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Assessment of Improvisation in Music

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Abstract and Keywords

This article provides an overview of research on assessment of improvisation in music and offers suggestions for increasing its centrality in music teaching and learning. With listening, improvising, reading, and composing as context for music teaching and learning, it covers historical and philosophical foundations for, and research on, creativity and improvisation. The article's synthesis of the literature focuses on assessment of ability to interact, group, compare, and anticipate and predict music while improvising. Six elements (repertoire, vocabulary, intuition, reason, reflection, and exemplars) contribute to a holistic and comprehensive creative process that inspires spontaneous and meaningful music making. The article concludes with recommendations for replication and extension of research to provide insight for improvisation assessment.

Keywords: improvisation, improvisation assessment, music learning assessment, musical creativity, musicianship, rating scale, rubric

Music educators and researchers continue to call for a deeper understanding of improvisation's role in music curricula. In a review of literature, Azzara (2002) described "the nature of improvisation and its role in the music teaching and learning process" (171) and identified the importance of improvisation as part of a comprehensive music curriculum. Sarath (2002) proposed that music curricula require reform to more fully embrace improvisation through multiple musical genres. More recently, the "National Core Arts Standards" (State Education Agency Directors of Arts Education 2014) and the College Music Society's Task Force on the Undergraduate Music Major (2014) identified creativity, improvisation, and composition as critical components of P-12 and collegiate music curricula.

Webster (1992) reviewed literature on assessment of creative thinking in music and posited that it is a "definable and measurable entity" (277). Webster recommended expansion of research on this topic. Based on research published between 1980 and 2005, Running (2008) reviewed definitions of creativity, measures and evaluations of creativity, and effects of music instruction on creativity. Running's goal was to improve teaching methods and establish music settings that develop "students' capabilities as independent music learners" (2008, 47).

The purpose of this article is to summarize research literature on improvisation and assessment in music and present recommendations for assessing improvisation. We review and synthesize literature and present future directions for research. Because the primary purpose of assessment is to improve instruction by attending to individual differences among students, we address ways in which music educators may incorporate a model for improvisation skill assessment and assess musical

understanding through improvisation in order to address students' individual needs. We (a) provide an overview of improvisation assessment literature, including historical and philosophical foundations, a summary of general creativity research and improvisation research, and assessment of improvisation; (b) synthesize research pertaining to principles of musicianship that researchers have documented, benefits of improvisation, and musical exemplars from a variety of genres; and (c) present insights for assessing improvisation and offer suggestions for future research.

Overview of Improvisation Assessment Literature

While improvisation has been central to music making throughout history and has been the subject of policy documents (e.g., Choate 1968; Consortium of National Arts Education Associations 1994; National Association of Schools of Music 2013; State Education Agency Directors of Arts Education 2014; Task Force on the Undergraduate Music Major 2014), its presence in contemporary music education classrooms is still not clearly defined. To clarify the role of improvisation in music classrooms, music educators should develop curricula that define objectives, methods, teaching techniques, and assessment. This article focuses on assessment of improvisation.

According to Walters (2010), "To assess is to attach a value to something" (3). Assessment may involve measurement (objective), evaluation (subjective), or both. Music teachers continuously assess student learning when students listen, sing, move, play, create, improvise, read, create, compose, notate, compare, understand, and analyze music. Regarding improvisation, Hickey (2015) noted, "The reality and importance of evaluation and assessment in school settings cannot be overlooked in music teacher education" (442). The "National Core Arts Standards" (State Education Agency Directors of Arts Education 2014) include artistic processes (create, perform, respond, connect) that provide context for music curricula and assessment for all P–12 students. State music education associations (e.g., in Connecticut, New York, Virginia) have designed improvisation assessments with the purpose of auditioning students for state-level honors ensembles (see, e.g., Saunders and Holahan 1997). At the collegiate level, the National Association of Schools of Music (2013) and the College Music Society's Task Force on the Undergraduate Music Major (2014) advocate including creativity, improvisation, and composition in collegiate curricula. Improvisation is an opportunity for students to demonstrate comprehension of a musical concept (Azzara 2015; Grunow 2005; J. Scott 2007). While improvisation should be pervasive throughout P–12 and collegiate curricula (Marshall 2004a, 2004b; Snell and Azzara 2015) and may occur in a variety of school music settings, it still is not central to curriculum (Azzara 2002; Campbell 2009; Shuler 2011).

