

THE EFFECT OF ARTICULATION STUDY
ON STYLISTIC EXPRESSION IN HIGH SCHOOL MUSICIANS'
JAZZ PERFORMANCE

By

DAVID CHARLES EDMUND

A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA

2009

© 2009 David Charles Edmund

To my mother and father

ACKNOWLEDGMENTS

I wish to thank the individuals who contributed their support, assistance, and wisdom throughout this process. First, I thank Evan Rogovin and John LaCognata for their important contributions to this study. I thank Claudio Fuentes for his guidance on statistical design and rationale. I thank Diane Fischler for her editing expertise and moral support.

I extend a heart-felt debt of gratitude to my advisor, Dr. Timothy S. Brophy, for his never-ending support throughout the past four years. He is a role model for excellence and the most generous professor I've had the pleasure of studying with. I am grateful to Dr. Russell Robinson for his guidance throughout my undergraduate and doctoral studies. Dr. Robinson is a brilliant teacher, musician, and mentor. He has provided direction and support throughout my career pursuits. I want to thank Dr. Leslie Odom and Dr. John Bengston for serving on my doctoral committee, but more importantly, for inspiring me as a scholar and musician. I thank Gary Langford for being my primary musical mentor and role model. I also thank Gary Langford and Chris Sharp for their generous contributions in the completion of this study.

Finally, I am grateful for members of my family who have supported me in pursuit of this degree. I thank my mother, sister, Cedric, and Irene for their consistent wisdom and faithful support. I thank my father for his inspiration. I thank my sister for always being there when I needed advice. I thank my mother for helping during those "trying" times and for providing the most steadfast support of all of my life's endeavors.

TABLE OF CONTENTS

	<u>page</u>
ACKNOWLEDGMENTS.....	4
LIST OF TABLES.....	8
LIST OF FIGURES	9
ABSTRACT	10
CHAPTER	
1 INTRODUCTION.....	12
Statement of the Problem.....	14
Purpose of the Study	18
Definition of Terms.....	19
Significance of the Study.....	20
Delimitations	20
2 REVIEW OF LITERATURE.....	21
Style Theory	21
Philosophical Rationale	23
Jazz Education History	28
Jazz Improvisation	30
Improvisation Research	35
Jazz Pedagogy	57
Jazz Pedagogy Summary	63
Articulation in Jazz Style.....	65
3 METHODOLOGY AND PROCEDURES	70
Jazz Articulation Survey.....	70
Pilot Study	71
Participants	74
Control Group Treatment	78
Experimental Group Treatment.....	78
Reliability and Validity.....	79
Data Analysis.....	81
4 RESULTS	89
Content Validity	90
Construct Validity	91
Descriptive Statistics.....	92

Gain Scores	93
Reliability	94
Analyses	96
Relationships among Posttest Results and Independent Variables	99
Post-treatment Questionnaires	99
5 DISCUSSION AND CONCLUSIONS	113
Data Collection	113
Findings	115
Sample Improvisations	122
Theoretical Implications	124
Issues	125
Implications for Music Education	127
Discussion	130
 APPENDIX	
A JAZZ ARTICULATION SURVEY	131
B JAZZ ARTICULATION SURVEY RESPONSES	133
C EDMUND JAZZ INTERPRETATION PROFILE (EJIP)	134
D JAZZ IMPROVISATION LESSONS	138
E JAZZ ARTICULATION LESSONS	142
F ARTICULATION EXERCISES/PRACTICE SCHEDULE	146
G RESEARCH APPROVALS	153
H POST-TREATMENT QUESTIONNAIRES	158
I PARENT CONSENT/STUDENT ASSENT LETTERS	160
J CONTENT VALIDITY DESCRIPTORS FOR A PANEL OF JAZZ EDUCATORS	163
K CONTENT VALIDITY RATING INDEX OF THE JAZZ INTERPRETATION PROFILE	166
L “BASIC BLUES,” COMPOSED BY THE RESEARCHER AND USED TO DEMONSTRATE MELODIC APPLICATIONS OF THE BEBOP SCALE	169
M TRANSCRIBED IMPROVISATION SAMPLES	170
N JAZZ IMPROVISATION RATING INSTRUMENT USED IN THE PILOT	174

