. Therefore, teachers must also provide alternative musical experiences of a social nature to help create balanced individuals.

Stephens, J. (2003). Imagination in education: Strategies and models in the teaching and assessment of composition. In Hickey, M. (Ed.), *Why and how to teach music composition: a new horizon for music education* (113-138). Reston, VA: MENC: The National Association for Music Education.

In this chapter the author questions the current priorities in the curriculum of music classes and affirms that composition will benefit, not threaten our performance-based music classes. Strategies and models on how to teach and assess composition are presented. The importance of idea, technique, and structure in composition is defined. In assessment, it is essential to enforce analytical listening, self-assessment, and peer review.

Stephens, R. (1974). Creativity in the classroom. *Elements: Translating Theory into Practice*. 5 (8), 1-2

Due to the influence of the Manhattanville Music Curriculum Project, the author states that it is necessary for the student to learn to function as a total musician . The best way to accomplish this is to have the student experience music in a manner that requires complete and total involvement with music. In this way, the student will gain a true understanding of music. The article includes suggestions for specific music activities requiring creative thinking by the student, thus guaranteeing the student's total involvement in the learning process.

Stevens, Sara. (2003). Creative Experiences in Free Play. *Music Educators Journal*, 89 (5), 44-47.

This article presents an overview of the benefits that giving young children time for guided free play in the music classroom provides, both in terms of curricular development and facilitating opportunities for those children to achieve their optimum learning potential. Music teachers who balance their formalized instructional time with periodic informal free-time for musical exploration during class enables the students to engage in intentional and meaningful creativity. The coupling of planned lessons and free play activities evolves over time into an experience that improves students' depth and range of understanding. This ultimately results in a higher quality of daily work being produced by the students that frequently shows evidence of them integrating portions of what they have learned from the structured teaching into their free play creations. Practical applications of free play in the music class are discussed, as well as how to incorporate these activities into a multicultural music component of instruction and how to supplement lessons on composition. Endnotes are included, and a sidebar that lists helpful hints for incorporating free play into the elementary music classroom.

Stewart, C. (1990). Composition through imitation. *General Music Today*, 3 (3), 21-22.

Written for the high school general music teacher, this article proposed that students can develop skills in composition by initiating the good models that they have heard and performed. Students became familiar with each piece through performance or listening, and analyzing the composer's use of time, pitch, form, timbre, expressive qualities, and style. Critical thinking skills and deeper understanding resulted from thoughtful use of questions such as, "Why do you think the composer did 'x' instead of 'y' at this point?" Students then used an aspect of each piece as a point of departure for their own composition, such as the melody, harmonic structure, form, or instrumentation.

Storr, A. (1975). Creativity in music. *Psychology of Music*. 3 (2), 9-16.

This article is a transcript of a lecture. The author speculates on the philosophical base for creativity. Creative

behavior relates to the resolution of inner conflict in our lives and satisfies a need for balance. "There is, at the core of man's being, a restless search for 'perfection' which is never satisfied, which spurs him on to make more and more attempts at synthesis, each of which may be an improvement on its predecessor but each of which is itself destined to be superseded." The author continues by pointing out that this drive for perfection is part of the human condition -- ". . . that it is a necessary consequence of man's particular adaptation to the world, which is by means of abstraction, conceptual thought and symbolization, rather than by direct response to immediate stimuli." The author also urges the reader to remember that self-control and non-spontaneous behavior is important to the creative enterprise. "Music and other works of art have the capacity of reordering experience and thought in their own image, so that what we obtain from them is something far more than pleasure. It is something more akin to experiencing life as a whole."

Strand, K. (2006). Survey of Indiana music teachers on using composition in the classroom. *Journal of Research in Music Education*, 54(2), 154-167.

This study examined compositional practices in music classrooms across Indiana through a survey sent to teachers in the state. The researcher hoped to attain the many ways composition was used in the classroom. The survey illuminated that many teachers have difficulty incorporating this medium owing largely to the potential management issues surrounding composition. The survey suggests that more research and literature should be done to clarify ways for teachers to present composition in their classroom.

Sturman, P. (1982). Creating Music. London(?): Longman.

This book contains 9 composition projects using sound-picture representations. Each project is based on a particular subject (space, the sea, winter, colors, animals, dreams, steam locomotives, machines, and London). The plan of each lesson is similar: 1) facts about the subject (e.g., description of the space, galaxies, planets, and so on); 2) things to do in relation to the subject (e.g., observe the sky); 3) music to play using a sound-picture score related to the subject; 4) listening examples (e.g., *La Mer* of Debussy); 5) singing a thematic song; 6) own composition; 7) quizzes, crosswords, and words puzzle. The final part of the book shows how to construct simple musical instruments.

Subotnick, M. (1995) The Music and Musicians of the Future. Toward Tomorrow: New Visions for General Music. Reston, VA: Music Educators National Conference. p. 31-42.

In a pair of presentations for the October 1993 symposium held by MENC's Society for General Music, Subotnick describes his work as a composer and educator using CD-ROM technology. Part I outlines the possibilities for the "four dimensional" presentation of compositions with music, spoken words, written words, and images on CD-ROM. Part II is a demonstration of features in the computer programs *Making Music*, *Making More Music*, and *Playing Music*. Anecdotes from workshop sessions with children, and answers to audience questions, provide an entertaining and clear outline of some of the capabilities of this technology for teaching students to think more like composers. Subotnick proposes that compositional thinking involves engaging the music as composer-performer-audience and that this three-part experience was never before accessible to children without specialized technical training.

Sullivan, T. (2002). Creativity in action. In Sullivan, T. & Willingham, L. (Eds.). Creativity and music education (pp. 179-193). Edmonton, Canada: Canadian Music Educators' Association.

In this chapter, the author advocates for a shift in the educational paradigm which engages the child's natural tendency toward play and games for the purpose of education. Several types of games, and examples of each are provided. Those discussed include: skill-building games, Instructive Games, Integrative Games, Investigative Games, Performance Games, Improvisation Games, and Composition Games. Guidelines for creating curriculum games are also provided.

Sullivan, T. (2006). Principal themes: creativity and music education-fourth of a four part series: creativity in the curriculum. *Canadian Music Educator*, 47(4), 23-27, 60.

Sullivan begins by illustrating six problems in the lack of creativity in music education. He proposes his own solution to teaching music that incorporates creativity. His model is a three-part process: Explore-Learn-Create. In this model, the traditional learning happens between pre-instruction, known as explore (which has four regions: Explore, Play, Express, Debrief), and problem solving/application, known as create. Sullivan's concludes by giving sample lessons that follow his model for both the elementary and secondary levels.

Sundin, B. (1998). Musical creativity in the first six years: A research project in retrospect. In B. Sundin, et. al. (Eds.), Children Composing (35-56). Malmo, Sweden: Lund University.

In this chapter, the author looks back on an ethnographic study on music and children. A review of the research before and after the study is included. The purpose of the study was to learn about the following: the spontaneous musical life of children, the conscious musical behavior of children, and the contextual relationships involved.

Sundin, B. (1997). Musical creativity in childhood—a research project in retrospect. Research Studies in Music Education, 9, 48-57.

Sundin compares research from the 1960s to more current research in the field of childhood creativity. In the research

from the 60s, the author explored what kind of music children create when they are not under the direct influence of an adult. The author also tried to remove the adult “perspective” from the study and analyze all sounds, even if it is not immediately perceived as music to an adult. Spontaneous singing, invented songs, and relationships (gender, family, background) are all explored. The author refers to more current research that either supports or refutes the earlier findings. Future areas of needed study are also discussed.

Sundin, B., McPherson, G., & Folkestad, G. (Eds.). Children Composing. Malmö, Sweden: Lund University.

This book consists of six articles on composition and children by writers Margaret Barret, Bertil Sundin, Sture Brändström and Fredrik Högberg, Göran Folkestad, and Gary E. McPherson. The first article is an historical overview and critical analysis of research in children’s compositional processes and products. The second, a study of musical creativity in Swedish children under seven years old, discusses musical creativity as an expression of a general, creative attitude regardless of intellect. The third article, a study of five to eight year old children, illustrates the evidence of aesthetic decision-making in children’s composition through form and structure. The fourth is an overview of the Luleå concept of music education emphasizing creativity. The fifth article is a study of the different methods teenage children employed in computer-based composition. The final article is an overview of research in creative thinking and general musical development theories.

Swanner, D. (1985). Relationships between musical creativity and selected factors including personality, motivation, musical aptitude and cognitive intelligence as measured in third grade children. Dissertations Abstracts International. 46 (12), 3646. (University Microfilms No. AAD 86-01941)

The purpose of this study was to empirically determine the role that certain personality traits might play in a child’s musical creativity. Also examined were the relationships of musical creativity with gender, musical aptitude, and cognitive intelligence. Sixty-nine third grade children at one elementary school participated in the study. Measures included the Cattell *Early School Personality Questionnaire*, Gordon’s *Primary Measures of Music Audiation* and the Webster *Measure of Creative Thinking in Music*. Correlation techniques revealed that excitability, aggression, independence, anxiety, self-confidence, curiosity, and imagination were significantly related to creativity in music.