Historical and Philosophical Foundations

"Improvisation plays an important role in music all over the world" (Azzara 2002, 175). Improvised musical traditions throughout the world involve oral transmission and learning by ear. Drawing on cognitive neuroscience, analysis of interviews and musical improvisations, and historical pedagogical treatises on improvisation, Berkowitz (2010) provided historical perspectives on improvisation and cognitive analysis of learning to improvise. He made cross-cultural comparisons from a variety of traditions, including South Slavic epic poetry, jazz, and Javanese gamelan. He also provided examples of historical

treatises written by a range of musicians, including C. P. E. Bach, Czerny, and amateurs. He noted that throughout these texts, oral tradition, vocabulary, and harmony provide a foundation for improvising and in improvisation performance (Berkowitz 2010, 26).

Improviser and composer Johann Nepomuk Hummel (1778–1837) recommended “free improvisation in general and 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” (quoted in Goertzen 1996, 305). Hummel stated in 1828 that this matter was urgent, and cautioned, “Even if a person plays with inspiration but also from a written score, he or she will be much less nourished, broadened, and educated than through the frequent” immersion in “free fantasy practiced in the full awareness of certain guidelines and directions, even if this improvisation is only moderately successful” (quoted in Goertzen 1996, 305).

Improvisation has been taught and studied throughout history (Berkowitz 2010; Levin 2009; Nettle 1998), including in classical, jazz, popular, and folk traditions. Although improvisation in classical music contexts declined in the nineteenth and twentieth centuries (Moore 1992), improvisation is regaining prominence in classical music performance. Dolan and colleagues (2013) invited classical chamber musicians to perform repertoire “twice, with and without the adoption of an improvisatory approach” (1). The researchers suggested that “improvised performances of the classical repertoire can heighten musical quality and audience engagement” (2).

Philosophically, improvisation plays an important role in life and the arts (Nachmanovitch 1990) and is a primary means for creating music fluently and spontaneously (Alperson 1984; Asmus 2004; Azzara 1993, 2008; Campbell 2010; Elliott 1995; Gordon 2012; Gould and Keaton 2000; Green 2001, 2008; Kratus 1991; Reimer 2000; Snell 2012). Benson (2003) suggested an “improvisational model of music, one that depicts composers, performers, and listeners as partners in dialogue” (x) and wrote that improvisation, in a broader sense, is essential to music making. Sawyer (2004) conceived of “teaching as improvisation” and pointed out that “the collaborative and emergent nature of effective classroom practice, helps us to understand how curriculum materials relate to classroom practice, and shows why teaching is a creative art” (12). These authors were describing what Csikszentmihalyi (1990) identified as flow. Dewey ([1938] 1997) wrote that experiential learning is essential to education, and that teachers should provide students with fluid opportunities for learning through experience and reflection in the moment.

Existing Literature on Creativity and Improvisation

Azzara (2002) and Webster (1992) reviewed research in improvisation and assessment of creativity, respectively; their literature reviews served as a point of departure for this article. This section (a) summarizes musical creativity research in general and (b) reviews music improvisation literature, including brain and cognitive science research, as well as music improvisation and composition as generative processes.

Creativity Research

Webster (1992) documented literature regarding research on assessment of creative thinking in music. Azzara (2002, 180) summarized development of research on measuring musical creativity, including work by Guilford and Hoepfner (1971), Torrance (1966), Gorder (1980), Pressing (1988), Webster (1977), and Hassler and Feil (1986). These investigators used

Guilford's four basic divergent production abilities—fluency, flexibility, elaboration, and originality (Guilford and Hoepfner 1971)—as a foundation for their research. Refer to Running (2008) for a review of research on creativity in music published between 1980 and 2005.