LIST OF REFERENCES 178
BIOGRAPHICAL SKETCH 185

LIST OF TABLES

<u>Table</u>	<u>Page</u>
2-1 Madura’s dimensions of improvisation	69
3-1 Jazz improvisation lesson contents	88
4-1 Demographics ($N = 32$).....	105
4-2 EJIP subtests and criteria scoring ranges.....	105
4-3 Means and standard deviations on the EJIP	106
4-4 Mean gains on subtests, total test and performance element scores	106
4-5 Reliability coefficients for pretest/posttest combined.....	107
4-6 Pretest reliability coefficients	107
4-7 Posttest reliability coefficients	108
4-8 Coefficient α for reliability among the three judges	108
4-9 Content validity: suggested EJIP criteria.....	109
4-10 Pearson’s r correlations: MAP musical sensitivity and EJIP scores ($n = 11$)	110
4-11 One sample t -test of melody component scores ($N = 32$).....	110
4-12 One-sample paired t -tests for mean gains within groups.....	110
4-13 Two-Sample t -tests for mean pretest to posttest differences between groups ($N = 32$)..	111
4-14 Three-way fixed effects ANOVA: IVs/scores ($N = 32$)	111
4-15 Three-way fixed effects ANOVA: group/pretest/posttest ($N = 32$)	111
4-16 GLM ^a ANOVA to examine performance of the three-way fixed ANOVA model.....	111
4-17 ANOVA for effects of instrument, grade, experience, and MAP scores ($N = 32$)	112

LIST OF FIGURES

<u>Figure</u>	<u>page</u>
3-1 The bebop scale	84
3-2 Ratings descriptors on melody tests 1 and 2.....	84
3-3 Selections for melodic interpretation without articulation	85
3-4 Minor blues with articulations.....	86
3-5 Sample minor ii–V–I phrases	87
4-1 Residual plot of EJIP data used in three-way linear ANOVA	104
4-2 Residual vs. normal percentiles plot	104

Abstract of Dissertation Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy

THE EFFECT OF ARTICULATION STUDY
ON STYLISTIC EXPRESSION IN HIGH SCHOOL MUSICIANS'
JAZZ PERFORMANCE

By

David Charles Edmund

August 2009

Chair: Timothy S. Brophy
Major: Music Education

The purpose of this study was to examine the effects of articulation practice on the stylistic interpretation of jazz melodies and improvisations for high school wind musicians. A data gathering instrument was developed and employed in the collection of pretest and posttest measures of jazz performance. Three broad components of jazz performance were measured; technical skill, melodic interpretation, and improvisation ability. Participants were 45 students from jazz ensembles in two suburban Florida high schools. Two factors contributed to the stipulation that data collection for the main portion of the study include saxophonists, trombonists and trumpet players only ($n = 33$). First, the jazz performance measure was specifically designed to evaluate melodic interpretation. Second, experimental treatments included practice of articulation exercises written particularly for wind musicians.

Pretest data was gathered prior to treatments, which consisted of improvisation instruction for the control group ($n = 18$), and improvisation instruction complemented by articulation instruction for the experimental group ($n = 15$). Both treatment periods lasted for three weeks, with instructional treatments lasting 30 minutes per day, for four days of the week.

In addition to improvisation instruction and articulation instruction, jazz band experience, year in school, and musical instrument served as independent variables. Scores on the Musical Sensitivity portion of Gordon's (1965) Musical Aptitude Profile served as extraneous variables. Dependent variables were subtest scores, musical element scores, total test scores, and gain scores from the pretest and posttest measures of jazz performance.

Results indicated that experimental group participants showed a greater degree of improvement than control group participants in all areas of jazz performance. Results from a three-way linear fixed model ANOVA suggest that group differences on the pretest ($p = .4149$) were more substantial than differences on the posttest ($p = .9993$). This may indicate that members of the experimental group closed a gap in initial differences reflected by pretest scores. Results from a two-sample t -test for mean pretest to posttest differences between the two groups suggest that improvements made by the experimental group approached significance in the areas of style gains ($p = .06$) and melodic style gains ($p = .09$).

CHAPTER 1 INTRODUCTION

“John Coltrane, like many of the modern jazz musicians, feels that the music itself speaks far more fluently than any human ever could.”

(Gleason, 1995, video track 20)

The spontaneous nature of spoken conversation is analogous to that of jazz performance. Conversation constitutes a form of improvisation, which itself is a primary component of jazz music. Additional comparisons exist. Jazz educators and researchers (Azzara, 1993; Berg, 2002; Berliner, 1994; Dunscomb & Hill, 2002; Wilson, 2002) frequently refer to jazz “language” or “vocabulary.” Music in general is often considered to be its own language. Linguistic dialects are often verbalized with what many consider regional “accents.” Orators possessing unique gifts are deemed “articulate.” In music, articulation involves techniques which influence the placement and nature of accentuation. When learning proper concepts of jazz articulation, students are encouraged to imagine phonetic syllables such as “dee-dit, ba-doo-bah” (Bash & Kuzmich, 1989; Goins, 2003). Aebersold (2000) instructed jazz students to “think of articulation as proper enunciation” (p. 1). The relationship between enunciation and linguistic expression is similar to the relationship between articulation and musical expression.