Swanwick, K. (1991). Musical criticism and musical development. British Journal of Music Education, 8, 139-148.

The author proposes that music criticism is at the heart of music education. Swanwick provides a definition of composing and a definition of his developmental modes. This article reports on the replication of a previous study that proposed the modes of the developmental spiral. The new study consisted of 28 random compositions by students from four age groups that were judged and placed into categories by seven judges. The article argues that the modes of the developmental spiral are accurate for assessing development and that the quality and consistency of music education does have a positive role in the development of music criticism skills.

Swanwick, K. & Tillman, J. (1986). The sequence of musical development: A study of children’s composition. British Journal of Music Education. 3:3, p. 305-339.

The purpose of this study was the definition of the stages of children’s musical development in terms of musical composition. A series of 10 improvisation activities were developed and administered to the sample of forty-eight 3- to 9-year-old subjects. The improvisations of forty-eight 3- to 9-year-old subjects were analyzed and results of the analysis served as the basis for the model of musical development presented in this article. The model is in the form of a spiral, and contains 4 levels. The levels are Mastery (ages 0-4), Imitation (ages 4-9), Imaginative Play (ages 10-15), and Metacognition (ages 15 and up). Each of these levels begins with activities that are egocentric in nature and concludes with the activities that are social in nature.

Tarratus, E. (1964). Creative processes in music and the identification of creative music students. Dissertation Abstracts International. 25 (11), 6679A. (University Microfilms No. 65-03927)

The author began with the assumption that creative ability in music may be identified by non-musical means. Using college music students as his sample, the study correlated measures of general fluency, flexibility and originality with measures of general intelligence, musical knowledge, musical theoretical skills, applied music grades, music theory grades, individual instrument choice, jazz experience and total college grades. A test of humor was also included. In general, few significant correlations were noted. Humor related significantly to those students with composition skill.

Taylor, B. (1989) Improvisation: spontaneous composition. In C. P. Doane & J. W. Richmond (eds.). Proceedings of the Suncoast Music Education Forum on Creativity. University of South Florida.

Taylor briefly summarizes the history of jazz as an expressive American art form and highlights important aspects of jazz improvisation as a vehicle to creative thinking in music. "Creativity often stems from the musician’s need to solve

a problem" (p. 91). Taylor stresses that the key elements of any composition are unity and coherence: jazz musicians utilize a common motivic "vocabulary" to work out distinctive, personal improvisations that are unified and cohesive. "There are no wrong notes when one is spontaneously composing music. There are only wrong solutions to musical problems" (p. 92). Taylor offers an example of his own teaching technique, as well as performing for the session.

Taylor, M. (1987). Creativity, imagination and originality: three lenses for viewing creative potential. The Canadian Journal of Research in Music Education. 29 (1), 21-30.

This article discussed creativity, imagination and originality as functions of "creative potential", both in general and with respect to early childhood music education. The author illustrated Parnes' formula (creativity as a function of knowledge, imagination and evaluation) in two activities for children in grades K-3 -- a beginning composition project and a musical preference exercise.

Teaching General Music : A Course of Study. (1991) Reston, VA: Music Educators National Conference.

This booklet is a guide for teachers who are developing their own curriculum in general music. Sections are presented at grade levels preschool/Kindergarten, 1-3, 4-6, 6-8/7-9, and High School General Music 9-12. In each section there is a page on "Creating" which states approximately 5-7 goals appropriate for that level, and provides an equal number of possible procedures (ideas for activities) for attaining those goals.

Teixeira Dos Santos, R. A., & Del Ben, L. (2004). Contextualized improvisation in solfège class. International Journal of Music Education. 22, 266-276.

In this article, the benefits of using improvisation in sight-singing courses are discussed for the development of musical perception. Examples from a collegiate level aural training and solfège class were used to discuss the ways in which melodic contour, harmonic function, and expressiveness in improvisation can improve student performance.

Improvisation is presented as a supplementary and creative tool for developing patterns learned in solfège drills.

Thackray, R. (1965). Creative music in education. London: Novello and Company.

This volume begins with a justification for creative activities in the schools. "The aim of this book is to suggest possible ways of approach for teachers and students at all levels from primary school to the college." The author includes sections on vocal improvisation, instrumental improvisation and composition. The author endorses Orff approaches. The book contains a number of practical suggestions for engaging children in creative activities.

Thomas, R. (1991). Musical fluency: MMCP and today's curriculum. Music Educators Journal, 78(4), 26-29.

The author suggests that the philosophy, curricular concepts, and goals of the Manhattanville Music Curriculum Project are still relevant to music education today. As in the MMCP, curriculum should focus on the teaching of musical thinking as well as procedural skills. Thomas defines improvisation and offers it as an important strategy in the teaching of musical thinking.

Thomas, R. (1970a) Manhattanville music curriculum program: final report. (Report No. BR6-1999) Purchase, New York: Manhattanville College of the Sacred Heart. (ERIC Document Reproduction Service No. ED 045 865)

The MMCP was designed to help develop an alternative approach to the music curriculum for grades K-12. The curriculum employs a sequential or "spiral" type of learning approach with program objectives. Over 80 musicians and music teachers were involved in the development. The curriculum project was completed in three phases and several curriculum guides resulted. Among these were: Synthesis, Interaction, Electronic Keyboard Laboratory, and others.

At the heart of MMCP is creative thinking activities: composing, listening, performing.

Thomas, R. (1970b). Rethinking the curriculum. Music Educators Journal. 56 (6), 68-70.

The article is a summary of the goals of the *Manhattanville Music Curriculum Project*. (MMCP). Music has three basic characteristics: 1. It is a nonverbal form of communication, 2. It is a continuing evolving art, and 3. Music is a vehicle for man to use in his drive for creative fulfillment. The objectives of MMCP are the development of the ability to make judgments about music, not only analytical judgments but creative judgments as well. Real education is experiential and music is a creative art. Therefore, learning in music must include activities that allow the student to create music, otherwise the type of lasting knowledge that is the aim of music education will not take place.

Thompson, K. (1980). Vocal improvisation for elementary students. Music Educators Journal. 66 (5), 69-71.

The author argues that creating music should be included in the general music curriculum because it allows the students the opportunity to learn about aspects of music in a more personal way. The act of creating music allows the student to exercise cognitive and affective decision making processes. A three stage process of creativity is proposed. Vocal

improvisation is the recommended medium for exercising the creative process and a series of activities using the author's creative process is given.

Thoms, H. (1987). Encouraging the musical imagination through composition. Music Educators Journal. 73 (5), 27-30.

This article describes three projects involving high school aged students in the composition process. Compositions centered on theme and variation form, musical setting of a poem, and an multimedia event with a focus on the musical concept of "line."

Tichavsky, R. (1989). Contemporary composition teaching with children. Canadian Journal of Research in Music Education. 30 (2), 162-168.

This was an outline of an approach to teaching composition used with small groups of young children in Mexico. Improvisation and extra-musical imagery were important elements.

Tillman, J. (1975). How To Organize Creative Work in the Classroom. Keeping Up With Experimental Music in the Schools, 2 (2), 33-35.

Ideas for guiding student musical creativity were presented. Sequencing creative activities, motivation, styles of musical expression, and the various ways of focusing on the creative process rather than the final product were addressed.

Tillman, J. (1989). Towards a model of development of children' musical creativity. Canadian Journal of Research in Music Education, 30, 169-175.

This article provides further explanation of the materials in the 1986 Swanick and Tillman study. From the author's abstract: " sequence of musical development is proposed based on an interpretation of seven hundred children's compositions and the psychological conceptions of mastery, imitation, imaginative play and metacognition..." Each mode in the eight mode spiral, suggested for curriculum planning, is discussed.

Torrance, E. (1969). Originality of imagery in identifying creative talent in music. The Gifted Child Quarterly. 13 (1), 3-8.

This is a report of an experimental study that investigated the role of imagery in the music activities of creative young people. The subjects were 137 students of the Westminster Choir College. The measure *Sounds and Images* was administered and a criterion questionnaire was used to gather information on the subject's musical background and achievements. The results supported the idea that gifted musical students have rich and original imagery when compared to similar groups. It is suggested that young children who show ability in music should receive training to develop skills in producing imagery as well as producing music.

Treffinger, D. (1983) Fostering creativity and problem solving. Motivation and Creativity, The Ann Arbor Symposium Session III, Reston, VA: Music Educators National Conference.

The author identifies some principal components of creative learning, describes instructional strategies associated with them and their specific implications for music education. Defining creative learning as "the opportunity for the learner to function effectively in independent and original ways", he proposes a three-tier model of creative learning - divergent functions, complex thinking and feeling processes, and involvement with real problems.

