Improvisation

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Many music educators have advocated the development of students' creativity and improvisation skills in music classrooms (Biasini, Thomas, & Pogonowski, 1970; Consortium of National Arts Education Associations, 1994; Contemporary Music Project, 1966, 1971; National Association of Schools of Music, 1999; Richmond, 1989). Despite such advocacy, much of the literature on the topic of improvisation in music education points to the fact that it is rarely part of the core of music education curricula (e.g., Azzara, 1993; Kratus, 1989; Schmidt & Sinor, 1986; Webster, 1987a). With the publication of *National Standards for Arts Education* (Consortium of National Arts Education Associations, 1994), music educators have become increasingly aware of the importance of the art of improvisation as a valuable musical skill for all music students. Researchers have continued to articulate the need for improvisation instructional materials, teacher education in improvisation, and, in general, emphasis on improvisation as a vital part of music curricula (e.g., Azzara, 1999; Bitz, 1999; Brown, 1991; Della Pietra & Campbell, 1995; Gregory, 1996; Jorgensen, 1998; Lubart, 1998; Richmond, 1989; Riveire, 1998; Rosfeld, 1989; Townsend, 1998).

The purpose of this chapter is to discuss the nature of improvisation and its role in the music teaching and learning process. Included are significant studies on improvisation in music and music education, interpretation of this research, and suggestions and questions for research and practice. The chapter has two sections: "Components of Improvisation" is a discussion of several components of improvisation: definition; social and cultural and psychological aspects; and historical significance and performance practice in world music and Western music. "Pedagogy Research and Practice" is a discussion of improvisation pedagogy research, implications for teaching practice, and improvisation's role in the music curriculum. This section includes discussions of improvisation research and practice in vocal, general, and instrumental music, technology, and jazz pedagogy.

Components of Improvisation

Definition

Improvisation has been an essential component of music throughout history, yet its manifestation in contemporary music classrooms is not clearly defined. In most cases, comprehensive improvisation skill development is absent from music curricula. When improvisation has been incorporated into music curricula, it appears in a variety of ways and consensus regarding a definition for improvisation or emerging improvisation skills is difficult to find. With a deeper understanding of what it means to improvise, music educators may begin to come to terms with its role in the teaching and learning process.

In much of the research, the definition of improvisation involves an ability to make music spontaneously within specified musical parameters. Kratus (1990) differentiates between exploration and improvisation: "A person who is improvising is able to predict the sounds that result from certain actions, whereas a person who is exploring cannot" (p. 35). Spontaneity and interaction also are central ingredients to most definitions of improvisation found in the related research. Studying the features of creative improvisation, Briggs (1987) notes that there are certain universal components in all creative improvisation. Briggs refers to improvisation as "musical dialogue" and states that model sound patterns and processes of interaction were common to each improvisation investigated. Briggs also

points to extramusical factors such as context, environment, background, and experience of the improvisers as contributing factors to the content and form of the music.

In a study of fifth-grade instrumentalists' ability to improvise (Azzara, 1992), I defined improvisation as a manifestation of musical thought. In this research, *improvisation* means that an individual has internalized a music vocabulary and is able to understand and to express musical ideas spontaneously, in the moment of performance. Improvisation is often compared to speaking and conversation in language. B. Dobbins (1980) compares the improvisation process to language:

> Full proficiency in a verbal language must include the ability to command a considerable vocabulary with equal facility at the reading, conversational, and intuitive levels. The development of proficiency in a music "language" involves the same general process. The ability to play a Beethoven sonata or an Art Tatum solo is, by itself, no more an indication of musical creativity than is the ability to read a Shakespeare play an indication of the ability to use the English language creatively. (p. 37)

In this context, improvisation skill allows individuals to express musical thoughts and ideas from an internal source, with meaning, and it also promotes the acquisition of higher order thinking skills.

A variety of viewpoints exist that regard the relationship between improvisation and composition. S. Nachmanovitch (1990) writes:

> In improvisation there is only one time . . . the time of inspiration, the time of technically structuring and realizing the music, the time of playing it, and the time of communicating with the audience, as well as ordinary clock time, are all one. Memory and intention (which postulate past and future) and intuition (which indicates the eternal present) are fused. (p. 18)

Sarath (1996) contrasts improvisation and composition "from the standpoint of temporal perception" in a model with the central premise "that the improviser experiences time in an inner-directed, or 'vertical,' manner, where the present is heightened and the past and future are perceptually subordinated" (p. 1). Detailing the importance of "inner-directedness," ideas that sound in the localized present, and spontaneity, Sarath outlines an analytical and aesthetic framework for improvised music. M. Pelz-Sherman (1999) also presents a framework for analyzing improvised music. This model describes the structural analysis of music created by a group of improvising musicians as being distinct from the structural analysis of traditionally composed music. He notes that improvised music relies on the interactions among the musicians performing in the moment as compared to a sole composer making musical decisions outside of real time. The three "building blocks" of the analysis framework are soloing/accompanying, sharing, and not-sharing. According to Pelz-Sherman, musicians must develop high levels of communication skill using these building blocks in order to interact successfully.

Several themes that appear in the literature help to define improvisation. Key factors for defining improvisation include a process of (1) spontaneously expressing musical thoughts and feelings, (2) making music within certain understood guidelines, and (3) engaging in musical conversation (Azzara, 1999; Dobbins, 1980; Kratus, 1990; Sawyer, 1999). P. Nardone (1997) conducted a phenomenological psychological analysis in an attempt to understand the meaning of improvisation as a distinct form of artistic activity in the life-world of musicians. Nardone reports the findings of this analysis as "lived meanings" that constitute the psychological experience of improvisation and the musical context in which improvisation takes place. These include: (1) ensuring spontaneity while yielding to it; (2) being present and not present to musical processes; (3) exploring familiar and unfamiliar musical terrain; (4) drawing from a corporeal and incorporeal source of musical inspirations; (5) having trust and confidence in oneself and musical others in musical risk taking; (6) extending toward the listening other in musical risk taking; (7) perceiving temporality as altered; and (8) attending moment to moment to temporality.

Several educators (Abramson, 1980; Aebersold, 1988; Azzara, 1999; & Kratus, 1991) urge that improvisation can and should be a meaningful part of every person's life and education. Nachmanovitch (1990) states: "When we think *improvisation,* we tend to think first of improvised music or theater or dance; but beyond their own delights, such art forms are doors into an experience that constitutes the whole of everyday life. We are all improvisers" (p. 17).