Stylistic expression is an indispensable component of jazz performance. Elliott (1983) suggested that jazz “be approached . . . as an expressive form” (p. 183). He further surmised that the principal value of jazz music stems from ways in which its musical elements “are manipulated/emphasized to produce ‘jazz style’” (p. 184). Though jazz performance is embodied by musical individuality, educators (Bash & Kuzmich, 1989; Bessom, Forcucci & Tatarunis, 1980; Dunscomb & Hill, 2002; Goins, 2003; May, 2003; Poulter, 2008; Wilson, 2002) continue to find that even the music’s most subjective aspects can be transmitted from teacher to learner.

Historically, jazz has learned aurally, but its presence in academia has led to the development of countless methods and materials for instruction.

Jazz ensembles exist in secondary music programs throughout the United States. The abundance of jazz bands in American music programs may relate to the significance of jazz in American culture. Hazell, Porter, and Ullman (1993) stated that jazz is “America’s great art form” (p. 448). Jazz is often considered America’s most significant contribution to the arts (Berliner, 1994; Collier, 1993; Hazell et al., 1993), while Bash and Kuzmich (1989) claimed jazz is “America’s only original art form” (p. 7). Others deem jazz to be America’s classical music. Dobbins (1980) considered the jazz ensemble America’s “truly indigenous orchestra” (p. 41). In 1987, the U.S. House of Representatives voted to support Joint Resolution 57, in which Congress recognized jazz as “a rare and valuable national American treasure to which we should devote our attention, support and resources to make certain it is preserved, understood, and promulgated” (Hazell et al. 1993, p. 442).

Musical benefits from learning to play jazz are numerous. Jazz band participants learn to perform within a broad range of genres, including swing, bebop, salsa, funk, rock, fusion, and bossa nova. Jazz ensemble performance also affords students the opportunity and challenge of playing independent parts. Musical independence leads to the development of stylistic individuality (Bash & Kuzmich, 1989). Jazz pianist and pedagogue Billy Taylor (1986) explained, “In a typical jazz performance each individual performer contributes his or her personal musical perspective and thereby graphically demonstrates the democratic process at work” (p. 21).

Improvisation is a primary element in jazz performance. Bash and Kuzmich (1989) regarded improvisation as “the heart of jazz” (p. 6) and “the core of jazz instruction” (p. 7).

Improvisation is standard number three of the National Standards (Consortium of National Arts Education Associations, 1994) in music education and is considered an essential aspect in the music education of American students (Dunscomb & Hill, 2002; Lehman, 1999; Mark, 1996). Dunscomb and Hill (2002) stated that “some music educators believe that jazz classes embody the perfect environment in which to teach all of the National Standards for music education” (p.11). Goins (2003) explicated that the skills necessary to perform jazz are the “same skills promoted throughout the MENC [Music Educators National Conference] National Standards as an integral part of its primary objectives toward the development of the competent musician” (p. 218). Bash and Kuzmich (1989) claimed that “it is the developmental techniques of improvisation that distinguish jazz from all others and that give jazz education validity” (p. 7).

Improvisation is more than an essential element of jazz performance; it is an important skill in demonstrating musical creativity. Creative expression may also be a vehicle for fostering individuality. Improvisation requires the musician to audiate (see definition for “audiation”) (Gordon, 1986) sounds before playing them, whereas performing written music does not require the same degree of audiation (Sawyer, 1999). Azzara (1993) provided evidence that improvisation contributes significantly to achievement of instrumental performance in elementary school students. In addition to the skill of improvisation, performing in jazz ensembles provides the following benefits for students:

- a. Expanded musical experience
 - b. Increased independence (often only one musician per part)
 - c. Increased sight-reading skills
 - d. Rhythmic diversity/complexity
- (Bessom, Forcucci, & Tatarunis, 1980)