Trollinger, L. (1981). Responses of high and low creative women musicians to undergraduate music courses: anxiety, boredom, avoidance, and pleasure. Journal of Creative Behavior. 15 (4), 257-264.

This study collected data concerning biographical and personality factors for creative women musicians. The author used her own inventory and the *Bem Sex Role Inventory*. Subjects were selected from female members of the College Music Society. Two groups were formed: high creative and low creative. This particular reporting of the data focused on the question of anxiety as a factor in creative women. It was concluded that anxiety may be responsible for inhibiting the development of creative women musicians.

Trollinger, L. (1979). A study of the biographical and personality factors of creative women in music. Dissertation Abstracts International. 40 (5), 2533A. (University Microfilms No. DDJ79-24039)

This study collected data concerning biographical and personality factors for creative women musicians. The author used her own inventory and the *Bem Sex Role Inventory*. Subjects were selected from female members of the College Music Society. Two groups were formed: high creative and low creative. Differences in groups were discussed. Personality factors of interest included willingness to take risk, forcefulness, defense of beliefs, self-reliance, and ambition. Implications for music education were offered.

Tsisserev, Alex. (1998). An ethnography of secondary school student composition in music: a study of personal involvement within the compositional process. Dissertation Abstracts International. 59 (5),

1505.

Several week study deals with the way sixteen secondary-school students use music to express their personal feelings through composition. Analytical tools from the fields of phenomenology, hermeneutics, semiotics, ethnography and English language arts were used. All of the students composed a piece; four shared their views on the compositional processes they used. By the conclusion of the study, the students had demonstrated the ability to communicate through composition, certain ideas, images, emotions, and their own sense of being. Heightened musical awareness resulted. Provides a methodology for evaluating the compositional process.

Tuttle, T. (1976). What is this thing called creativity. Triad. (April), 26.

The author argues that creativity does not refer to one single attribute, but, rather, to a cluster of behaviors related to problem-solving. Creativity is never entirely "new," as it is only an extension of known facts. Creative behaviors are classified as predictable and non-predictable products and are grouped according to visual, semantic, symbolic, and auditory. Terms such as sensitivity and originality are defined, as well as the effect of evaluation on the creative process. Performance ability is not related to creativity according to recent studies. The creative process is described as a six stage process: (1) Orientation, (2) Preparation, (3) Analysis, (4) Hypothesis, (5) Incubation, and (6) Verification. The author points out that American education has restricted creativity and offers suggestions as to how creativity might be encouraged.

Upitis, R. (1989). The craft of composition: helping children create music with computer tools. Psychomusicology. 8 (2), 151-162.

This article explored the ways in which children can develop the craft of music composition using computer tools. Some features of good music making were discussed, including flexibility of use and aesthetic appeal. The discussion was followed by examples of children's work during which children's invented were compared with notations used by computer software. The author then discussed the compositional process and the ways in which a child could see himself or herself as a composer. Finally, the author suggested possibilities for using computers for both teaching and conducting research in the area of children's composition.

Upitis, R. (1992a). Can I Play You My Song? The Compositions and Invented Notations of Children. NH: Heinemann Educational Books, Inc.

The author evaluates the importance of notational development in children. The importance of each child's unique notation is combined with the study of standard notation. A child's composition will be influenced by everything surrounding them. Stages of notation and spelling are discussed in detail. The idea of creating music along with notational development is emphasized---not notation for the sake of notation. The author states general ways to enhance notation, as well as specific activities to begin to explore both rhythmic and pitch notation. The importance of helping a child develop their own notation along with teaching standard notation is greatly emphasized. The author also discusses the advantages of using a computer, especially in the motivation and joy a child receives after seeing their music in print. Numerous examples of children's compositions are included, both in standard and non-conventional notation.

Upitis, R. (1992b). Motivating through technology: Lasting effect or passing fancy? American Music Teacher. (June/July), 30-59.

Through a series of six questions and observations common to music educators, Upitis explores ways to make the best use of technology in music. Issues raised include the transformation of free exploration and creation from technological instruments to acoustic instruments, the enhancement of conventional teaching through technology, and the choosing of technology for enhancing practice. Upitis states that the important thing is not whether or not to use technology, but how to use it to help children get involved with music in a lasting way.

Upitis, R. (1992c). This Too Is Music. Portsmouth, New Hampshire: Heinemann Educational Books.

Upitis utilizes a personal approach to present creative possibilities for teaching music in the classroom. Her book provides ideas for teaching movement, performance, improvisation, composition, making instruments, and many others. The music classroom is a music playground in which the teacher's role is to provide a learning environment for children to explore and experience music in as many meaningful ways as possible.

van Ernst, B. (1993). A Study of the Learning and Teaching Processes of Non-Naive Music Students Engaged in Composition. Research Studies in Music Education. 1, 22-39.

The author supports the use of composition in music curriculum in that it requires students to use their musical knowledge in a creative way. This article summarizes a search for a model of teaching composition to students in high school, who had some music experience. The study considers needs of the students, such as the choice to work alone or with a partner, as well as the role of the teacher. The way students approached the projects as well as the projects themselves are included. The author concludes that these non-naive students should be given the opportunity to create

their own music, that the curriculum should accommodate the different preferences in working styles, and that the teacher's role is one of a guide.

van Ernst, B. (1995). On composing P an expression of self. In H. L. Lee & M. Barrett (Eds.), *honing the craft; improving the quality of music education*. Conference proceedings, Australian Society for Music Education, 10th National Conference, pp. 268-277

Van Ernst provides a discussion of the role that a teacher plays in providing an effective learning environment for students to develop their expressive potential as composers. Teachers are entreated not to get in the way of the creative process but to provide flexible composition tasks, allow the composers the opportunity to work alone, keep an open-ended timeframe, and allow for a choice of instrumentation, formal structure, and use of musical elements. She differentiates between composition exercises (where a teacher brings in new ideas like rhythmic patterns and the student work with the new material) and composition.

VanderArk, S. (1989) Self-esteem, creativity, and music: implications and directions for research. In C. P. Doane & J. W. Richmond (eds.). Proceedings of the suncoast music education forum on creativity. University of South Florida.

VanderArk offers a survey of literature in the areas of self-esteem and its relationship to creativity and music. A strong relationship between self-esteem and music has been shown. The relationship between self-esteem and creativity is less clear. "It is hypothesized that any given variable mentioned in the research may potentially relate in an important and significant way to any individual's self concept. The amount of relationship may vary or remain constant due to other intervening or causal variables" (p. 113). Given that extreme individual variation on a wide variety of factors may obscure positive correlations between self-esteem and creativity in group studies, VanderArk presents a flexible, concentric circular model of self-esteem.

Vaughan, M. (1971). Music as model and metaphor in the cultivation and measurement of creative behavior in children. Dissertation Abstracts International. 32 (10), 5833A. (University Microfilms No. 72-11056)

Following a philosophical discussion of the concept of model as a component of theory, the author described dimensions of her model: symbolic transformation, personality attributes, ego regression, problem-solving, transfer, intuition, sense of aesthetic fit, and ability to synthesize. The remainder of the dissertation is devoted to a descriptive analysis of the relationships between scores on the author's music creativity measure and general creativity measures and music aptitude tests. Fourth grade children (n=47) were used in the sample. Significant relationships were found among several of the variables as reported through factor analysis.

Vaughan, M. (1973). Cultivating creative behavior. Music Educators Journal. 59 (8), 35-37.

The need for the integration of knowledge is a primary concern raised by this author. People need to see the big picture and have the ability to integrate knowledge. Associative thinking is a key tool in the cultivation of creativity. The process of creativity involves a search for alternatives, the ability to generate analogies, the sustaining of ambiguities, synthesizing diverse elements and arranging ideas into hierarchies. In addition, creative behavior is usually accompanied by high levels of energy which relate to a developmental sequence. This sequence is: (1) Acquisitional - basic enculturation, (2) Combinatorial - divergent thinking, (3) Developmental - increasing insight/feel for relationships, and (4) Synergistic - individual and societal endeavors blend. Several characteristics of creative teaching are mentioned. The author implies that a general factor of creative aptitude is common to many areas of learning. An additional point raised is that music creativity can be differentiated from music aptitude. As a result, musicality should be considered as a profile of abilities rather than a unitary dimension.

Vaughan, M. (1977). Musical creativity: its cultivation and measurement. Council for Research in Music Education Bulletin. (50), 72-77.

The author summarized her research completed in previous years. Data supports the belief that musical creativity is a faculty that is separate from musical aptitude and that musical creativity can be systematically developed. No new data is presented in this article.

Vaughan, M., & Meyers, R. (1971). An examination of musical process as related to creative thinking. Journal of Research in Music Education. 19 (3), 337-341.