Social Aspects, the Role of Community, and the Importance of an Improvisation Culture

Much of the improvisation literature recommends the importance of creating a culture that embraces and encourages improvisation, creativity, and risk taking. Csikszentmihalyi (1996) describes creativity as a systemic phenomenon and notes that creativity happens in the interaction between a person's thoughts and a sociocultural context. He writes: "Creativity is any act, idea, or product that changes an existing domain, or that transforms an existing domain into a new one" (p. 28). Improvisation takes place in a social context, with various individuals interacting with one another to create the music.

Leavell (1997) studied social aspects of secondary students' jazz band experience, remarking that student per-

spectives in improvisation have for the most part been ignored. He investigated students' views about improvising, playing individualized parts, and interpreting and articulating swing rhythms and reported that several students felt anxious when improvising alone in front of their peers and that group improvisation and rhythmic embellishment of familiar tunes were helpful in alleviating their concerns. The students also were aware of the environmental differences between jazz band and concert band and felt they had more "freedom of expression" in the jazz band setting of this study. Demonstrating another outcome of this freer environment, Leavell observed that the more eager student improvisers forged friendships with one another.

Montello (1990) examined the effect of "holistic group music therapy" that incorporated clinical musical improvisation, musical performance, awareness techniques, and verbal processing as a treatment for the fear and anxiety aspect of performance stress. This intervention was found to be an effective way to reduce performance stress and help musicians become more aware of the issues related to performance anxiety, experience a safe environment, transform stress through creativity, and bond in the spirit of community.

The role of community, interaction, and the aural learning process in folk (Adler, 1980), jazz (Berliner, 1994; Collier, 1996; Monson, 1992, 1996), and world music (Brinner, 1986; Thompson, 1995) traditions has been examined. Improvisation and playing by ear are central to folk, jazz, and world music. In a study of the learning and "traditionalizing" process of amateur bluegrass banjo players, Adler suggests that a person's involvement in the tradition of bluegrass is a progressive sequence of "intentional" stages as "auditor," "competent listener," "inceptor," "beginner," and "competent banjoist." Adler continues that in the process of becoming a competent bluegrass banjo player an individual proceeds through a series of important encounters with the music, model players, and an instrument. The author notes that competent players express themselves by connecting their musical thoughts to sounds.

Monson (1992) examined the musical interaction in modern jazz and comments that the musical and social context of the jazz ensemble is fundamental for explaining the musical events and choices that occur during improvisation. From research with professional jazz musicians Monson found that individual instrumentalists stressed the importance of musical interaction. They also spoke of the need for players to develop keen listening skills in order to anticipate and respond to one another's musical ideas.

Interaction among musicians is an important aspect of musical expression in the performance of the Solonese *pathetan* repertoire (Brinner, 1986). *Pathetan* are short, ametrical, rhythmically free polyphonic pieces performed on four of the elaborating instruments of the Central Javanese gamelan with or without male chorus or vocal soloist. Rather than learn a specific part, musicians learn the process for creating their part. Various melodies interact and are coordinated in an ametrical context. Skill in playing *pathetan* depends on a musician's ability to play smaller patterns in response to other musicians within the context of larger patterns that make up a *pathetan.* The interaction among musicians is based on a set of cues, the role of instruments in the ensemble, and the personality, experience, age, and status of the ensemble members. In a study of the Mandinka drummers in the Gambia, Thompson (1995) explored the process by which rhythmic structures and improvisation were used to create music and social life. In this setting, the lead drummer plays a critical role in the development of musical dialogue and social interaction through the rhythmic, melodic, and communicative aspects of the drumming.

A necessary element for creating an improvisation culture is the letting go of fear. Nachmanovitch (1990) writes of "five fears" the Buddhists describe that are obstacles to our freedom to create: fear of loss of life, fear of loss of livelihood, fear of loss of reputation, fear of unusual states of mind, and fear of speaking before an assembly. Fear of speaking before an assembly is taken to mean "stage fright," or fear of performing. Fear of performing is "profoundly related to fear of foolishness, which has two parts: fear of being thought a fool (loss of reputation) and fear of actually being a fool (fear of unusual states of mind)" (p. 135). To these fears Nachmanovitch adds the fear of ghosts, that is, being overcome by teachers, authorities, parents, or great masters. Werner (1996) also discusses the aspect of fear—fear-based practicing, fear-based teaching, fear-based listening, and fear-based composing. Werner writes that improvisation and self-expression require "the taming of the mind, the dissolution of the ego, and the letting go of all fears" (p. 75). Both Nachmanovitch and Werner cite Aaron Copland (1952), who said: "Inspiration may be a form of super-consciousness, or perhaps of subconsciousness—I wouldn't know. But I am sure that it is the antithesis of self-consciousness" (Nachmanovitch, 1990, p. 51).

Psychological Aspects and Mental Processes

Individuals such as Elliot (1995), Gordon (1997a), Kratus (1991), Pressing (1988), Sarath (1996), Serafine (1988), Sloboda (1985, 1988), and Webster (1988, 1991) attempt to describe the mental processes that enable persons to create meaning in music. Elliot (1995) writes that musical creativity, that is, a performance, improvisation, composition, or arrangement, exists in the context of musical practice and is the result of both musical intelligence ("enabling" abilities) and musicianship ("promoting" abilities).

Webster (1988, 1991) describes the creative process as beginning with an intended product, for example, impro-

visation/performance or composition. The nature of creativity, according to Webster, depends on "enabling skills" (e.g., music aptitudes, conceptual understanding, craftsmanship, and aesthetic sensitivity) and is influenced by "enabling conditions" (e.g., motivation, subconscious imagery, personality, and environment). Webster proposes that through a process of divergent and convergent thinking skills these enabling skills and conditions ultimately come together in the creation of a product.

Kratus (1991) and Hargreaves, Cork, and Setton (1991) note that differences in approach are apparent when one compares the experiences of novice and expert improvisers. Kratus (1991, 1996) developed a multilevel sequential model for understanding the improvisation process. His theory describes seven levels of development. In the *exploration* level, the student tries out sounds and combinations of sounds in a loosely structured context. The student produces more cohesive patterns in *process-oriented improvisation* and then becomes conscious of structural principles such as tonality and meter in *product-oriented improvisation. Fluid improvisation* occurs when the student manipulates his or her voice or instrument in a more automatic and more relaxed manner. In *structural improvisation,* the student is aware of the overall structure and develops a repertoire of strategies for shaping an improvisation. *Stylistic improvisation* involves the skillful incorporation of melodic, harmonic, and rhythmic characteristics of a musical style. At the highest level, *personal improvisation,* individuals are capable of transcending recognized improvisation styles and developing a new style.