Because creative thinking in music can be an acquired behavior (Koutsoupidou 2008), researchers have examined how to help students learn to think creatively. Koutsoupidou and Hargreaves (2009) found that improvising music “promotes musical flexibility, originality, and syntax in children’s music-making” (251). Wang (1985) created “Measures of Creativity in Sound and Music” based on Torrance’s work. McPherson’s (1996) used criteria that expanded the work of Gorder (1980) and Webster (1977), including dimensions of instrumental fluency, musical syntax, creativity, and musical quality. Madura (1996) used Torrance’s *Tests of Creative Thinking* (1966) to measure general creativity focused on developing convergent and divergent thinking in music.

Amabile’s (1983) consensual assessment technique (CAT) has been examined by several music education researchers (e.g., Daignault 1996; Eisenberg and Thompson 2003; Hickey 2001; Priest 2001). In an examination regarding evaluation of musical improvisation, Eisenberg and Thompson (2003) identified the following dimensions based on CAT: complexity, creativity, technical goodness, and overall liking. In this study, judges were not provided with specific criteria for evaluating these dimensions.

Gordon (2012) posits that meaningful improvisation requires audiation of what one is creating and improvising. Potential for audiation may be measured through music aptitude tests such as *Primary Measures of Music Audiation* (Gordon 1979), *Intermediate Measures of Music Audiation* (Gordon 1982), and *Musical Aptitude Profile* (Gordon 1995). To contextualize evaluation of improvisation and provide understanding of students’ individual needs, Gordon developed two tests of readiness for improvisation: *Harmonic Improvisation Readiness Record* (1998a) and *Rhythm Improvisation Readiness Record* (1998b). Improvisation is a skill and level of learning in Gordon’s (2012) music-learning theory. Based on studies of readiness for harmonic and rhythmic improvisation, Gordon (2000) suggests that “perhaps only the readiness to learn to improvise can be taught; improvisation itself must be learned” (35).

Based on our review of creativity research, improvisation is defined and measured in a variety of ways. This diversity continues to compound interpretation and application of research. Common themes confirm that students can learn to create and improvise meaningfully to varying degrees if we provide them with opportunities to express their creative potential and prioritize processes and skills associated with musical creativity.

Improvisation Research

Many research questions may be addressed by examining the role of assessment in music improvisation. Azzara (2002) noted: “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” (172). Based on an extensive examination of scholarship related to improvisational practices, Higgins and Mantie (2013) suggested that improvisation can be defined in at least three ways: (a) as a component of a holistic view of musicianship (i.e., ability); (b) as an aspect of a situated form of musical practice (i.e., culture); and (c) as a distinct way of being in the world, embodying such qualities as risk-taking, reflexivity, spontaneity, exploration, participation, and play (i.e., experience) (39). They continued, “While each of these three conceptualizations is valuable in its own right, we suggest that the last of these provides the greatest educative potential and the greatest potential to positively

influence American society” (39).

We are born improvisers (Azzara 2008; Burton and Taggart 2011; Moorhead and Pond 1978; Solis and Nettle 2009). Students demonstrate comprehension of music when engaged in multiple musical vocabularies, including listening, improvising, reading, and writing (Azzara 2005, 2015; Berninger 2000; Burton 2011; Gordon 2012; Grunow 2005). This is analogous to English language arts teachers regularly assessing student understanding by inviting students to engage in several language vocabularies, including speaking, reading, writing, and summarizing content in their own words (see, e.g., Fountas and Pinnell 1996).

Brain and Cognitive Science

Brain and cognitive science researchers have investigated musical improvisation in relation to cognitive processes. Recent advances in use of functional magnetic resonance imaging (fMRI) allow scientists to map which areas of the brain activate when research participants engage in musical improvisation (Bengtsson, Csikszentmihalyi, and Ullen 2007; Berkowitz and Ansari 2008, 2010; Donnay et al. 2014; Hodges 2010; Limb and Braun 2008). Donnay and colleagues (2014) found that musical discourse engages areas of the brain specialized for processing of syntax, but in a manner that is not contingent upon semantic processing. Specific to music education research, Cooper (2010) related singing and movement to developing a musical vocabulary. Gruhn (2002) found that audiation can be mapped by brain imaging. Flohr (2010) suggested musical exploration and movement as best practices for young children’s music education.