This study reports the results of an experimental study investigating the effect of a specially designed music curriculum which emphasized creative thinking. Subjects were fourth and fifth grade children. Dependent measures included the *Torrance Tests of Creative Thinking* and the authors' own measure of creative thinking in music that was modeled after the Torrance tests. This creative thinking measure was among the first to be written that was designed for children of this age and that contained purely musical content. The experimental group surpassed the control group on performance scores for the musical creative thinking measure as well as for some of the general creativity factors.

Verney, J. (1991). The integrated instrumental teacher: learning to play through performance, listening and composition. *British Journal of Music Education*, 8 (3), 245-269.

Using his teaching experience as a model, the author shows how introductory exercises in composition can be integrated into the curriculum used by an instrumental teacher. Composition is used as a starting point towards the student's broad musical understanding. This method is said to reduce the division between performer and listener and avoid the 'teacher directing student' method which does not tend to promote much of a determination to learn. Beginning violinists (ages 7-9) are encouraged to make up arrangements of notes from open strings and write words to go along with simple rhythmic patterns with results illustrated. In this way, students can create some of the music from which they learn, helping to integrate all the disciplines of music.

Vincent, A. (1975). Creative Music Making in Secondary Schools. *Keeping Up With Experimental Music in the Schools*, 2 (1), 7-10.

The author discussed why fostering creative music in the schools is necessary, how music improvisation guides the creative process, the teacher's role in guiding musical creativity, and the importance of composition activities to enhance musical creativity.

Vold, J. (1986). A study of musical problem solving behavior in kindergarten children and a comparison with other aspects of creative behavior. *Dissertation Abstracts International*. 47 (9), 3352A. (University Microfilms No. 86-28183)

The primary assumption of the study was that the young child's creative thinking in music is identifiable in terms of ideational fluency, flexibility, sensitivity to expressive import of sound, and convergent thinking and that all of this can be nurtured in the classroom. The purpose was to develop a measure of musical problem solving as it is manifested in the musical behavior of kindergarten children. The study also investigated relationships that exist between musical problem solving ability and creative classroom behavior and between thinking creatively in movement and creative classroom behavior. The findings supported the idea that a measure of musical problem solving ability can be constructed. Relationships were also shown between the measure and measures of creative action and movement.

Volk, T. (1996) Satis Coleman's "Creative Music." *Music Educators Journal*. 82(6), 31-33, 47.

This article describes the from a historical perspective the evolution of encouraging creativity in the classroom. Satis Coleman was a teacher in the 1920s who believed in having students improvise on instruments they made themselves. Volk describes how she developed her curriculum and how it has affected today's methods, from the importance of improvisation and composition to the multi-cultural lessons commonly found in today's classrooms.

Wailer, C. A. (2006). An empirical investigation of creativity and musical experience. *Psychology of Music*. 34(3), 307-321.

This study investigates the correlative effect between creativity and musical experience. The connection between musical experience and creative personality traits is examined using the Scale of Musical Experience (SME), and comparing those results with the Creative Personal Scale (CPS). 150 college music and non-music majors were administered the scales. The results of the investigation show a positive correlation "suggesting that as creative personality traits increase, musical performance will also increase." The study does not indicate that one attribute is the cause for the effect of the other. There is a high association between creative personality and musical experience. Additionally, the results indicate that specific domains in music such as composition may have a higher correlation with creative personality.

Walker, G. (1990). Helping student composers. *Clavier*, 29 (3), 20.

Walker states that although most private music teachers have not been trained to teach composition, they can provide encouragement and an environment conducive to creative thinking and composing. The author is a proponent of finding a balance between extreme leniency and extreme adherence to traditional musical rules as children explore the craft of composition. Walker forms a clear distinction between improvisation and composition; composition requires convergent thinking that culminates in a musical product. At the conclusion of the article, Walker supplies the reader with several hints that teachers could implement as they attempt to aid students throughout the compositional process. Among his suggestions are the analysis of pieces that the student has in his or her repertoire, learning notational skills at an early age, and notating and recording musical compositions.

Walker, R. (1985). In search of a child's musical imagination. *The Canadian Music Educator*. 26 (4).

The position taken was that although we acknowledge development and encourage ownership in visual art and literature created by children, "children are not encouraged to make up their own music; instead they are made to play someone else's who always happens to be an adult." The author claimed that this lack of tolerance for musical play has historical roots in the doctrine of Ethos.

Walley, C. (1978). The ground of music creativity. *The Canadian Music Educator*. 20 (1), 31-38.

The author first refuted the misconception that children can only produce "good work" musically with theoretical

knowledge and technical skill. He then stated that the solution to creativity in music is to search out a musical ground that would foster creativity. The activities of the ground involved students in immediate music making and were simple in execution. Finally, the author provided a model in which creative experiences with a ground could later become incorporated into a scheme involving more challenging musical accomplishment.

Ward, R. (1991). Music and creativity: An interview with Lorin Hollander. Clavier. 30 (4), 10-13.

Asked if creativity can be taught, Hollander replies, "I take it as a given that all humans are born creative; teachers should provide the right conditions for creativity to develop." (p.10). He then proceeds to talk about ways we routinely stifle the creative process and suggests that methods courses should model and encourage creativity in teaching.

Technical achievement and creativity must go hand in hand in the arts.

Watkins, A. (1966). Music composition by the non-professional. Music Director. (19), 3-4.

This article is a description of the techniques used in a program of laboratory classes in musical composition for nonmusic major college students. The emphasis in this course was on the qualities of sound that make a melody expressive. Technical explanations were avoided if at all possible. This was accomplished by relating musical occurrences to similar occurrences in the student's chosen field. An example of this approach is the relating the concept of consonance/dissonance to the body's natural tensions and releases.

Webster, P. (1987b). The magic synthesis: creative thinking in music and management. In Proceedings, The 62nd Annual Meeting, National Association of Schools of Music. (pp. 199-208).

Washington, D.C.: National Association of Schools of Music

This address focused on four topics: (1) elements of a definition of creative thinking, (2) summary of the research, (3) model for creative thinking in music and (4) creative management of music departments. The notion of synthesis was discussed in terms of the ability of creative thinkers to blend both divergent and convergent thinking abilities. A number of qualities of thinking important for creative management were presented, including: fluency of ideas, flexibility of thought, originality, willingness to risk, discrimination skills, vision, musicianship, and a sense of humor.

Webster, P. (1988a). Creative thinking and music education. Design for Arts in Education. 89 (5) 33-37.

This article suggests that some of the problems which face contemporary education and music education stem from the inability of teachers to engage students in creative thinking. Elements of a definition of creative thinking are reviewed as well as some of the recent research on measurement and relationship to other variables. A conceptual model is presented and its implication discussed.

Webster, P. (1988b). Creative thinking in music: approaches to research. In Gates, J., (Editor). Music Education in the United States: Contemporary Issues (pp. 66-81) Tuscaloosa: University of Alabama Press

This article presents a literature model for the literature in the field. Three main divisions are suggested: theoretical speculations, practical applications and empirical data. Each main division is further divided into subcategories. Major writings in each category are listed and selections from each category are reviewed. The article also includes some thoughts about a possible model of creative thinking in music (see Webster, 1987a).

Webster, P. (1988c). New perspectives on music aptitude and achievement. Psychomusicology. 7(2) 177-194.

Traditional views of music aptitude and achievement need to be expanded to include evidence of creative thinking behavior in music. This paper presents some perspectives on this expansion by offering: (a) a brief review of those writings and/or events that hold special meaning for the rethinking of music aptitude and achievement, (b) a brief content analysis of certain published aptitude and achievement measures, (c) a conceptual model of creative thinking in music, (d) a section on implications of the model for child development, and (e) an explanation of one approach to the measurement of creative thinking in music.

Webster, P. (1989a) Creative thinking in music: the assessment question. In C. P. Doane & J. W. Richmond (eds.). Proceedings of the suncoast music education forum on creativity. University of South Florida.

Webster provides an overview of both non-musical (Guilford, Torrance, Barron, Gardner, Wallas, Taylor, Sternberg, Feldman, Csikszentmihalyi) and musical (Webster, Reimer, Aranosian, Thomas, Holderried, Galloway, Dobbins, Welwood, Feinberg, Kratus, Swanwick & Tillman) creativity literature. An introduction to Webster's Measure of Creative Thinking in Music (MCTM) is provided. Webster defines creative thinking in music as "a dynamic process of alternation between convergent and divergent musical thinking, moving in stages over time, enabled by certain skills (both innate and learned), and by certain conditions, and resulting in a final product" (p. 66). His model of creative thinking in music is provided along with the suggestion that assessment of creative thinking "should be required work of all who educate in the arts" (p. 70).

Webster, P. (1989b). Composition software and issues surrounding its use in research settings with children. *Psychomusicology*, *8* (2), 163-169.