Improvisation is a skill and level of learning in Gordon's music-learning sequence (1997a). In the development of his music-learning theory, Gordon coined the term *audiation.* Audiation offers a more precise definition of musical imagery, that is, aural perception and kinesthetic reaction, and a definition of how persons understand and create meaning in music. In the current definition, Gordon describes several types and stages of audiation. He defines audiation as hearing and comprehending in one's mind the sound of music that is no longer or may never have been physically present (1997a). Audiation is to music what thinking is to language. Gordon states that we audiate music we have heard, as well as the music we are predicting; individuals audiate music when reading, writing, creating, improvising, listening, and performing. The abilities to retain, recall, compare, and predict are recognized as primary mental functions in Gordon's definition of audiation. Gordon suggests that for meaningful improvisation to take place, an individual must audiate what he or she is going to create or improvise (Gordon, 1997a; Richmond, 1989). He also suggests that "perhaps only the readiness to learn to improvise can be taught, and improvisation itself has to be learned" (2000, p. 35). Gordon (1997b, 2000) has studied the "readiness" for harmonic and rhythmic improvisation and has designed two tests, the Harmonic Improvisation Readiness Record and the Rhythm Improvisation Readiness Record, for helping teachers adapt instruction to students' individual needs. For tonal improvisation, Gordon (1997b) recommends that students should

> hear a variety of tonal patterns, imitate (echo) a variety of tonal patterns, audiate tonal patterns, produce tonal patterns, and improvise tonal patterns. For harmonic improvisation, students should hear a variety of harmonic progressions, imitate (echo) a variety of harmonic progressions, audiate harmonic progressions, produce harmonic progressions, and improvise harmonic progressions. (p. 10)

Sloboda (1988) edited a textbook that contains contributions from various authors interested in generative processes in music, that is, the psychology of performance, improvisation, and composition. The editor notes the "inextricable connection" of generative and receptive processes in music as a recurring theme of the book. He comments on researchers' neglect of generative processes in music and cites three concerns: cultural bias, problems of measurement, and problems of control. Based on the findings of the contributors, Sloboda provides a supposition that the impulse to generate and perform music is as intrinsically a part of being human as is the impulse to generate language. Contributors Sagi and Vitanyi (1988) studied the spontaneous improvisation of untrained, "ordinary" Hungarians and emphasized the features of style and structure inherent in their improvisations. Similarly, Dowling (1988) provides evidence to demonstrate that young children produce "spontaneous songs which incorporate but by no means mimic elements of adult productions" (p. vi). Dowling notes that children's songs contain both the elements of reproduction and improvisation "intertwined." Sloboda also cites the work of Swanwick and Tillman (1986) as an example to support the idea that when given opportunities for self-directed musical productivity "children demonstrate an impressively varied yet ordered progression of compositional strategies right through the school ages" (p. vii).

Pressing (1988) surveyed the modeling tools from a number of different disciplines in an attempt to understand how people improvise and how improvisational skill is learned and taught. He presents a cognitive model for the process of improvisation and relates this model to improvisation skill acquisition. His theory of improvisation focuses on the moment-to-moment choices within the structure of an improvisation. The model is "reductionist" in the sense that the cognitive construction of mental processing is broken down into "aspects" and then into "types of analytical representation" and these into "characterizing elements." Pressing suggests that the improvisation process develops as a series of choices of "event clusters" that ei-

ther continue or interrupt the context of the stream of elements.

These models for understanding the improvisation process provide researchers with several points of departure for continued investigations. Many of the conclusions drawn here need to be substantiated by evidence in research and practice. With a better understanding of the creative processes involved in improvisation, music teachers will be able to improve instruction and provide environments conducive to creativity and improvisation.

Historical Significance: World and Western Music Performance Research and Practice

World Music. Improvisation plays an important role in music from all over the world. For example, the gamelan music of Java and Bali involves high levels of group improvisation performance (Brinner, 1986). Park (1986) provides an example of improvisation's role in Korean music. Park studied Korean creative musicians, the *tanggol,* and their accompanists, the *koin.* This author examined how these musicians function as individual performers and as integrated groups in the process of improvisation. Displaying much skill and intuitive ability, these musicians invent melody and poetry to meet the specific circumstances of particular rituals.

Other examples of improvisation can be found in the music of Turkey, China, Yugoslavia, and Iran and throughout sub-Saharan Africa (Campbell, 1990; Stubbs, 1995). The Persian system of improvisation is taught by the learning of the *radif,* a large repertoire of mostly nonmetric music. The *radif* forms the basis for improvisation and composition. Throughout Africa, improvisation plays a vital role in the music-making process. In West Africa, certain traditions require the spontaneous creation of new melodies, rhythms, and song texts during the act of performance (Campbell, 1990).

In South India, musicians improvise passages and variations in the performances of a repertory of composed songs (Cormack, 1992; Reck, 1983). Cormack documented and analyzed *svara kalpana,* one of several improvised forms performed in a South Indian classical Carnatic concert. Reck studied the music of South India through the life and performances of a South Indian musician. He notes that South Indian musicians learn and perform music by ear and that improvisation skill is developed in the process of teaching and learning. This work also defines the concepts of raga (mode) and tala (meter) and, in particular, provides an understanding of the raga and tala of the performances studied.

Booth (1987) presents a case study of the oral transmission practices of tabla performers in transition. Tabla are the drums of North Indian art music that accompany both instrumental and vocal performance. Booth observed tabla lessons and interviewed tabla performers, teachers, and students in five urban centers of northern India. He found contrasts in the philosophy and pedagogy between the more "traditional" teachers, who believed that teaching was an obligation of their art and the more "contemporary" teachers who thought of teaching as a source of income. Improvisation was a goal of the more traditional, oral transmission of the music; memorization was a goal associated with the more contemporary, literate transmission of the music. Booth offers a comparison to the "oral–literate" dichotomy present in the development of music education in the United States.

Western Music. Improvisation has also been a prevalent part of music making throughout the history of Western music. In recent years, many performers, especially performers of music from the 18th century and before, have developed skill and understanding for improvisation in the interest of authentic performance. For example, the art of improvisation was important to the development of melismatic types of liturgical chant. Other examples of improvisation in early music are found in the performance of discant, in the performance of medieval songs such as *cantus coronatus,* and in *faburden*—an English technique of polyphonic vocal improvisation performed in the 15th and 16th centuries (Ferand, 1961).