Statement of the Problem

The benefits of learning to play jazz are well documented, yet teaching the art of jazz performance involves various challenges. The personal, subjective nature of spontaneous musical

production makes it difficult to standardize criteria for performance quality. Jazz ensemble performance involves a vast array of techniques and skills, from formation of piano voicings to percussion styles and techniques, to phrasing and articulation for players of wind instruments. In the foreword to Bash and Kuzmich's (1989) jazz ensemble manual, Jamey Aebersold attributed these difficulties to a lack of standardization in secondary schools:

Today's colleges and universities unfortunately have no standard, across-the-board jazz education requirements for graduating Music Education majors . . . As a result, there has been a great deal of confusion about how to teach jazz in public school music programs. (p. vii)

Many of these challenges are addressed within the wide range of available method texts on jazz performance and improvisation (Baker, 1983; Bash & Kuzmich, 1989; Coker, 1970; Dunscomb & Hill, 2002; Goins, 2003; Haerle, 1989; Lawn, 1995; Reeves, 1989; Wilson, 2002).

Teaching interpretation, however, is one of the greatest challenges faced by jazz instructors. Jazz style has been traditionally learned through aural imitation (Laughlin, 2001; Milkowski, 2001). Hence, a challenge exists for jazz educators to lead students beyond rote imitation and toward development of stylistic interpretive ability. While many of the musical parts for jazz students provide detailed annotations for stylistic interpretation, others are less specific. Goins (2003) explained that "not all arrangers and composers provide the same degree of detailed information when it comes to helping the director correctly interpret what the writer or arranger wanted" (p. 60).

Many established college jazz studies programs exist throughout the United States, including the University of North Texas, Indiana University, Berklee College of Music, University of Miami, University of North Florida, University of Northern Colorado, and the Eastman School of Music. Yet, the historical relationship between jazz studies and academia may be described as dubious. According to Sawyer (1999), "many people have a common, naïve

misconception about jazz music—that it does not require training, expertise, and complex cognitive skills, because the musicians are thought to be simply ‘playing whatever comes into their heads’” (p. 194). Others criticize university jazz programs as producing “school jazz” musicians, who rely excessively upon chord/scale patterns when improvising. The “school jazz” accusation pertains to performance style as well.

An additional problem for music educators in public schools is their lack of skill due to a declining emphasis upon improvisation in Western music (Sawyer, 2000). The lack of familiarity with jazz and improvisation breed the “standard naïve view that it is pure inspiration” and cannot be taught (Sawyer, 1999, p. 203). Bessom, Forcucci, and Tatarunis (1980) disputed this view: “Improvisatory skill does not come easily, but it is possible to teach it to high school students, and even beginning levels of improvisation can contribute a great deal to music learning” (p. 143). Through empirical studies, others (Azzara, 1993; Humphreys & Nelson, 2002; Laughlin, 2001; May 2003) have found that jazz improvisation may be effectively taught.

Experimental research in the field of jazz improvisation and jazz instruction has been sparse, as well as problematic (Brophy, 1998; Meadows, 2005). If educators are to provide quality jazz instruction, they must understand the process of developing the musical skills required to perform jazz. Through experimental studies, researchers may determine characteristic patterns indicating methods in which students learn to improvise and play stylistically.

The nature of improvisation with regard to skill development has been investigated by many (Azzara, 1993; Berliner, 1994; Brophy, 2005; Johnson-Laird, 1988; Laughlin, 2001; Pressing, 1987; Sawyer, 2000; Tumlinson, 1991; Webster, 1987, 1990). Quantitative research in jazz improvisation is less abundant (Bash, 1984; Burnsed, 1978; Coggiola, 2004; Laughlin, 2001; Madura, 1996; May, 2003; McDaniel, 1974; Pfenninger, 1990; Tumlinson, 1991), though

a number of experimental studies serve as models for the present study. Few researchers have focused upon objective measurement of jazz improvisation. Burnsed (1978) rated middle school blues improvisations. His rating instrument was adapted from Partchey (1973) who evaluated sixth grade mallet percussion solos. Others, including Bash (1984), Horowitz (1995), Laughlin (2001), Madura (1996), May (2003), McPherson (1993), Pfenninger (1991), and Tumlinson (1991), have evaluated student jazz improvisations using rating scales.

Researchers (Azzara, 1993; Tumlinson, 1991) have included stylistic elements such as phrasing, dynamics, and articulation as criteria within jazz rating instruments, yet no studies have placed particular emphasis upon performance of jazz style or the relationship between articulation and style. Benward and Wildman (1977) explained the importance of articulation, stating that “anyone who has heard a non jazz player read a transcribed Charlie Parker solo and then has compared that performance with the original recording knows the importance of articulation for idiomatic jazz performance” (p. 63). In addition, jazz method texts typically devote very little space to articulation. Benward and Wildman’s (1977) lengthy resource designated only four pages to the subject. Baker (1983) devoted less than one page to articulation and Wilson provided a chapter on articulation, but included nothing regarding tongue-slur patterns. Furthermore, jazz directors typically spend little rehearsal time teaching students how to articulate particular phrases.