This short article cites three influences on psychomusicological research in the coming decade and links these with issues in the study of children's composition. A selected list of current composition software is included, based on its appropriateness for research with children.

Webster, P. (1990). Creativity as creative thinking. *Music Educators Journal*, *76* (9), 22-28

This article summarizes recent ideas about creative thinking and argues for more application of such thinking in the curriculum. The authors creative thinking measure is summarized as is his model for creative thinking process. An annotated bibliography is included for suggested readings. This contribution is the lead article in an entire issue of the *Journal* devoted to the subject.

Webster, P. (1992a). Inspiration and creativity. In B. Reimer & J. Wright (Eds.), *On the Nature of Musical Experience* (pp. 254-258). Niwot, CO: University Press of Colorado.

Inspiration provides a germinal source for creative activity in musical experience. Creativity in music may be discussed using 3 perspectives in terms of person, process, and product. In this section of the book, various authors are cited on their opinions on these perspectives. Implications for research are also presented.

Webster, P. (1994). Beyond drill and practice. *American Music Teacher*, *43* (6), 16-19.

The intent of this article is to encourage the use of technology as a means of achieving higher levels of creative thinking skills. The author argues for a creative thinking model that includes preparation, incubation, illumination and verification in creative listening, performance/improvisation, and composition. Rather than using drill and practice technology to accomplish this, the author hopes that flexible practice, simulation and multimedia software might be employed.

Webster, P. (1996). Thinking in music: encouraging the inner voice. *The Orff Echo*, *28* (4), pp. 10-11.

This short article encourages teachers to recognize the existence of music "inside" each child. The author argues for offering music experiences to children that helps bring this music out in creative ways.

Webster, P. (1998a). The new music educator. *Arts Education and Policy Review* . *100* (2), pp. 2-6.

Reflecting on changes in education and embracing a more constructionist approach to music teaching and learning, the author encourages administrators and teachers alike to stress process as well as product in music teaching. Technology is described as a major force in rethinking the role of the music teacher. The article concludes with some thoughts on assessment and its changing role.

Webster, P. (1998c). Young children and music technology. *Research Studies in Music Education* . *11*, pp. 61-76.

This article reviews some of the data on technology and the young child and applies it to music instruction. Also included is a review on important software for music teaching with the young children that encourages creative thinking and active exploration.

Webster, P. (2000b). Where are we and where should we be going? *American Music Teacher*, *49* (6), pp. 35-37.

These remarks were published from a previous keynote address delivered to a convention of music teachers. The author argues for a change in the way we teach so that children can learn to make their own aesthetic decisions.

Webster, P. (2003). Asking music students to reflect on their creative work: encouraging the revision process. *Music Education Research*. *5* (3), 243-248.

In this article, Webster rationalizes the probable outcomes of asking students to revise or to extend the original compositions. Through understanding the importance of revision and extension, Webster encourages the teacher to promote critical creative thinking on behalf of the student, not as a way of fixing what is wrong with the original product but as a standard way of improvement. The advice in the article serves the teacher as a means of promoting exploration and creative confidence in students as well as deepening their understanding of music concepts in a non-absolute method.

Due to lack of information on this topic, Webster calls for more research to be done.

Webster, P. (1976). Identifying the creative musician. *Triad*. (May), 32-35.

The need for developing and measuring creative behavior in children is the frame of reference for this article. The author discussed the importance of developing creativity and identifies the most commonly held factors of the intellect thought to be critical to creative thinking. They included (1) fluency - the ability to generate many ideas, (2) flexibility - the ability to generate many different ideas, (3) elaboration - the ability to extend or embellish an idea,

and (4) originality - the ability to generate unique and different ideas. Musical creative behaviors are most often expressed through composition, performing/improvising and analyzing. Measures by Vaughan and Pfeil to measure musical creativity are briefly discussed. The author's own rather extensive creativity testing experiments with high school students are also considered. Several teaching strategies to identify the musically creative are also listed.

Webster, P. (1977). A factor of intellect approach to creative thinking in music. Dissertation Abstracts International. 38 (6), 3136A. (University Microfilms No. DDJ77-2619)

See also: Webster, P. (1979). Relationship between creative behavior in music and selected variables as measured in high school students. Journal of Research in Music Education. 27(4), 227-242.)

This study was designed to identify significant relationships between factors of creative thinking ability in music and selected musical and non-musical variables in persons 14 to 18 years of age who have had some experience with music in the schools. A measure of creative thinking in musical composition, improvisation and analysis was developed, using scoring factors of musical fluency, flexibility, elaboration and originality. Other variables in the study included scores on the *Torrance Tests of Creative Thinking* (figural and verbal forms), measures of musical aptitude and achievement, IQ, performance medium, years of piano study, age, sex, and grade level. Results indicated a strong relationship between all three sets of musical creative thinking scores and musical achievement scores. Other relationships were mixed, showing no clear pattern.

Webster, P. (1983). An assessment of musical imagination in young children: Technical Report. In Tallarico, P. (Editor). Contributions to symposium/83: the Bowling Green State University symposium on music teaching & research. (pp. 100-123). Bowling Green, Ohio: Bowling Green State University

The purposes of the study were (1) to develop a measure of musical creative thinking in children ages 6-9 and (2) to determine if (a) the component factors of the measure were viable in terms of frequency distribution, shape, and interrelationship; (b) the factors measured related to aspects of classroom behavior; (c) there are significant differences in the component factors of the measure across grade levels, gender, and school setting. Webster offered details of the two phases of his project (the design of an instrument and implementation procedures), described the methods of measuring responses, and details results using a variety of statistical analyses. Results indicated that a number of viable factors did result and that these factors generally did not distinguish between age level, gender or school setting. A lengthy list of directions for future study is provided so that results can be verified; revisions of the creative thinking measure are also suggested.

Webster, P. (1987a). Conceptual bases for creative thinking in music. In Peery, J., Peery, I. & Draper, T. (Editors). Music and child development, (pp. 158-174). New York: Springer-Verlag

The author presents a conceptual model of creative thinking in music, basing the model on past research and speculation. Elements of the model include groups of enabling conditions, enabling skills, and a central process that is seen as a movement from preparation to verification. There is discussion of the divergent/convergent thinking process as it relates to the three principle ways man involves himself with music: composition, performance/improvisation, and analysis (listening). The article concludes with a look into the possibilities of future research, including use of the author's own Measure of Creative Thinking in Music, ethnographic research, and computers and synthesizers.

Webster, P. (1987c). Refinement of a measure of creative thinking in music. In Madsen, C. & Prickett, C. (Editors). Applications of research in music behavior. (pp. 257-271) Tuscaloosa: University of Alabama Press.

This study provided additional data to support the reliability and validity of Measure of Creative Thinking in Music (MCTM). It represents the second in a series of investigations on this topic. The data extended and replicated other research findings indicating that the measure assesses aspects of musicality not found in teacher ratings or traditional music aptitude scores. Thirty-two students ranging in age from 6 to 10 years were administered the measure and the results analyzed according to established techniques. Results of this study helped to refine the measure's design and scoring techniques.

Webster, P. (1991). The preschool child and creative thinking. American Music Teacher, 40 (6), 16-19.

In this article, Webster provides information about the development of the musical mind, children and creativity, and practical applications of this material for private studio music teaching. The author notes that even infant children have the ability to musically discriminate among pitch levels. Webster urges educators to provide exploratory musical activities within an organized atmosphere. He also discusses the role of convergent and divergent thinking in the musical activities in which the students are involved. Webster provides his definition of creativity and the

characteristics by which teachers might realize creative thinking. He prompts private studio teachers to take risks and to relax the rigid time frames imposed on students' musical development. Teachers should also allow students to experience musical thinking by assuming the many types of musical roles. Webster concludes the article with divergent thinking strategies which include improvisation, creative instrumental experimentation and performance, composition and non-traditional notation systems, and student-teacher interaction activities.

Webster, P. (1992b). Research on creative thinking in music: The assessment literature. in R. Colwell (ed.), Handbook of Research on Music Teaching and Learning, 266-279. New York, Schirmer Books.

This chapter provides a brief review of the bases of creative thinking in the general literature, and an introduction to many of the important studies in music teaching and learning. Emphasis is placed on creative thinking assessment. The chapter contains a literature model, around which the presentation of the music education literature is organized. The model is divided into two main branches: psychometric and content analysis studies. The latter branch subdivides between studies related to product versus process of musical composition, improvisation, or analysis/listening. The author stresses the importance of the development of theoretical works for focusing and supporting research efforts.

Webster, P. (1995). School reform and technology. In S. Stauffer (Ed.) Toward tomorrow: new visions of general music. Reston, VA: Music Educators National Conference.

Webster discusses school reform issues and their relation to the general music classroom. The new focus on project-centered learning with group problem solving, student-centered learning with decision making, critical and creative thinking, and time for imagination and reflection translates to music classrooms in which children actively create, perform, listen, and discuss music and are evaluated on their musical growth rather than their performance on tests. Webster cites an example of such a class, and discusses technology's role in facilitating these changes through flexible practice, simulation and multimedia software.