Improvisation was essential to the performance practice of the music in the Baroque and Classical eras of Western music history (Candelaria, 1987; Ferand, 1961; Greenan, 1997; Weiss & Taruskin, 1984). Many of the composers of the Western canon, for example, Bach, Handel, Mozart, and Beethoven, were exuberant improvisers and teachers (Bellman, 1991; David & Mendel, 1972; Mann, 1987; Schonberg, 1987; Weiss & Taruskin, 1984). Improvisation, active performance, and teaching were all closely related and played a vital role in these great composers' lives. Mann points out, for instance, that Bach's and Handel's attitude toward teaching

> is evident, on the one hand, from the fact that the study of composition was invariably linked to skill in active performance, and on the other hand, from the fact that both composers constantly rewrote their own works—as well as the works of others—with a view to changing performance requirements. (p. 7)

Researchers such as Lamott (1980), Harrison (1995), and Nutting (1989) have examined the field of organ improvisation teaching and practice. For example, Lamott provides a detailed examination of *Nova Instruction Pro Pulsandis Organis,* a 17th-century keyboard treatise designed for the systematic teaching of preludial improvisation. *Nova Instruction* was written by a German Carmelite

and was published in three parts in 1670 and 1672 and circa 1675–1677. Lamott (1980) describes this treatise as an extensive practical method for teaching improvisation through the partimento-style realization of figured bass progressions. It particularly addressed organists and choirmasters in monasteries who, because of liturgical requirements, improvised daily. Another researcher, Harrison (1995), studied an 18th-century pedagogical treatise on beginning keyboard playing written by organist Michael Wiedeburg. Harrison writes of Wiedeburg's life, musical career, and improvisation pedagogy. Weideburg's method for improvisation instruction can be found in the third volume of this large three-volume treatise. It begins with explanations of harmony and simple patterns for chorale improvisations and progresses to the improvisation of free fantasies and other 18th-century forms not based on chorales. Volume 3 also includes Weideburg's pedagogical ideas for how to improvise chorale harmonizations, simple variations, and interludes. In 1989, Nutting wrote a technical manual based on hymn tunes for the purpose of developing specific improvisation techniques such as (1) varying a melody; (2) developing motives; (3) playing common harmonic progressions; (4) playing hymn settings by supplying one or more voice and/or placing the melody in the alto, tenor, or bass voice; (5) reharmonizing hymn tunes; (6) extending and creating phrases; and (7) improvising complete hymn settings that included introduction, interludes, and coda.

Greenan (1997) states that improvisation is vital to the identity of the Classical style. The cadenza is a well-known vehicle for improvisation in music for soloists, especially in the concerto or other work with accompanying ensemble. Greenan's study contributes a more comprehensive understanding of the music of the Classical period by identifying the role of a structurally important means of improvisation: the *Eingang*. An *Eingang* is a short, cadenza-like passage for the soloist that precedes and leads into a solo section in a work. The study cites references to the *Eingang* in treatises that range from Quantz to Czerny. Greenan argues that the Eingang of the Classical period may be seen as a transitional vehicle between the Baroque musical aesthetic, in which the performer(s) completed the melodic progression through improvisational melodic ornamentation and figured bass realization, and the Romantic musical aesthetic, where the composer permanently completed an individually expressive, quasi-improvisatory melodic progression (p. 5).

In the 19th century, Carl Czerny (1836, 1836/1983) wrote a comprehensive treatise on the subject of piano improvisation, which is considered to be the first attempt to present such a work on this topic to the public (Goertzen, 1996, p. 301). Johann Nepomuk Hummel, an influential composer and one of the greatest improvisers of his time, also wrote a method for piano that had a significant effect on piano pedagogy in the first half of the 19th century. Hummel's thoughts on the importance of improvisation in music education are expressed in this instructional book:

> I close by recommending free improvisation in general and in every respectable form to all those for whom [music] is not merely a matter of entertainment and practical ability, but rather principally one of inspiration and meaning in their art. This recommendation, to be sure, has never been so urgent now, because the number of people whose interest belong to the former category and not to the latter has never been so great. Even if a person plays with inspiration, but always from a written score, he or she will be much less nourished, broadened, and educated than through the frequent offering of all of his or her powers in a free fantasy practiced in the full awareness of certain guidelines and directions, even if this improvisation is only moderately successful. (Hummel, 1828/1829, p. 468; Goertzen, 1996, p. 305)

Chopin, Mendelssohn, Liszt, Bruckner, Saint-Saëns, and Franck were well known for improvising in the style of their own compositions. Bellman (1991) presents historical research on Fredric Chopin's performance style and suggests parameters for improvisation in Chopin's Nocturnes. Goertzen (1996) studied the history of improvised piano preludes in the 18th and 19th centuries. This author states that improvising preludes was a common part of piano performance at this time in history, but that it is not a part of current performance practice because of the absence of notation. Goertzen also notes that Hummel and Czerny outlined the guidelines for constructing preludes in their method books. This study provides examples of improvised piano preludes of Mozart, Clementi, Mendelssohn, Clara Schumann, and Robert Schumann.

While some 20th-century and now 21st-century classical composers have included improvisation sections in their pieces, improvisation's role in Western classical music has decidedly declined since the middle of the 19th century. Currently the art of improvisation thrives in jazz. Schuller (1968) writes: "Improvisation is the heart and soul of jazz" (p. 58). Through a process of chronicling jazz musicians' experiences with improvisation as the centerpiece of their art form, Berliner (1994) describes the nature of jazz improvisation. His text includes firsthand accounts from musicians who describe the preparation and process for improvising jazz. Significant to Berliner's model for jazz improvisation are the concepts of early musical environments, the jazz community as an educational system, developing a jazz repertoire, developing a jazz vocabulary, interaction, musical conversation, jazz as a way of life, thinking jazz, and making music in the moment.

Since the 1940s, researchers in music education have investigated the nature of improvisation and have developed and examined instructional materials to teach improvisation. The section that follows considers this research.

Pedagogy Research and Practice

Improvisation is defined and incorporated into music education curricula in a variety of ways. Researchers have used various criteria for understanding improvisation skill, ranging from exploration and free improvisation to improvisations based on form and harmonic progression. This review of the literature is organized by research that relates to: (1) preschool/classroom improvisation, (2) improvisation in instrumental music, and (3) jazz improvisation in vocal and instrumental settings.