Baker (1983) described articulation as “the manner in which a note is attacked or a group of notes is attacked or joined together” (p. 13). Two specific components of articulation were addressed in this study:

1. Patterns of tonguing and slurring (especially in eighth note patterns) for wind instrumentalists
2. Legato phrasing and smoothness of note-initiation

Legato phrasing and the smoothness associated with it may be considered strictly a stylistic/interpretive technique. On the other hand, patterns of tonguing and slurring affect the fluidity and timing of playing jazz lines, which will in turn influence a player's style.

Purpose of the Study

The purpose of this study was to determine the effects of articulation practice on the stylistic interpretation of jazz melodies and improvisations for high school wind musicians. The study was guided by the following research question: What is the effect of articulation instruction on stylistic expression in jazz performance for high school saxophone, trombone, and trumpet players?

To address this question, the following sub-questions were examined:

1. To what extent is articulation taught and demonstrated in jazz band rehearsals, arrangements, and jazz method texts?
2. To what extent does methodical articulation practice enhance stylistic expression of melodies?
3. To what extent does practice of articulation exercises improve technical facility?
4. To what extent does practice of articulation exercises improve one's ability to improvise, especially with regard to stylistic interpretation?
5. Do students who practice articulation studies improve overall jazz performance ability to a greater extent than those who do not engage in such practice?
6. What were the students' attitudes regarding improvisation and articulation instruction?

Participants engaged in pretest and posttest performances of a researcher-designed jazz interpretation profile. The profile consisted of jazz melodies, scales, and a sample blues improvisation. A jazz scale using various articulations was performed to control for instrumental ability. Two participant groups (A and B) underwent a period of jazz ensemble and improvisation instruction. Group A (control) studied jazz melodies in the context of ensemble

rehearsal and received improvisation instruction. In addition to course study in jazz improvisation and jazz ensemble, Group B (experimental) engaged in a number of jazz articulation exercises. It is hypothesized that students in Group B will show no significant improvement on profile posttest scores.

Definition of Terms

This study involves some terms in need of clarification, which will be defined as follows:

- a. **Articulation:** The pattern of tonguing and slurring when playing consecutive notes in a phrase. This is a non-comprehensive definition used only for the purposes of this study.
- b. **Audiation:** The ability to hear “and feel music for which the sound is not physically present” (Gordon, 1986, p. 3).
- c. **Basic blues:** A 12-measure form consisting solely of dominant seventh chords (ex. “Buchholz Blues,” Appendix L) built solely on the first, fourth and fifth scale degrees and following the standard blues progression.
- d. **Bebop scale:** An eight-note scale, which may be described as a major scale, including the lowered seventh scale degree (Figure 3–1).
- e. **Call and response:** An ear-training method in which the instructor plays a short musical phrase and the students imitate that phrase on their instruments.
- f. **Interpretation:** The manner in which a melody is played; execution of style.
- g. **Jazz ensemble:** A jazz big band, consisting of a rhythm section (piano, bass, drums, and often guitar) and horns, which typically include five saxophones, four to five trombones, and four to five trumpets.
- h. **Minor pentatonic scale:** A five-tone scale relative to the major pentatonic. For example, A minor pentatonic consists of the same tones as C major pentatonic (C, D, E, G, A). The tonality of the scale changes, however, when starting on or emphasizing the sixth scale degree (in this case, A).
- i. **Phrasing:** Cohesive nature of a melodic phrase; phrasing is qualified through expressive elements including dynamics and articulation.
- j. **Piano voicing:** The selection and organization of chord tones to be performed on piano for a given chord.

- k. Style: Authenticity of performance within the given musical idiom. Style is evaluated in terms of tone quality, phrasing and articulation.
- l. Swing: Characteristic rhythmic feel originating with the 1930s swing era. While swing rhythms are often described as having a triplet-feel, no accurate form of notation exists to properly reflect swing.

Significance of the Study

Results of this study will benefit jazz educators and student musicians. Articulation notation is often not specified in jazz arrangements. The necessary degree of specificity dictates that band leaders seldom spend time teaching proper articulation patterns. Articulation patterns become inherent through listening and practice for jazz musicians. With knowledge on the effects of articulation practice, jazz educators may enhance the collective stylistic interpretation of their jazz ensemble, as well as that of its soloists.