Webster, P. (1998b). Rethinking music aptitude and its assessment. *Sound Ideas*. 2 (2), pp. 6-16.

Based on a talk given at the University Iowa during the Seashore Symposium, this article summarizes new thinking in the assessment of music aptitude. Older approaches are summarized. The concept of audiation as developed by Gordon is cited and supported. Other approaches such as analogical thinking (Nelson), structural tasks (Karma), and creative thinking (Webster) are noted. Future research on music aptitude is stressed, especially in terms of technological support.

Webster, P. (2000a). Reforming secondary music teaching. Journal of Secondary Gifted Education. 12 (1), pp. 17-24.

This article argues for a redefinition of how secondary music teachers might think about teaching content. Rather than considering only performance-based education that reaches only a small portion of the secondary school population, music teachers should consider composition, improvisation, and active listening as important additional concerns for a wider population of students. Such an approach is important for serving gifted and talented students as part of mainstream instruction and is in tune with latest developments in curriculum design and research. Constructionism as an educational philosophy is suggested as a conceptual base and advances in music technology and the encouragement of creative thinking are cited as important contributions to this reform.

Webster, P. (2002) Creative thinking in music: advancing a model. In T. Sullivan & L. Willingham (Eds.), *Creativity and music education* (pp16-33). Edmonton: Canadian Music Educator's Association.

This article begins with a brief overview of the history and climate of musical education practices in the United States. It identifies constructionism, a philosophy whose goal is to focus attention on creativity and motivate learning through activity, as being in the forefront of current educational ideology. The article also draws attention to the increasing need for music educators to meet the demands of integrating music technology into the curriculum. Keeping these ideas in mind, the article then goes on to state that providing students with creative experiences in music should be a significant objective of music education. Particular attention is given to illuminating major developments that have occurred in the last ten years. An organizational model, developed by Webster, classifies this literature into categories based on theoretical works, practical applications, and empirical studies. In the last section of this article, Webster explains the meaning of creativity in music and the creative thinking process as identified in his revised Model of Creative Thinking Process in Music. This article concludes with an elucidation given by Webster of the changes and updates to this model.

Webster, P. (2003). What do you mean, "Make my music different"? Encouraging revision and extension in children's music composition. In Hickey, M. (Editor). Why and how to teach music composition: a new horizon for music education. Reston VA: MENC: The National Association for

Music Education.

The author explores using carefully crafted suggestions to actively encourage young composers to revise and extend their works. The author clearly defines terms and identifies potential arguments against revision and extension. Finally, the author presents evidence of the benefits of revision and extension in children's music compositions. This evidence is grounded in the core of what music is as an art, its natural presence in children's actions, its educational value, and its basis for assessment. The author completes this chapter with recommendations for practical application.

Webster, P. & Hickey, M. (1995a). Rating scales and their use in assessing children's music compositions. The Quarterly Journal of Music Teaching and Learning. 6 (4), pp. 28-44.

This publication summarizes research work on rating scales under four separate conditions: (1) scales that are explicit (specified) or (2) implicit (more holistic) and those that were (3) specific and (4) more general. Three research questions were formed: (1) Using one set of ten children's compositions, and four expert judges, what are the interjudge reliability of two sets of reating scales, one that was more explicit and one that was more implicit in design. (2) Assuming adequate reliability, how do the subscores of explicit/global, explicit/specific, implicit/global, and implicit/specific relate to and predict global ratings of craftsmanship, originality/creativity, and aesthetic value. (3) How do judges' nominations of the best and worst compositions relate to selected scores? Results showed that interjudge reliability was better for the implicit forms. The authors noted that researchers may still wish to use more explicit scales for evaluating specific concerns.

Webster, P. & Hickey, M. (1995b). Challenging children to think creatively. General Music Today. 8(3), 4-10.

The authors hope that general music teachers would risk trying to get their students to compose and improvise. Projects are suggested and a conceptual base is stressed. Creative listening is also included.

Webster, P. & Richardson, C. (1993). Asking children to think about music. Arts Education Policy Review. 94 (3), 7-11.

In this article the authors suggest that in the arts there is little difference between critical thinking and creative thinking. "One of the major purposes of this article . . .(is) to assert that this division between creative and critical thinking is somewhat artificial and has more to do with the nature of the final product than with meaningful difference in thinking." (p.8). The article discusses musical thinking, selected research findings on this topic, questions for further research and some implications for policy makers at the individual, as well as administrative, level. To foster this kind of thinking, educators must focus on process as well as product in music making so that students are actually thinking in sound as they produce the familiar products . Composition and improvisation must become an "essential part of the curriculum for every child". (p.11).

Welwood, A. (1980). Improvising with found sounds. Music Educators Journal. 66 (5), 72-77.

The author argues that composing and improvising should be as routine as writing an English composition or as learning the tables of multiplication. The goal is not to master the art of composition but to become involved in the creative selection and arrangement of musical materials, and to develop skills in self-evaluation along with constructive self-criticism. "Found" instruments are any ready made objects that are capable of producing sound. Material such as glass, plastic, or paper are ideal for "found" instruments. Many performance possibilities are available to an individual or an orchestra. This concept will expand the student's attitude for an openness towards 20th century music and music of non-western cultures.

Whalam, W. (1975). Why sing? A conversation about music. Corte Madera, California: Chandler and Sharp Publishers.

This book is intended to help students and teachers maintain intellectual vigor and human awareness by presenting a conversation between a music educator and a public school music coordinator about musical creativity and its potential in human beings. The conversation is based on four areas of concern which include 1) assessment and reassessment of the importance of musical values, 2) the teaching process with the teacher functioning as a learner, 3) humanness and 4) the significance of creativity. The need for the music teacher to remain open to new ways of learning and new methods of teaching music is stressed. A bibliography of resource material is included.

Wiegold, P. (2002). Thus far, no further...? formal learning-creative learning. In Sullivan T. & Willingham, L. (Eds.), Creativity and music education (pp. 238-249). Edmonton, Canada: Canadian Music Educators' Association.

This chapter discusses experiential learning versus more formal or traditional learning. After listing the possible downsides of each approach the author argues for a synthesis of the two approaches. There is a need for precise repetition and for literacy. There is also a need for spontaneous choice and the need to discover a sound that is all your

own. There should be an evolving process of looking at the simple elements of music and moving toward the complex. Examples are given using form, rhythm, and triads.

Wig. J.A., Jr. (1980). The effect of instruction in music composition strategies on middle school band students' ability to improvise melodies. Dissertation Abstracts International, 41 (10). (University Microforms No. 8107650)

The primary purpose of this study was to investigate the feasibility of teaching sixth- and eighth-grade band student to manipulate the musical elements of pitch, intensity, and duration in creating improvisations on their respective instruments. A secondary purpose was to examine the relationships between improvisation ability and (1) general academic ability; and (2) performance ability. A group of middle school band students were given a research-designed measure as a pretest, were trained over a seven-week period, then took the measure as a post-test. They were also given the Watkins-Farnum Performance Scale as a measure of academic achievement. Results indicated that the pretest-posttest scores on the researcher's measure showed significant gain ($p < 0.001$) among both sixth- and eighth-graders. Correlation coefficients between the Watkins-Farnum and the gain scores on the researcher's instrument were not statistically significant. It was concluded that the teaching strategies employed in the study were effective in facilitating middle school students' ability to improvise music, and that neither performing ability nor academic achievement were related to the ability to improvise music. (from the UMI abstract.)

Wiggins, J. (1990). Composition in the Classroom. Reston, VA.: Music Educators National Conference.

This short book presents guidelines for music educators to teach musical composition in order to develop the creative process in their students. It gives realistic, practical guidelines and techniques for teachers. Three modes of composing are presented: teacher-guided, group based, and independent. Procedures and samples are given for each process of composing. The book is clearly written, gives helpful suggestions, and includes a useful collection of musical examples.

Wiggins, J. (1994). Teaching tool extraordinaire. Teaching Music, 2 (3), 29-31.

Using composition in music classrooms provide students with the experience of working with their peers, and in a learning environment which is not teacher-centered. Composition acts as an assessment tool for teachers, as a medium for improving listening skills, and as a tool for increasing understanding of musical concepts. Engaging students in composition tasks can aide the teacher if s/he uses the student compositions for class activities and performances. The article provides a sample lesson plan which gives suggestions for how guidelines may be set for a composition task and evaluative material for the teacher involved in this lesson.

Wiggins, J. (2000). The nature of shared musical understanding and its role in empowering independent musical thinking. Bulletin of the Council for Research in Music Education, 143, 65-90.