Preschool/Classroom Improvisation Research

Particular attention has been given to the improvisation of young children. Moorhead and Pond (1978) published one of the first studies of children's improvisations. The research took place during the 1940s at the Pillsbury Foundation School in Santa Barbara, California. Moorhead and Pond observed 2- to 6-year-old students chanting improvisations and playing improvisations on instruments. The researchers found that with guidance and experience children could improvise as they explored tonal and rhythmic patterns. The initial improvisation experiences involved the exploration of tone and timbre. Improvisations included patterns within a steady beat and asymmetrical patterns. In 1981 Pond reflected upon his work at the Pillsbury school, noting the importance of community:

> Music making, as I observed, became an integral part of the community's life—there were few activities that were not spontaneously accompanied by *their* appropriate music. In this regard I found, again, my studies of the music of primitive peoples instructive. (p. 11)

The Pillsbury Foundation School began operation in Santa Barbara in February 1937 and continued until 1948. The Pillsbury Foundation School Archives are now housed at the Music Educators National Conference Historical Center, University of Maryland. Wilson (1981) comments that "somewhat like the belated discovery of Charles Ives' music, music researchers and teachers are perhaps more ready for a knowledge of the Pillsbury Foundation School now than they were when it was a contemporary institution" (p. 13). In a project similar to Pond's work, Cohen (1980) spent 3 years observing kindergarten children. In addition to making detailed personal observations, Cohen videotaped the kindergartners, in particular the interactions of two children. Cohen found that the children explored with instruments and musical sounds, developed mastery with certain skills, and produced "musical gestures" (musical ideas a few notes in length or longer) as a part of the improvisation process.

Dalcroze and Orff Schulwerk curricula emphasize improvisation in the music learning process. Dalcroze improvisation activities include spontaneous movement, vocal performance, and instrumental performance. With regard to Dalcroze and music education, Abramson (1980) states: "To improvise is to speak the musical language of motion and pitch, without text, but clearly, expressively and memorably. Jaques-Dalcroze thought of improvisation as basic to life, as an expression of life, and as life itself" (p. 68). Joseph (1983) studied a Dalcroze Eurhythmics approach to learning music for kindergarten children. Music classes involved activities that incorporated ear training, rhythmic movement, and improvisation. This research compared three groups of kindergarten students. Group 1 received "informal" music instruction, group 2 received Eurhythmics with improvisation, and group 3 received Eurhythmics without improvisation. In the course of 1 year, the students involved in the Eurhythmics program participated in 44 lessons that incorporated ear training, movement exploration, rhythmic movement, rhythmic games, relaxation, improvisation, and a "concert time." As a result of this research, Joseph concludes that Dalcroze Eurhythmics that incorporates improvisation should be included in early childhood music education in order to enrich children's musical lives. Joseph (1983) states:

> In Dalcroze Eurhythmics, movement is not an end in itself; it is a means for heightening music perception and clarifying abstract concepts by relating physical motion to musical motion. Vocal and instrumental improvisation are the synthesis of rhythmic movement and ear-training; innate creativity and accumulated experiences interact to produce one's personal musical statement. (p. 59)

An important goal of Orff Schulwerk teachers is to establish "an environment conducive to nurturing the creative ability and musical independence of students" (Martin, 1993). Munsen (1987) and Martin (1993), who replicated the study, analyzed and described selected aspects of an Orff Schulwerk program of music education. Orff Schulwerk activities involve singing, the use of *borduns,* improvised rhythms, improvised movement, and improvised pitches from the pentatonic scale. More advanced Orff Schulwerk improvisation activities incorporate the church modes, diatonic scales with functional harmony, and more chromatic materials.

Flohr (1979) cites the Manhattanville Music Curriculum Project (MMCP) definitions for improvisation and incorporates a hierarchy of "exploratory improvisation," "free exploration," and "guided exploration." He asked 4-, 6-, and 8-year-old children to improvise on a xylophone using a two-octave pentatonic scale. Flohr made the following conclusions: (1) young children are able to improvise patterns that are related to musical stimuli; (2) young

children are able to form musical images in response to verbal stimuli; and (3) as children mature, tonal orientation and a sense of cohesiveness in improvisation improve. In a second study, Flohr (1985) confirmed that young children could use musical patterns to unify their improvisations.

Reinhardt (1990) examined the rhythmic improvisations of 3-, 4-, and 5-year-old children. While accompanied by a *bordun* played on a bass xylophone, children improvised songs playing a diatonic alto xylophone. Reinhardt found that nearly all of the students in the study were able to improvise with a steady beat and a consistent meter to the *bordun* accompaniment. The researcher also found that older children used a greater variety of rhythm patterns in their songs than the younger students. T. S. Brophy (1999) examined age-related differences in the melodic improvisations of 6- through 12-year-old children that might be developmental in nature. The children in this study improvised three eight-measure melodies drawn from the C-pentatonic scale on an alto xylophone. These melodies were performed as the B, C, and D sections of a seven-part rondo for Orff Schulwerk instrumentation. The entire rondo was accompanied by a broken *bordun* played on the bass xylophone. The findings of this study indicate that developmental trends were present for the rhythmic and structural dimensions of improvisation performances but not the melodic dimension. Also, age and facility with mallets appear to be significant predictors of the improvisation characteristics researched in this study. The combined characteristics of the improvisations change significantly with age independently from mallet facility. Brophy considers this change developmental in nature. The improvisations grow to include more formally organized content, the creation of more rhythm patterns, and increased motivic development. Changes were particciularly evident from ages 6 through 9, followed by a period of stasis from ages 9 through 11. The developmental trends seem to continue at age 12.

In a study that combined Gordon's audiation-learning sequence techniques and Orff Schulwerk–based rhythm improvisation activities, Jessen (1993) examined the effect of audiation on sixth-grade students' ability to improvise rhythmically. Jessen concluded that (1) audiation and improvisation techniques must be developed slowly; (2) a correlation exists between rhythm aptitude, as measured by Gordon's *Intermediate Measures of Music Audiation*, and three dimensions of rhythm performance: completeness of beats, steadiness of pulse, and sense of finality; and (3) understanding steady beat is a prerequisite to audiating rhythm.