Referencing extemporaneous improvisation, Limb and Braun (2008) noted, “Processes required for spontaneous improvisation, in which internally motivated, stimulus-independent behaviors unfold in the absence of central processes that typically mediate self-monitoring and conscious volitional control of ongoing performance” (1). They further stated:

The process of improvisation is involved in many aspects of human behavior beyond those of a musical nature, including adaptation to changing environments, problem solving and perhaps most importantly, the use of natural language, all of which are unscripted behaviors that capitalize on the generative capacity of the brain. (1)

Improvisation and Composition as Generative Processes

Researchers and philosophers often regard musical improvisation and composition as complementary processes on a continuum (Alperson 1984; Sarath 1996). Sloboda (1988) provided varied perspectives on how music is improvised and composed as a generative process. Sarath (1996) suggested that composition and improvisation differ temporally; when composing, musicians are able to reflect and revise. Pressing (1988) documented a model for moment-to-moment choices made as improvisors generate music.

Because of the complementary processes inherent in improvisation and composition, music composition research has the potential to inform research on assessment of improvisation. Specific to music composition as a generative process, researchers and pedagogues have provided a variety of approaches with which to engage students in music composition (e.g., Hickey 2012; Kaschub and Smith 2009, 2013; Randles and Stringham 2013). In a case study, Upitis (1987) found that children can improvise and create music without having the ability to read notation. Shewan (2002) described possibilities for student learning in a high school curriculum that included opportunities for all students to compose music while enrolled in the instrumental music program. Kratus (1994) documented that “the process of composition was related to the products’ cohesiveness, pattern use, and

extensiveness” (115) and found: “Audiation was positively correlated with the songs’ tonal and metric cohesiveness and developed rhythmic patterns” (115). Regarding feedback for student compositions, in a survey of Indiana music educators, Strand (2006) reported that 49.8% of participants indicated they “assess learning” as a reason for teaching composition (159). Henry (1995) evaluated fourth-grade students’ compositional processes and products, including development, repetition, silence, cohesiveness, and pattern use. Kaschub, in Stringham (2015), noted, “In many cases, the most valuable feedback that teachers can provide occurs in the form of a question. Carefully phrased questions allow the composers to gain further insight into their own thinking processes, intentions, and musical choices” (208). Stauffer (2002) noted, “Young composers draw on their sociocultural milieu and personal experiences to create music that is relevant and meaningful to them” (301).

Summary

Colwell (2004) encouraged professional dialogue about product assessment versus process assessment and called for “evaluation to improve student competence” (1). Azzara (2002) recommended future researchers continue to examine the improvisation process and inclusion of improvisation in comprehensive music education curricula. Azzara also identified a gap in improvisation criteria used in elementary general music and secondary, postsecondary, and jazz settings. By contextualizing musical content, students begin to attain the skills necessary to improvise with meaning (2002, 182).

Similarly, Odena (2012) recommended researchers examine musical creativity through four themes: differentiating personal needs, environmental context for creativity, the creative process, and assessing the creative product (206). Stringham (2010) reported that improvisation and composition are “meaningful elements of a comprehensive music education” (107).

Benson (2003) considers all of life to be improvised. Specific to assessment, Swanwick (1999) noted, “Assessment makes it possible for us to live—it guides all our actions” (71). To assess musical creativity and improvisation, teachers must be comfortable engaging in these skills and processes (Abrahams 2000; Bell 2003; Byo 1999; Louk 2002; Orman 2002; Riley 2009; Shuler 1995). Students can learn to improvise meaningfully if teachers provide instruction focused on skills that are beneficial for learning and performing music creatively. Teachers can assess improvisation, and improvisation provides a means for assessing music learning. In a music curriculum that embraces creativity, students improvise to learn music, learn to improvise music, and improvise music to learn (Campbell 2009, 120).

Synthesis of Literature

Competencies for learning to improvise and compose include singing, movement, and playing by ear to learn melodies, bass lines, tonal patterns, rhythm patterns, cadences, harmonic progressions, sequencing, and voice leading. These competencies informed our review of improvisation research. We reviewed studies wherein researchers documented criteria and vocabulary used when assessing musical improvisation. Studies we reviewed fell into the following general categories: elementary general music, elementary instrumental music, secondary instrumental music, vocal jazz, high school jazz, collegiate music study, collegiate jazz, and adults with varied improvisation experience.