The author sought to examine how or if a shared understanding of the eventual musical product, strategies for arriving at the product, and music in general related to independent musical thinking among the individual members of the group. This was a qualitative study utilizing theoretical sampling in which the author returned to previously gathered and recorded data of groups of students engaged in improvisation and composition. A review of this data found that student work was particularly successful when this shared understanding was evident. This shared understanding was observed in students musical interactions, their ability and willingness to explore their own musical ideas in this context, and their evaluation of the musical ideas presented. The benefit to individual students included creating a safe space in which to experiment with one's own musical ideas, the ideas of others which they could draw from, and immediate feedback.

Wiggins, J. (2003). A Frame for understanding children's compositional processes. In Hickey, M. (Ed). Why and how to teach music composition: a new horizon for music education. (pp. 141-165). Reston, VA: MENC: The National Association for Music Education.

Wiggins intricately sets forth in her study a "Frame" for understanding the process of how children compose. She finds the greatest usefulness of this frame is to "encourage teachers and researchers who work with student composers to (1) look at student work contextually and respect the complexity of its contextuality, (2) respect what students bring to the situation, including their musical and social expertise, (3) learn to interpret student work through the meanings that students ind, and (4) respect and value students' perspectives on their own work."

Wiggins, J. (1989). Composition as a teaching tool. Music Educators Journal. 75 (8), 35-38.

The author lists many benefits of compositional activities, including the increase in innate creative thinking in children, encouraging of pride in their musicianship, and the reinforcement of the meaning of musical concepts. Three lesson plans are presented, each devoted to either individual, small group or large group instruction.

- Wiggins, J. (1992). The nature of children's musical learning in the context of a music classroom. Dissertation Abstracts International. 53(11), 3838A. (University Microfilms No. AAC9305731)
Excerpts from author's abstract. "The purpose of this study was to look at the nature of children's musical cognitive processes, the nature of the representation of their musical ideas, the nature of their interaction with music and the nature of their interaction with peers and teacher within the context of a music classroom. The study is an analysis and interpretation of musical decisions and actions of students as they interacted with music (performance, analytical listening, composition and improvisation within a holistic musical context, with opportunity for interaction with peers and teacher. This qualitative study was conducted through the eyes of a teacher-researcher in the non experimental setting of her own general music classroom. . . Findings indicate that in listening, creating and performing the children tended to evaluate musical ideas against a holistic vision of the final product. In creating, they seemed to work from a preconceived vision of the musical whole rather than from random exploration." (pp. iii - iv). Chapter six has a section on "Holistic Conception in Creative Activities". The children's compositions were group ones.
- Wiggins, J. (1995) Where Does Technology Belong in the General Music Curriculum? Toward Tomorrow: New Visions for General Music. Reston, VA: Music Educators National Conference.
A case is made for including electronic technology such as synthesizers and computers among the musical tools available to students so that they do not perceive 'school music' and 'real music' to be separate subjects, since most of the music they encounter in real life is electronically produced and edited. The focus was on using synthesizers as sound sources in the general music classroom. Students are encouraged to use both acoustic and electronic instruments in their composition activities, and should explore the possibilities of either as well as a combination of both.
- Wiggins, J. (1999). Teacher control and creativity. Music Educators Journal. 85 (5), 30-35,44.
This article provides research-based guidelines guiding the teacher's role in student compositional activities. The author indicates that careful design of compositional experiences can enhance student creativity and assist assessment efforts. Arguing that restricting creative options for students often creates teacher control while actually sidetracking the creative process, Wiggins goes on to describe "hampering" (specific detail: restrictions on notes to use, formal elements, isolated patterns, and notation requirements) versus "enabling" (overall aesthetic: restrictions on formal structure, metric design, textural structure, and harmonic structure). Wiggins concludes with recommendations on the nature of teacher comments to students and a call for nurturing the independence of students in the music classroom.
- Wiggins, J. (2002). Creative process as meaningful musical thinking. In Sullivan, T. and Willingham, L. (Eds). Creativity and music education. Edmonton AB: Canadian Music Educators' Association.
In this chapter the author considers creative process as meaningful musical thinking and the role of this process in students' music education. Wiggins bases the article on studies of data collected from music classrooms in which the author was practicing. The author explores the holistic nature of children's conception of music as well as its relationship to other aspects of creative process and its role in students' music education.
- Wiggins, J., Blair, D., Ruthman, A., & Shively, J. (2006). Constructivism: A heart to heart about music education practice. In Wing, E. (Editor). *Mountain Lake Reader, Spring, 2006*, 82-93.
This article presents its content from the perspectives of multiple music educators to help understand the disconnection between the ways music is taught and the ways students learn. It outlines a definition of constructivism and its overall implications for music educators, including a literature review of the way constructivism has been influenced by Vygotsky, Damasio, Rogoff and others. Past research on constructivism has suggested that knowledge is a construction and that multiple student perspectives should be appreciated in the classroom. In terms of creativity, this article suggests that learning in music is based on solving musical problems, and that multiple solutions may be possible to each problem posed. The article concludes with a call for greater emphasis on constructivism in the classroom, and frames this argument around five different issues: 1)atomism versus holism, suggesting that music should be taught holistically; 2)authenticity, complexity and multiplicity indicating that musical lessons should not be oversimplified and that students should have meaningful rather than limited experiences in a wide range of musical roles; 3)activity versus experience which emphasizes the importance of thinking musically rather than just *doing* musical activities; 4)values that appreciate multiple ways of being musical; and 5)power and agency, exploring how the teacher may work alongside students, treating them as thinking beings.
- Williams, P. (1977). Musical creativity: an interdisciplinary approach from Troy to Carthage from Vergil to Berlioz. Creative Child and Adult Quarterly. 2 (3), 148-150.
The article provided curricula suggestions for use of grand opera as a vehicle for developing various forms of musical creativity among a range of ages groups. The ways in which music and such subjects as literature, dance, history, psychology, and the visual arts may be linked through inter-disciplinary studies built around opera are described.
- Willman, R. (1944). An experimental investigation of the creative process in music. Psychological Monographs. 57 (1).

This study investigated the effect of abstract visual designs on music composition. Twenty-two "standard" composers and 10 "popular" composers took part in this study. Each composer was asked to compose a theme for each of 4 abstract visual designs. Manuscripts of these themes were then analyzed for the musical characteristics. Two separate sets of auditors were then asked to match the themes to the abstract designs. Results concluded that certain musical characteristics were predominant for each abstract design and more associations were made between the music and the designs than could be attributed to chance.

Wilson, D. (2001). Guidelines for coaching student composers. Music Educators Journal, 28-33.

This article provides teachers' with the responsibilities involved in the composing process of their student. The two main responsibilities are: (1) try to determine what a student composer's intentions are (2) suggest ways that he or she might better achieve them. The three topics discussed in this article are: Getting Started, Into the Composing Process, and The Musical Elements. The Musical Elements discussed are: Melody, Harmony, Rhythm & Meter, Timbre, Texture, Counterpoint, and Formal Design. The key in the classroom is to create a composition-friendly atmosphere in the classroom, to be affirmative and encouraging. The author also refers to how the more often a teacher limits the parameters, the more interesting the ideas that students generate.

Wilson, R. (1981). Implications of the Pillsbury Foundation School of Santa Barbara in perspective. Council for Research in Music Education Bulletin, 68, 13-25.

A short history and description of the Pillsbury Foundation School (1937-1948) was presented, including philosophical and educational precedents, musical approaches, activities and specific equipment utilized by faculty and students. Explaining that the school was ahead of its time, the author drew attention to the continued relevance to music education researchers of the issue of children's spontaneous and natural music making researchers of the issue of children's spontaneous and natural music making and outlined implications for future research. A helpful summary of PSF documents available at the MENC Historical Center at the University of Maryland was also provided.

Wilson, S.J. & Wales R. (1995). An exploration of children's musical compositions. Journal of Research in Music Education, 43 (2), 94-111.

The melodic and rhythmic features of children's compositions were explored to observe the way in which these features are represented in developing young minds. Students aged 7-9 were studied while working on a computer-assisted project. Students freely composed for ten minutes while using MusicWorks software. The final compositions were classified into three melodic and three rhythmic categories. Details of the project were also judged on an increase in the number of musical lines used by the subject. Relationships to the children's work and factors of age, musical training, and sex were considered. Rhythmic categories followed a development progression in children of this age. Girls showed a higher category of melodic development and may progress at a different rate than boys.

Winters, J. (1995). Introducing Students to the World of Composition. Clavier. (July/August). 36-37

The author supports the use of composition to give students a better understanding of form, rhythm, intervals, modes, notation, theory, sound differentiation, and harmony. Suggestions for projects include assigning a specific form, creating different textures (such as raindrops), and composing variations a small unit of notes. Beginning students are encouraged to transpose their pieces. Activities for advanced students include the experimentation with twentieth century techniques. The author offers suggestions in the frequency of composition projects, as well as the use of a computer.