Freundlich (1978) investigated the development of musical thinking by examining a child's spontaneous solution to a musical problem. He worked with two fifth-grade students, asking them to improvise on a diatonic xylophone within the musical "frame" of a standard 12-bar blues. The improvisations were transcribed and analyzed using three dimensions: (1) conformity to the frame, (2) coherence within the improvised line, and (3) enrichment of musical material. The results indicated that the children could produce "authentic" musical ideas without notation. The musical concepts provided by the improvisation procedure were found to be logically organized and feasible for improvisation study. In his work with children 4 to 10 years of age, Ott (1996) found that formal instruction contributed significantly to the prediction of improvisation skill when students were provided with a harmonic context in root position.

Children from three schools in Budapest participated in a study of improvisation ability by Laczó (1981). Laczó examined the improvisations of children of different ages and musical education and found that the amount of students' music experience and music education does have an effect on their ability to improvise. Kalmár and Balasko (1987) studied the melodic improvisations sung by children from two nursery schools in Budapest. An examination of these children's improvisations revealed evidence of a "musical mother tongue." That is, many of the improvisations appeared to be "creative transformations" of learned musical material. Kalmar and Balasko write: "Many of the typical features of the Hungarian folk children's songs, in respect to volume, tonality, intervals, structure, phrases and rhythm patterns, are identifiable in the children's improvisations" (p. 81). Both the amount and quality of the child's musical experience are evident in the improvisations. An important finding of this research is that children who demonstrated the highest levels of creative music performance were taught in a setting where the teacher was musically well educated and creative.

Daignault (1997) provides an example of research that incorporates computer technology and improvisation in the process of composition. Students, aged 10–11, were asked to record three to eight improvisations onto a sequencer as an initial step in the composition of a piece of music. The children were then asked to select one improvisation for further development with notation.

The diversity of means in which improvisation in preschool and classroom general music is defined and measured compounds the nature of interpretation and application of this research. Common threads to much of the research are that, when given the opportunity, children will improvise to varying degrees; improvisation skill is developmental in nature; and as children mature, their improvisations become more consistent and integrated. More research is needed that deals with how these improvisation skills connect and transfer to music making outside of the general music class, that is, in the students' home music

culture. Additional research should also be conducted to (1) investigate the relationship between improvisation skill in preschool/classroom general music and performance on a band/orchestra instrument and (2) investigate the relationship between improvisation skill in preschool/classroom general music and more advanced improvisation skills.

Instrumental Music Improvisation Research

Another setting for the study of improvisation in music education is in instrumental music instruction. Several researchers in this field are interested in studying the relationship between improvisation and the ability to read music as a criterion measure of musical achievement (Azzara, 1992; McPherson, 1993; Montano, 1983; J. Wilson 1971). The results of these studies suggest that while improvisation is a valuable skill in its own right, it appears that improvisation ability transfers to a student's clearer comprehension of music performed from notation. Montano, for example, examined the effect of improvisation of given rhythms on rhythmic accuracy in sight-reading achievement by college elementary group piano students. The problem of this study was to assess whether those college elementary group piano students who have regular practice improvising specific pitches for pieces within various meters, rhythmic notations, and textures would show greater achievement of rhythmic accuracy in sight-reading than similar students who did not have that practice. Montano used an experimental pretest/posttest control group design with 32 undergraduate students from elementary group piano classes. The data from this research indicated that students who had the improvisation practice demonstrated significantly greater achievement of rhythmic accuracy in sight-reading than the control group who did not have that practice.

In my 1992 work, I discuss the relationship between improvisation and music reading in my research on elementary school–aged instrumentalists. The purpose of this research was to develop and to examine an improvisation curriculum designed to improve the music achievement of elementary school instrumental music students. The researcher-designed curriculum used in this study included (1) learning to sing and to play a repertoire of melodies and bass lines by ear, (2) chanting, playing, and improvising rhythm patterns and series of rhythm patterns in the context of duple and triple meter, (3) singing, playing, and improvising tonal patterns and series of tonal patterns in the context of harmonic progressions in major and minor tonalities, (4) learning solfège that defines harmonic function and learning rhythm syllables that define rhythm movement, (5) improvising rhythm patterns to familiar bass lines and improvising rhythms on specific harmonic tones, (6) improvising melodies by choosing notes that outline the harmonic functions of the progression, and (7) combining improvised rhythm patterns and improvised tonal patterns to improvise a melody. Music achievement was measured in terms of the instrumental performance of three etudes I composed: a student-prepared etude, a teacher-assisted etude, and a sight-read etude. The specific problems of this study were to investigate the effect of improvisation study on the music achievement of fifth-grade wind and percussion music students and to investigate the differential effects of levels of aptitude on the music achievement of fifth-grade wind and percussion music students. Four judges independently rated the performances using a rating scale with 5-point continuous criteria tonal and rhythm dimensions designed by the researcher and a 5-point expression dimension. Results indicated that students who received instrumental music instruction that included an improvisation curriculum had significantly higher composite etude performance scores than those students who received instrumental music instruction without an emphasis on improvisation. Significant differences were also found among aptitude levels.

I concluded that improvisation study improves the music achievement of elementary instrumental music students and that with improvisation skill students can express their musical thoughts spontaneously. This expression is possible when students comprehend the tonal and rhythm patterns of a musical line within a larger context. In other words, when students understand tonal and rhythm patterns and can combine and sequence them in a syntactic manner they internalize a sense of tonality and meter. This kind of understanding engenders an understanding of harmonic progression. Harmonic progression is defined here in a linear sense by *how* the harmony changes (tonal function) and *when* the harmony changes (harmonic rhythm). Based on this research, I concluded that when asked to improvise in this fashion, students express what they are thinking in terms of tonality, meter, and expressive performance; furthermore, students who have the skills to improvise enhance their performance of notated music. I suggest in my 1999 work that to begin the improvisation process, individuals should listen to improvised music, learn a repertoire of tunes by ear, learn melodies and bass lines by ear, learn harmony and counterpoint by ear, learn the vocabulary of the genre by ear, and take risks.

The effects of group improvisation on the musical development of selected high school instrumental music students was examined by J. Wilson (1971). Wilson employed a method of improvisation originated by Lukas Foss and Richard Duffalo that was adapted for secondary use by Silverman (Silverman, 1962; Gould, 1963). In this study, students became familiar with a hierarchy of intervals and their relationships to their guide tone, that is, the note se-

lected as the tonal center. The results indicated that students with improvisation experience made greater improvements than the control group in aural recognition of melodic elements and idioms, aural recognition of rhythmic elements and idioms, and sight-reading.