Methodical articulation practice may prove beneficial for students' overall jazz performance. In addition to improved style, students will likely make gains in technical proficiency. Improvised solos will be executed with a greater degree of fluency. With an established repertoire of articulation exercises, stylistic expression in jazz performance will be facilitated more effectively than through rote methods of the past.

Delimitations

The following areas are not addressed in this study:

- a. any type of musical performance other than jazz
- b. jazz musicians at levels other than high school
- c. components of articulation other than tongue-slur patterns (e.g., "rooftop" accents and staccato articulation)

CHAPTER 2 REVIEW OF LITERATURE

This review of literature consists of the following seven topics: (1) theories on musical style, (2) philosophical rationales, (3) jazz education history, (4) jazz improvisation, (5) improvisation research, (6) Jazz pedagogy, and (7) jazz articulation. The initial topic contains a description of Meyer's (1989) theory of style and syntax, which serves as a theoretical rationale for the current study. The second topic consists of philosophical views regarding modes of learning, which relate to methodological procedures and hypothesized results in the current study. The third topic involves a brief history of jazz education, including a description of the evolution of jazz methodology. The fourth topic is a discussion of the nature and importance of jazz improvisation, with descriptions of findings from some who have determined that jazz improvisation can be taught. The fifth topic includes information from related jazz improvisation research and research studies pertaining to musical style. The sixth topic is a survey of jazz teaching materials, with details on ways in which style and improvisation are addressed within those materials. The seventh topic is concerning jazz style, expression, and the nature of the relationship between articulation and style.

Style Theory

A central premise for this study is supported by Meyer's (1989) theory of style, constraints, and syntactical choices made within those constraints. Meyer stated: "Style is a replication of patterning, whether in human behavior or in the artifacts produced by human behavior, that results from a series of choices made within some set of constraints" (1989, p. 3). Garber claimed that "we seriously need to develop a more complete understanding of the syntaxes of jazz" (1995, p. 75). Some syntactical restraints appear to be unique to jazz (Elliott, 1983). In the Foreword to the International Association of Jazz Education's (IAJE) *Jazz Studies*

Guide (Caramia et al., 2001), Dave Brubeck noted that style is a unique characteristic of jazz. He described the components of jazz (particularly notation, harmony, and scales) as being synonymous with those of classical music, but with stylistic differences. Brubeck stated that understanding the difference in style is “similar to knowing the difference between a Mozart interpretation from a Chopin” (Caramia et al., 2001, p. 4).

Poulter (2008) bolstered Meyer’s style theory, noting “the constraint of a time continuum allows expression within constraints, creativity within a framework” (p. 3). He also cited the necessity of discipline when learning an artful skill. If true, musicians may learn to operate within musical constraints, ultimately enhancing stylistic capacities. Generative devices in the form of “scales, melodies, rhythms, articulation patterns, etc.” (p. 10) must be firmly established for effective jazz performance. Poulter noted that learning situations are to be “guided by constraints. Limiting and refining the generative possibilities “reduces the cognitive load” (p. 10). Bash and Kuzmich (1989) provided further support, explaining “jazz articulation is based on several practices and rules of interpretation and phrasing” (p. 90).

Meyer (1989) also noted that “in the arts, the constraints governing the choices made are seldom explicitly recorded or consciously conceptualized, even by those most accomplished in their use” (p. 12). Elliott (1983) explains “chief among the laments of the experts is the frequency with which the salient aspects of jazz style seem to elude both teachers and students” (p. 164). Musicians often cannot verbally describe how they perform certain functions. They conceptualize a particular sound quality and aim to produce it. However, if musicians can explain how to achieve a particular performance standard, others will likely benefit. Garber (1995) explained the paradox involved here. Jazz musicians learn by mimicking others, yet it is originality that sets the jazz musician apart from others. Thus, through mimicking “one learns not

only the textuality of jazz but that jazz *has* a textuality” (Garber, 1995, p. 75). A goal in all educational settings is to facilitate understanding, which in turn leads to accelerated learning. By establishing syntactic rules and sets of possibilities within parameters, it becomes more probable that desirable choices be made. Musicians may be more likely to achieve positive results.