We found that criteria and language in the improvisation assessment literature were generally consistent with dimensions and criteria from rating scales published in *Developing Musicianship through Improvisation (DMtI)*; Azzara and Grunow 2006,

2010a, 2010b). These rating scales have been found reliable in previous research (e.g., Davison, 2010; Hart 2011; Snell 2006; Snell and Azzara 2015; Stringham 2010) Table 1 presents the *DMtI* dimensions and criteria. We organize the next section of this article based on common themes and language synthesized from our review. Specifically, we present rating scale vocabulary organized by the following principles: interacting, grouping, comparing, and anticipating and predicting (Azzara 2008, 2015).

Table 1. Improvisation Rating Scale (Azzara and Grunow 2006)

Improvisation (Additive Dimension, 0–5)

The improvisor

- 1 performs a variety of related ideas and reuses material in the context of the overall form (thus performance contains elements of unity and variety).
- 1 demonstrates motivic development through tonal and rhythm sequences.
- 1 demonstrates effective use of silence.
- 1 demonstrates an understanding of tension and release through resolution of notes in the context of the harmonic progression.
- 1 embellishes notes and performs variations of themes.

Rhythm (Continuous Dimension, 0–5)

The improvisor

- 1 performs individual beats without a sense of the meter.
- 2 demonstrates a rhythmic feeling of the meter throughout.
- 3 employs various contrasting rhythm patterns without a sense of rhythmic motivic development.
- 4 begins to develop and relate rhythmic ideas in some phrases.
- 5 establishes a cohesive solo rhythmically; develops rhythmic motives in the context of the overall form.

Expressive (Additive Dimension, 0–5)

The improvisor

- 1 demonstrates a sense of musical interaction (e.g., melodic dialogue alone or musical conversation among performers).
- 1 demonstrates an understanding of dynamics.
- 1 demonstrates an understanding of musical style and characteristic tone quality.
- 1 demonstrates a sense of appropriate articulation.
- 1 demonstrates an understanding of appropriate phrasing.

Harmonic Progression (Continuous Dimension, 0–5, Major/Minor-Tonic, Subdominant, and Dominant)

The improviser

- 1 performs first and/or last note correctly.
- 2 performs all patterns in one function correctly (tonic reference).
- 3 performs all patterns in one function correctly (tonic reference) and some patterns in one other function correctly.
- 4 performs all patterns in two functions correctly.
- 5 performs all tonic, dominant, and subdominant patterns (functions) correctly.

Interacting

Spontaneous interaction while improvising includes musical dialogue in solo performances and musical conversation among listeners and performers. Saunders (2002) described conversational interplay between solo and accompaniment and linear solo melodic dialogue. Researchers also have documented prioritization of interaction in group assessment (Barratt and Moore 2005), interaction and dialogue with accompaniment (Smith 2009), and the interplay of call and response (M. Scott 2007). Other criteria describing musical interaction include use of silence and space (Hinz 1995; Watson 2010); tension and release, embellishment (Hinz 1995; Smith 2009; Watson 2010); and appropriate style and characteristic tone quality (Azzara 1993; Bitz 1998; May 2003; Saunders 2002; M. Scott 2007; Smith 2009; Watson 2010).

Grouping

Grouping pitches into meaningful patterns and phrases and paying attention to reuse of material are important aspects of learning to improvise. Researchers used terminology that referred to accurate tones, harmonic progressions, and awareness of form. Madura (1995) and Bitz (1998) assessed accuracy of tones or notes. Similarly, several researchers rated students' ability to demonstrate comprehension of the harmonic progression when improvising (Azzara 1993; Bitz 1998; Guilbault 2009; Saunders

2002). Other examples were “use of harmonic material” (May 2003) and “awareness of harmonic form” (Watson 2010). Specific to jazz, M. Scott (2007) assessed awareness of harmonic and structural elements of twelve-bar and thirty-two-bar forms.