Many investigators have used Guilford's four basic divergent production abilities—fluency, flexibility, elaboration, and originality (Guilford & Hoepfner, 1971)—as a point of departure for measuring musical creativity (Gorder, 1980; Hassler & Feil, 1986; McPherson, 1993, 1995, 1996; Vaughan, 1977; Vaughan & Meyers, 1971; Webster, 1977, 1987b). Torrance (1966) also researched and developed creativity tests using these constructs. In research on the construction of a test of musical creativity in school instrumental music students, W. Gorder (1980) defined musical divergent production abilities that directly paralleled Guilford's definitions of the four constructs. This test, titled Measures of Musical Divergent Production (MMDP), was based on models of Guilford and Torrence. Tests were scored for the number of improvised phrases produced (fluency), shifts of musical content (flexibility), varied use of musical content (elaboration), rarely used content (originality), and a fifth ability of musical appeal that Gorder calls music quality. In a study with high school instrumental and choral students, Webster (1977) developed a scoring approach similar to Gorder's, translating Guilford's four constructs into musical terms. Webster asked students to perform increasingly difficult musical tasks on melody bells. This involved the performance of the melody "Twinkle, Twinkle, Little Star" and three variations of the tune. Each successive variation was to "move further away from the original." Ultimately, the students composed an original tune, played it from memory, and then merged it with "Twinkle." Webster's further research led to the development of the Measures of Creative Thinking in Music (1987b), a measure that can be given to younger children. A revised version of this measure has been developed that incorporates the use of MIDI (Hickey & Webster, 1999). For discussion of the literature that regards research on the assessment of creative thinking in music, refer to Webster (1992).

Based on Gorder's and Webster's work, Feil developed a model for the assessment of improvisations and compositions performed by public and grammar school students who were able to play at least one instrument (Hassler & Feil, 1986). In this study, the boys had an average of 5.14 years of training and the girls had an average of 5.33 years of training. Feil used the following criteria: (1) first impression, (2) originality, (3) imaginativeness: (a) melodic, (b) sound space, (c) varying and ornamenting, (d) within variations, (e) harmonic, (f) rhythmic, (g) sensitivity, and expression; (4) general impression; and (5) final appraisal (summary of all performances of each individual).

McPherson (1993) designed the Test of Ability to Improvise for use in a study of high school instrumentalists. This researcher noted that the criteria used to assess the improvised responses expanded the work of Gorder and Webster and included dimensions of instrumental fluency, musical syntax, creativity, and musical quality. McPherson writes about the results of this study:

> As a musician develops skill on an instrument and enters a more advanced stage of development, performance proficiency and improvisational ability become much more intertwined. It is possible that learning another instrument, mentally rehearsing music, and participating in various forms of singing activities all act to strengthen an ability to "think in sound" and thereby to improvise musically. (p. 19)

In 1996 McPherson examined the degree of correlation and developmental differences among five visual, aural, and creative aspects of performance: sight-reading, performing rehearsed music, playing from memory, playing by ear, and improvising. Results showed significant moderate correlations between (1) an ability to sight-read and perform rehearsed music and (2) an ability to sight-read and improvise. An important finding revealed that an ability to sight-read correlated higher with an ability to play by ear, to play from memory, and to improvise than with an ability to perform rehearsed music. Also, results indicated moderate to strong correlations between an ability to play by ear and to improvise. Other interesting findings were the nonsignificant correlations between playing from memory and playing by ear and between playing from memory and improvising. McPherson concludes:

> The weaker pattern of correlations between the ability to perform rehearsed music and the other four skills reinforces the need for the profession to recognize the importance of other skills in developing an ability to perform music in its widest sense. (p. 121)

The results of this study and other studies indicate that performing a repertoire of rehearsed music from notation represents only one aspect of musical performance. Future research should continue to examine the relationships among listening, improvising, reading, composing, and analyzing music. There is also a need for further understanding the connection between improvisation in general music and improvisation in instrumental music.

Jazz Improvisation Research

Improvisation is the essence of jazz. Several researchers have developed and examined the effects of various instructional materials and methods for teaching jazz impro-

visation (e.g., Bash, 1984; Carlson, 1981; Paulson, 1986; Schenkel, 1980; Zwick, 1987). These researchers studied different approaches to jazz improvisation with implications for improving music instruction, curricula, and jazz improvisation skills. Many of these studies and curricula for improvisation focus primarily on teaching improvisation through imitation and music theory. For example, Bash (1984) studied the effectiveness of three instructional methods on the acquisition of jazz improvisation skills in high school instrumentalists. The results of this study suggest the viability of incorporating an aural perspective—which in this study includes vocal rote responses to blues patterns, vocalization of blues improvisation, and instrumental echo responses to patterns taught by rote—along with the more "traditional" format that emphasizes scales and chordal activities. In a review of a representative sampling of research completed in jazz pedagogy from 1972 through 1986, Bowman (1988) recommended that further research, comprising higher standards, should be done in order to understand more deeply the content of improvisation study and the relationship between improvisation and music education.

Both Coy (1990) and Alibrio (1988) examined jazz improvisation at the middle school level. The results of Coy's work with middle school band students with 2 to 3 years of instrumental music instruction suggest that these students could develop fundamental skills in jazz improvisation in a relatively short period of time. Alibrio implemented a jazz improvisation curriculum as a possible solution to the problem of attrition in the middle school string program. The author commented that many of the instructional materials available at this level center on the development of technical skills and exclude creativity. This investigation incorporated a curriculum guide to develop improvisational skills with middle school string musicians. Alibrio concluded that a creative approach to music instruction that included improvisation might lessen attrition and provide a more positive approach toward string playing.

L. Porter (1983) and Moorman (1985) are examples of individuals who have analyzed performances of jazz musicians in their attempts to understand further the nature of improvisation in jazz. Studying the music of John Coltrane, Porter provides information on Coltrane's personal style and concepts and gives a detailed examination of a sample of Coltrane's work. After analyzing selected jazz improvisation compositions, Moorman made specific recommendations for improvisational performance. He surveyed existing literature on jazz improvisation and analyzed 25 selected jazz improvisations of artists, including Louis Armstrong, Coleman Hawkins, Leon "Bix" Beiderbecke, Thelonious Monk, Clifford Brown, Theodore "Fats" Navarro, Donald Byrd, Charlie Parker, John Coltrane, Oscar Peterson, Miles Davis, Earl "Bud" Powell, Kenny Dorham, Woody Shaw, John Birks "Dizzy" Gillespie, Teddy Wilson, Dexter Gordon, and Lester Young. The researcher noted that all methods he surveyed emphasized the importance of melodic, rhythmic, and harmonic study as the foundation for jazz improvisation. Moorman also recommended that the ii–V chord progression should be an integral part of harmony study in jazz improvisation.