Because musical style is an essential component of improvisation, connections exist between theories on style and creativity. Csikszentmihalyi (1996) developed a well-known and expansive theory of creative process. He explained that creative domains involve symbolic rules nested in culture. A succinct definition of creativity is given as the “process by which a symbolic domain in the culture is changed” (1996, p. 8). According to Csikszentmihalyi (1996), creativity contains three primary elements: (1) culture containing symbolic rules, (2) a person contributing novelty within a symbolic domain, and (3) A field of experts to provide validation (p. 6). He duly noted that musicians involved in creative process (i.e. improvisation) must initially learn within established traditions and techniques.

Theoretical postulations heretofore described provide support for a systematic examination of creativity, style, and articulation. Style theories reveal the likelihood that it is possible to develop valid, structured forms of musical practice resulting in the enhancement of students’ abilities in the expressive domain. Substantial attention to theory may direct music research and music education toward development of valid practice methods and routines. Theory indicates that outcomes from this study will provide evidence that practice of articulation exercises enhance stylistic interpretation for high school jazz musicians.

Philosophical Rationale

Philosophical validation exists (Berliner, 1994; Elliott, 1986, 1995; Reimer, 2004; Whyton, 2006) for research and deliberation of syntactical teaching and learning methods in the expressive domain of jazz performance. Syntactical learning in jazz includes facets such as

technique development, kinesthetic learning, specialized practice, study of written musical patterns, and procedural knowledge acquisition, which Elliott (1986) referred to as “processual meaning” (p. 45). Philosophy provides evidence which helps to substantiate these facets of syntactical learning. Philosophy also provides a rationale for student development of creative (e.g., improvisational) abilities.

Jazz ensemble performance provides opportunities for students to participate in the creative musical domain through improvisation. Reimer (2004) noted that general music programs adequately address content standards one and two (which involve development of vocal and instrumental ability) of the National Standards (Consortium of National Arts Education Associations, 1994), but neglect or do not adequately address the other standards. He stated that “few general music programs achieve the full, balanced array of learning the nine content areas delineate as being basic” (p. 34). Students need opportunities to broaden musical understanding (Reimer, 2004) and participating in jazz ensemble facilitates those opportunities.

Syntactical teaching and learning requires a degree of structure and explicitness. Regelski (2005) postulated that specialized learning takes place in jazz ensembles. He advocated approaching general music classes and ensembles as laboratories, where general skills are taught, then honed “by engagement in and study of a highly specialized practice” (p. 237). Specialized learning may refer to knowledge of particular techniques, which are acquired through procedural learning. Cutietta and Stauffer (2005) claimed “just as formal knowledge grows directly out of the verbal learning mode, technical knowledge grows directly out of the procedural learning mode” (p. 128).

Elliott (1986, 1995) hypothesized that students learn best by attaining knowledge through procedures, or active learning, and that jazz has “generators of both syntactical and processual

meaning” (1986, p. 45). He explained that “jazz is a way of performing; a way of being in music” (p. 45). His philosophical stance relates to learning techniques (e.g., articulation patterns) unique to jazz. This position bears philosophical implications for music educators. Elliott (1986) stated that “teachers must blend preconceived tasks and sequences with processes their own intuitions tell them are potentially significant for students” (p. 46). Elliott (1995) explicitly corroborated the importance of articulation ability in relation to his own musical development:

This legato aspect of my musicianship developed as an aside (in parenthetical relation) to the central thrust of my effort: learning to make music artistically in relation to the norms and ideals of a specific musical practice. (p. 61-62)

Elliott (1995) studied with a trombone instructor, whose objective was to improve Elliott’s legato articulation ability, which resulted in improved performance of jazz ballads. Elliott (1995) contended that procedural knowledge enhances performance ability, and also guides understanding, resulting in greater appreciation when listening to music.

Articulation skill requires the physical ability of manipulating the tongue and airstream in a fluid manner, which influences melodic flow. Smoothness of articulation also depends upon the musician’s physical ability to operate saxophone keys, trumpet valves, or the trombone slide in conjunction with the airstream and tongue movement. Consequently, practice of articulation patterns involves kinesthetic learning. Elliott (1986) explained that “kinesthetic involvement in the performance of jazz can be a significant factor in the generation of processual musical meaning” (p. 49). Elliott (1986) proposed that kinesthetic learning enhances expression of the rhythmic dimension of jazz, and that rhythmic/kinesthetic learning can take place through teacher-student interactions (i.e., call and response, which was a technique used in treatments for the current study. For a description of call and response methods, see Appendices D and E).