Regarding rhythm improvisation, researchers’ assessment criteria included improvisors’ skill at grouping rhythms into meaningful patterns and phrases. Beyond documenting time, pulse, and a sense of meter, several researchers described criteria for improvisors generating rhythm patterns and developing cohesive motives in the context of musical structure and form (Azzara 1993; Bitz 1998; Brophy 1998; Madura 1995; May 2003; Saunders 2002; Smith 2009).

In addition, Azzara (1993), Bitz (1998), Madura (1995), May (2003), Smith (2009), and Watson (2010) included an appropriate sense of style—for example, dynamics, phrasing, articulation, feel—and a sense of movement to music as important criteria for assessing ability to improvise. Reusing related musical material, demonstrating elements of unity and variety, and developing musical motives through sequencing were also identified as criteria for demonstrating ability to group musical ideas and express them spontaneously and creatively when improvising (Brophy 2005; Ciorba 2009; Hinz 1995; Madura 1995; May 2003; Saunders 2002; Watson 2010).

Comparing

Improvisors compare musical ideas in the process of developing them. Similar to grouping, this ability to compare and to express musical ideas provides unity and variety in spontaneous musical performance. Creative reuse of material is important for both grouping and comparing. Saunders (2002) applied these concepts when assessing students’ ability to conceptualize large-scale form while improvising. When comparing, improvisors perform variations of themes and use appropriate musical style and tone quality (Azzara 1993; Dickinson 1964; Madura 1995; Saunders 2002; Watson 2010).

Anticipating and Predicting

Musicians anticipate familiar music and predict unfamiliar music. For example, an improvisor anticipates harmonic changes in a familiar blues progression and may predict harmonic changes in a less familiar form. Biasutti and Frezza (2009) interviewed and surveyed adults with two years of improvisation experience; among their findings, the researchers reported importance of anticipation, repertoire, and flow.

Researchers assessed improvisors’ ability to develop tonal and rhythm sequences (Bitz 1998; Brophy 1998; Saunders 2002; M. Scott 2007; Smith 2009). Specifically, improvisors’ “awareness of motivic development” (M. Scott, 2007); ability “to hold solo together” (Bitz 1998); and “motivic repetition and development” (Brophy 1998) create a context for demonstrating understanding of tension and release through resolution of notes in the context of the harmonic progression. Watson (2010) used criteria such as “resolution of melody notes, voice leading across chord changes, and development of intensity throughout solo” to assess anticipating and predicting when improvising. Saunders (2002) assessed melodic and harmonic resolutions to evaluate students’ sense of musical syntax. This process is facilitated by effective use of space and silence (Watson 2010).

Summary

We organized literature in this section based on four principles for comprehending and creating music by ear and with notation:

interacting, grouping, comparing, and anticipating and predicting. Playing by ear to learn repertoire provides a contextual foundation for learning to improvise (Azzara 2015; Ernst 1953; Woody 2012), helping students “make more comparisons, anticipate and predict more easily, and interact more deeply with others and notation” (Azzara 2015, 185). This is consistent with Ernst’s (1953) recommendation:

Before children can translate musical symbols into sound they must have (1) an adequate tonal and rhythmic vocabulary developed by a large repertoire of songs in various rhythmic styles that introduce numerous basic tonal patterns; (2) a sense of tonality and the ability to respond to the progression tendency of tones; (3) the ability to feel and respond to accent, pulse, and melodic rhythm; (4) experiences in relating musical sounds with musical symbols, the order of such experiences being at first always from the ear to the eye. (26)

Centrality of Improvisation in Music Teaching and Learning

Providing increased understanding of individual student needs, assessment improves instruction. Through assessment, teachers can develop improved relationships with students by providing specific feedback for student learning. Improvisation is integral to assessment; students have opportunities to demonstrate higher order thinking skills when improvising. Principles of musicianship documented in the research literature form a foundation from which to create curricular outcomes that prioritize creativity in the context of a comprehensive music education. When improvising, students spontaneously express musical ideas and interact meaningfully with musical content. Improvisation provides context for reading and composing music, and vice versa. By inviting students to regularly improvise and compose, teachers can address individual differences among students. Improvisation also provides inspiration for composition; composition provides opportunities for students to reflect on their music learning.