Fern (1996) made use of jazz solo transcriptions and chordal/scalar analytical techniques in an interactive computer program designed for jazz improvisation instruction. This research attempted to determine the efficacy of such a computer program and to develop an understanding of the attitudes of students who used the courseware. College student volunteers with varied amounts of improvisation skill participated in the study and were interviewed about their experience using this computer program. The data indicated that students found the program to be comprehensive in content, nonthreatening, and motivating. The students were enthusiastic about using an interactive computer program but thought that the program's weakness was the absence of human feedback.

Concerning the need for understanding the criteria for predicting and measuring improvisation skills, Madura (1993, 1995, 1996) investigated the relationships among tonal, rhythmic, and expressive dimensions of vocal jazz improvisation achievement and selected predictor variables. The independent variables included jazz theory achievement, jazz experience, imitative ability, instrumental lessons, voice lessons, general creativity, and gender. The subjects were college students enrolled in vocal jazz courses. The tonal, rhythmic, and expressive dimensions were measured using 5-point rating scales for performances of a blues progression and a ii–V7–I progression. Madura found strong significant correlations between vocal jazz improvisation achievement and jazz theory knowledge, imitative ability, and jazz experience. Tonality, rhythm, and divergence were identified as underlying factors of vocal jazz improvisation. In 1995 Greennagel examined the extent to which certain variables operate as predictors of vocal jazz improvisation achievement. The subjects for this study were jazz vocal majors. The two variables that accounted for the greatest proportion of variance in this research were (1) the ratings of subjects' creativity as determined by a researcher-designed creativity assessment and (2) the subjects' self-ratings as improvisers. Greennagel found significant corrrelations for self-rating, hours spent listening to jazz, prior ensemble experience, creativity, instrumental lessons, and frequency of listening to jazz.

Pfenninger's (1991) and Horowitz's (1995) work focused on the development of rating scales to measure jazz improvisation achievement. Pfenninger constructed and in-

vestigated the validity of a rating scale that contained tonal, rhythm, and expression dimensions. Ten jazz performers and teachers helped to construct the criteria used for the rating scale. Six performers and teachers independently rated improvised performances of 20 university jazz majors. Pfenninger found that the tonal and rhythm dimensions of the rating scale operated as objective, valid measures of jazz improvisation skill; however, the results from the expressive dimension were influenced by subjectivity. Horowitz utilized a facet-factorial approach in the construction of a rating scale for jazz guitar improvisation. He found that a facet-factorial approach to rating-scale construction could provide a reliable and valid measurement tool for improvisation. Factor analysis of the data indicated that there should be three dimensions to the rating scale: musicianship, expression, and overall structure. Ten criteria were chosen for each of the three dimensions to form the 30-item rating scale. Horowitz recommended that additional research be conducted in order to develop a curriculum for teaching improvisation based on the dimensions and criteria used in this study.

Several issues important to understanding improvisation arise as a result of this body of jazz research. For example, what is the relationship of jazz improvisation skills to overall improvisation skills? Which aspects of jazz improvisation skill can be generalized to the understanding of music in various styles? Much of the research concerns the skills of secondary school and college-aged students and has been divided into examining either instrumental jazz or vocal jazz pedagogy. Many studies have used music theory and imitation as a means to develop improvisation skill. What are the underlying principles associated with developing the mental, aesthetic, and social aspects of all improvisers, regardless of performance medium? What models can be developed and presented for nurturing jazz improvisation in a cultural, sequential, and developmental fashion that begins in early childhood and proceeds through adulthood?

Summary and Suggestions for Further Research

Several common themes appear throughout this research, including (1) the importance of developing an improvisation culture and community; (2) the importance of establishing an environment where improvisation, spontaneity, and interaction are nurtured; (3) understanding improvisation as a lifestyle, not only an activity; (4) the belief that improvisation skill acquisition is developmental in nature and all students have some potential to improvise; (5) the importance of improvisation as part of a comprehensive music curriculum that can affect achievement in other music skill areas such as listening, performing, reading, composing, and analyzing; and (6) the importance of incorporating a model for improvisation skill assessment in order to help teachers attend to students' individual needs.

The research suggests that students should be provided with opportunities to make music spontaneously in a meaningful way through improvisation. Improvisation allows students to express themselves individually, to develop higher order thinking skills, and to develop a more comprehensive and intimate relationship with music, performing with and without notation. These objectives may be accomplished when students comprehend the deeper levels of the tonal and rhythmic architecture in the music. Aural comprehension of music in the context of this larger framework comes from grouping notes into patterns, patterns into phrases, and phrases into the context of the overall tonal and rhythmic form of the music. When putting content into context, students begin to attain the skills necessary to improvise with meaning.

Research on the topic of improvisation in music education is relatively young and in need of replication and expansion. The most fundamental issues that face music educators concern an improved understanding of the improvisation process and the inclusion of improvisation in comprehensive music education curricula. To help speak to these concerns, specific research questions should be systematically addressed and further studies that relate to models for improvisation will need to be examined by future researchers. Particular questions include: What are the appropriate levels of understanding and skill development for students as they progress through their music education from preschool to adulthood? What skills are associated with various levels of development? Are there critical periods for the development of certain skills or dispositions necessary for improvisation? What are the necessary ingredients for the creation of an improvising culture?

While many music educators have advocated the inclusion of creativity and improvisation in music curricula, the research literature indicates that aside from jazz and beyond some elementary general music classes it is rare to find a music class setting where improvisation is a central part of the curriculum. Even in jazz settings at the secondary school level, it is uncommon to find a developmentally sequential curriculum for preparing all students to improvise. Also, there appears to be a gap between the criteria used for children's improvisation in general music settings and the criteria used for improvising in secondary settings, postsecondary settings, and jazz settings. Giving improvisation a more prominent role in music education will necessitate change in current music curricula, communication among teachers in the various music education disciplines, and music teacher education. Nearly all of the researchers cited in this chapter request, and indeed the research requires, further study. Continued research will further illu-

minate improvisation's importance to a comprehensive music education.

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