Wolf, G. (1983). Creative computers--do they "think"? Music Educators' Journal, 59-62.

Wolf compares the computer (machine) model of creativity and creativity as it is evidenced through the process of composition. Artificial intelligence is used to stimulate mental abilities; however, it cannot master the range of subtle emotional, aural, intuitive, and aesthetic decisions that a person makes as he or she composes. Creativity is difficult to program in comparison to the programming of analytical skills. Creativity is often abstract and ambiguous, terms that are not recognized by a computer program. Wolf provides his definition of creativity which includes the structure of imitative ideas, the formulation of ideas original to a person but not necessarily original to experts, and the creation of completely new ideas. Therefore, creativity can be measured in relation to a personal creativity and in relation to society's pre-existing knowledge. Wolf urges teachers to instruct beyond that which a computer can be programmed to do. Involve students in the musical decision-making process.

Wolfe, E. and Linden, K. (1991). Investigation of the relationship between intrinsic motivation and musical creativity. (ERIC).

The study focuses on relationships between specific thinking processes: convergent, divergent, auditory imagery and motivation. The hypothesis of the study is that intrinsic motivation for musical activities acts as an indicator of overall creative potential and is related to measures of creative thinking in music. The study also examines Amabile's intrinsic motivation principle for Creativity.

Wollner, G. P. (1963). Improvisation in music: ways toward capturing musical ideas and developing them. Boston: Humphries.

This book provides a basic framework which might serve as a theoretical basis for improvisation. Topics include when and how to start improvising, rhythm as the initiating force, melody-making, how to spark the imagination, building forms, search for essence, improvisation for dance, and group improvisation, among others. Numerous quotations from artists on improvisation are included.

Woody, R. H. (2007). Popular music in school: Remixing the issues. *Music Educators Journal*, 93(4), 32-37.

This article emphasizes the importance of incorporating popular music in the music curriculum, in order to reflect in an accurate way the world were students live. The idea of authenticity in a vernacular music making is brought in order to reflect and respect students' emotional and cultural environments. Concepts like musical performance, rehearsal, listening, practice, aural abilities, peer tutoring, autonomy, cooperative and individualized learning, motivation, improvisation, and musical creativity, are seen as necessary personal and music skills to educate students as lifelong music participants.

Wright, A. (1985). Let them create. The Instrumentalist, 39, 8-9.

An instrumental educator describes composition activities that can be interspersed with traditional study. Composition projects can lead to other creative student activities such as arranging, conducting, and critical analysis. Five suggestions for effective composition experiences are offered.

Yelin, J., Wing, B., & Barfield, R. (1993). Learning through improvisation. Clavier, 33 (1), 20-23.

This article deals with three piano teachers' use of improvisation during the course of each student's regular lessons. Each teacher has a different approach, but all three share a similar enthusiasm for the benefits derived from the use of improvisation. Yelin uses improvisation to teach different style concepts, interpretive nuance, and expressiveness. Wing teaches techniques such as scales, arpeggios, and staccato/legato styles by encouraging improvisation based on one of these concepts. She also believes that this helps balance a lesson that is otherwise teacher directed. Barfield uses improvisation as a basis for teaching composition. She starts with question and answer melodic passages and progresses through basic chording and accompaniment styles.

Young, J. (1986). Self-expression and Creative Expression. American Music Teacher, 35 (5) 32-33.

The author is a certified psychiatrist specializing in creativity. He states "expressing yourself in an art form does not mean what you've done is creative." The artist must be aware of himself and also be aware of others (audience). Works of art must be "new" and have "value" to be given the term "creative". Awareness of others is explained in the context of Piagetian theory. As infants we are self-centered and grow to know the world around us. The artist is self-centered as he develops his art form. The creative artist usually considers the audience when presenting their self-expression. Young also states "self expression becomes creative expression through an awareness of separateness." The artist must be child-like and mature at the same time. Original thoughts must be brought into context of the world's view. Without originality and audience sensitivity, a work cannot be creative expression.

Young, S. (2003). Time-space structuring in spontaneous play on educational percussion instruments among three-and four-year-olds. *British Journal of Music Education*, 20(1), 45-59.

Through videotape observation of children's musical playtime, the author breaks down structures of space and time as they apply to musical play and contests earlier research that characterizes children's musical play as having no structure. The article argues against privileging musical process or product as the primary focus of studying children's music-making; rather, the focal point of such examinations should be the identification of deeper structures, thereby revealing the organizational forms residing at the core of children's musical play.

Younker, B. (2003) The Nature of Feedback in a Community of Composing. In Hickey, M. (Ed.) *Why and How to Teach Music Composition*. 11, Reston VA. MENC: Music Educators National Conference.

The chapter focuses on the necessity of feedback to framing, recognizing, and defining a problem. Although creativity is never specifically mentioned much is said about teacher-directed feedback and student-directed feedback in the compositional process. The article suggests a shift from a master-apprentice to a listener-responder relationship within the classroom. The author does state that the amount of intervention and guidance on the part of the teacher will vary from student to student. Formal and informal assessment should be a multidirectional process that involves feedback, reflection, and responses to the feedback. Opportunities for students to put their knowledge into action can be facilitated by using a situation or a set of parameters as a stimulus for identifying and solving problems in any way they chose. i.e. creatively. The Socratic method line of questioning to generate feedback to lead to the correct response is proposed. The student should uncover the best answer through exploring and evaluating without being told what the best solution is. The ultimate goal of music education is to develop students' innate musicality so that musical experiences, including

composing experiences, can be more meaningful. Articulated responses to questions, with mutual feedback, leads to a shift in power from teacher to student. This leads to the growth of independent musical thinkers who have ownership of their musical and compositional decisions.

Yunker, B. A. (1997). Thought processes and strategies of eight, eleven, and fourteen year old students while engaged in music composition. Unpublished doctoral dissertation, Northwestern University.

The purpose of the study was to explore thought processes and strategies of three 8-, three 11-, and three 14-year-old students that occurred while composing with technology. The students were involved in seven, 1-hour sessions. They were introduced to the software and then asked to compose. While composing they were encouraged to “think aloud” and respond to questions via an unstructured interview technique. Nine themes emerged from the data: elements of music, concepts, expressive gestures, composing processes, incorporation of known material, non-composing processes, technological problems, outlier verbal reports, and outside influences. Other data classifications were reported, including developmental patterns.

Yunker, B. A. (2000). Thought processes and strategies of students engaged in music composition. *Research Studies in Music Education*, (14) 24-39.

The author observed nine students ages 8, 11, and 14 (three of each) as they composed using a computer program. She recorded their verbal responses to questions as well as compositional behaviors to determine whether patterns in thoughts and or strategies emerged across the ages. Having found differences both across and within the age groups, Yunker suggests the need for further study in this area.

Yunker, B., & Smith, W. (1996). Comparing and modeling musical thought processes of expert and novice composers. *Council for Research in Music Education Bulletin*. 128, 25-36.

The purpose of this study is to enhance the understanding of how thought processes are used during the music composition experience and to investigate possible developmental patterns that may emerge based on the collected data and from the composers’ backgrounds. Research questions are: (a) What similarities and differences exist in the nature of thought processes between an adult expert, adult novice, high school expert, and high school novice when undertaking a melodic composition task? (b) Are there enough similarities in thought processes among these four diverse subjects to map a composite structure of this task’s music composition process in graphic, model form? Four subjects participated in the study. Subjects were to talk aloud their thoughts while writing a 14-measure tonal melody. A “rhythmic shell” was provided. Speaking, humming, and singing were captured on tape; music played on a MIDI keyboard was captured via sequencing software; and written notation was captured on manuscript paper. The three forms of input demonstrated by the composers were tactile, visual, and aural.

Zerull, D. (1993). The role of musical imagination in the musical listening experience. Unpublished doctoral dissertation, Northwestern University, Evanston, Illinois.

The author examines imagination as an important aspect of experiencing art and music—especially the role of musical imagination in the musical listening experience. The author used protocol analysis to gather data, presents revised framework of musical imagination, suggests efficacy of thinking aloud while listening and its possible usefulness in assessing student progress in perceptual skills, (though verbal response should not become habit.)

Zerull, D. S. (1992). Just imagine...improving the band experience. *Music Educators Journal* 79(1), 25-28.

This article offers ways to use students’ imaginations to develop their musicianship in the following areas: intonation, individual tone quality, ensemble tone quality, sight-reading and expression. The author suggests the teacher go beyond simple listening and guide the student to develop their musical imagination and imagery – thinking in sound.

Zimmerman, G. (1973). A danger to musical art. *Music Educators Journal*. 60 (2), 68-69.

This article presented a philosophical statement about the need for man to create in his attempt to search for truth. Teachers need to be the catalytic agent for students and the channel for the realization of individual potential. The author stated that "man needs to get his feelings, frustrations and our dreams out where we can examine them."