Because improvisation is central to the learning process and can be assessed, we propose that improvisation be more central to music curricula. Based on our review of research, This section of the article addresses six elements of music teaching and learning that can provide a catalyst for creative music making and assessment: repertoire, musical vocabulary, intuition, reason, reflection, and exemplars.

Learning a large repertoire of music by ear provides context and inspiration for musicians’ creativity. Knowledge of repertoire should be comprehensive, including internalization of melodies, bass lines, harmony parts, rhythm parts, tonality, meter, and style. This is similar to learning a large repertoire of stories in language. Learning repertoire—musical *stories*—establishes a foundation for becoming aware of context, syntax, and structure (beginning, middle, and end) when improvising our own music. Awareness of repertoire provides inspiration and a foundation from which to group and create rhythmic sequences, understand tension and release, and learn harmony in context.

When learning repertoire, students should become aware of the creative use of harmonic, rhythmic, and expressive elements in music. Learning tonal, melodic, and rhythm patterns and phrases in a variety of styles provides *vocabulary* for students to create their own musical ideas. Students’ ability to fluently use this vocabulary can be assessed meaningfully. Through use of their *intuition* and *reason*, students can learn to create and improvise music spontaneously. Students may draw from their personal experience and intuition as they musically interact, and they may also develop their ability to reason while learning specific

musical skills in a sequential curriculum.

Reading notation and composing music allows students to *reflect* on musical ideas in context. While students become familiar with repertoire they are learning, they should also learn *exemplar* improvised solos and excerpts by ear. Reading notation, composing music, and learning solos and excerpts by ear should inspire students to reflect on their personal creativity, deepening awareness and understanding of their musical repertoire and vocabulary. When improvising and composing, students both include an ever-expanding repertoire and transcend that repertoire by generating their own musical ideas. Ultimately, these six elements (repertoire, vocabulary, intuition, reason, reflection, and exemplars) contribute to a holistic and comprehensive creative process that inspires spontaneous and meaningful music making.

Conclusions and Recommendations for Future Research

To assess musical creativity and improvisation, teachers must be comfortable engaging in and assessing these skills and processes. Because improvisation is developmental in nature, teachers will benefit from understanding individual differences among students. Assessment will help develop a relationship among students and teachers and improve curriculum and instruction.

Based on the literature reviewed, we first recommend that researchers replicate and extend studies presented in this article, specifically to different age levels, skill levels, and settings. For example, studies in which researchers focused on elementary students might be replicated with middle school or high school students. In-service and collegiate music educators should apply research findings to their instruction. Consistent with the purpose of this article, improvisation is an authentic musical behavior that demonstrates musical thinking and embodiment; it can be meaningfully assessed through criteria documented in this literature review. Ideally, increased integration of improvisation in music instruction will inform further research on improvisation as a central component of a comprehensive music education. Developing awareness of how students learn to improvise will lead to increased understanding of improvisation assessment; deeper understanding of improvisation assessment will lead to better awareness of how students learn to improvise.

Collegiate music programs should (a) provide curriculum and instruction in how to improvise, (b) teach students to improvise, and (c) integrate improvisation throughout music teaching and learning experience. Music educators must be able to improvise (Gruenhagen and Whitcomb 2014), be confident while improvising (Bernhard 2013), and learn sequential methods and techniques for learning to improvise in the context of a comprehensive music curriculum (Snell and Azzara 2015). Beyond collegiate study, researchers should continue to examine professional development offerings for integration of improvisation among in-service music educators throughout their careers.

Prioritization of musical creativity helps develop lifelong musicianship and is central for music learning and music making (Benson 2003; Nachmanovitch 1990). Dobbins (1980) questioned:

What are our real motivations in musically educating our children? Do we wish to educate them so that they can dutifully perform for our own edification and entertainment in the concert hall or on the football field? Or do we wish to educate them so that they can enrich themselves through musical self-expression and communication? (41)

Students who learn to improvise develop the ability to communicate and express themselves musically. We hope this article has provided inspiration to increase the centrality of improvisation in music teaching and learning.

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