Berliner (1994) provided further support for the significance of physical skill when playing jazz:

The ideas that soloists realize during performances depend as much on the body's own actions as on the body's synchronous response to the mind. The body can take momentary control over particular activities-such as articulation of a well-worn vocabulary pattern or a lengthy new phrase transmitted to it. (p. 190)

Berliner (194) explained the connection between motor skills and musical cognition with an analogy to linguistic articulation, but he also related motor skills to technique in instrumental performance: "When leading, the body pursues physical courses shaped not only by the musical language of jazz, but by idiomatic patterns of movement associated with the playing techniques of an instrument" (p. 190). Elliott (1995) cited particular applications for kinesthetic learning, in which students incorporate action goals when developing melodic expression or the rhythmic concept of swing in jazz:

Action-goals target specific details of selected musical challenges. For example, within the larger action-goal of learning to interpret and perform a selected musical work, students might focus on such sub goals as learning how to interpret the melodic expressions of sadness in a Romantic choral work or learning how to perform jazz swing authentically. (p. 278)

Some may consider procedural knowledge, study of patterns, and kinesthetic learning an overtly canonical approach for students learning jazz performance. However, Elliott (1995), Koopman (2005), and Whyton (2006) cited a necessity for, and benefits of the development and implementation of a jazz canon. Koopman (2005) explained that jazz performance practices have become standardized, but also demand extensive technical skill: "For many musicians, amateurs and professionals alike, large parts of the repertoire remain beyond reach because of the heavy demands they make on the performer's technique" (p. 89). Syntactical, procedural, and kinesthetic learning are considerably linked with technical ability in music.

Whyton (2006) cited the potential of canonical jazz education in terms of community support.

The construction and celebration of a jazz canon facilitates a quasi-hegemonic form of control over the discourse, in which education is used as a support mechanism to disseminate its power to the wider jazz community. (p. 75)

Whyton's comments appear to be cautionary, if not outright accusatory. He explained the apparent indictment by regarding the potential for jazz pedagogy constituting a threat to inherent social values associated with the music:

Pedagogy has the critical potential to expose jazz's celebration of autonomous art, hidden beneath the mask of jazz as social text. It is therefore understandable that education has a threatening potential, and thus tends to be discredited by certain sectors of the jazz community. (2006, p. 74)

Though some in the jazz community are incredulous about a canonical approach to education, educators are able to elicit support through the use of methodology. Whyton (2006) explicated that the benefits of a canonical approach to jazz education include development of objective standards, which aid educators when seeking support for materials, programs, or publications.

Skepticism regarding jazz improvisation education is often due to pedagogical emphasis on scales and technical patterns. This skepticism is valid to a degree, considering the need for students to understand melodic development when improvising. Overuse of patterns when improvising may result in triteness, confounding one's ability to develop coherent melodies. However, study of patterns may prove to be valuable when combined intuitively. Articulation patterns, in particular, may result in development of technique, eventually leading to melodic fluidity and stylistic authenticity. Elliott (1995) stated that

It is entirely appropriate to describe competent musical performers as thinking very hard and very deeply (but tacitly) as they perform (or improvise)-as they construct and chain musical patterns together; as they vary, transform, and abstract musical patterns; as they judge the quality of their musical constructions in relation to specific criteria and traditions of musical practice; and as they interpret the emotional expressiveness of musical patterns. (p. 56)

Canonical, procedural, syntactic, and kinesthetic approaches to learning jazz performance are grounded in philosophy. The philosophies delineated here may be considered a tapestry,

weaving an image of viable skill development in the expressive domain of jazz performance. Philosophical declarations of music educators (Berliner, 1994; Cutietta & Stauffer, 2005; Elliott, 1986, 1995; Reimer, 2004; Whyton, 2006) provide a rationale for conducting methodological, syntactical research in jazz education.

Jazz Education History

Literature pertaining to jazz performance and education reveals that jazz is a valid and uniquely American art form (Bash & Kuzmich, 1989; Caramia et al., 2001; Collier, 1993; Dobbins, 1988; Elliott, 1983; Goins, 2003; Hazell, Porter & Ullman, 1993; McKeage, 2004; Poulter, 2008). Consequently, jazz has become increasingly established in academia (Elliott, 1983; Ferguson, 2004; Fischer, 2003; Gabbard, 1995; Goins, 2003; Mark, 1987; May, 2003; Whyton, 2006). In 1941, The New School of Social Research in New York became the first school to offer jazz history courses, taught by jazz aficionados Leonard Feather, Robert Goffin, and Marshall Stearns (Milkowski, 2001). In 1942, Gene Hall, a graduate student at North Texas State (now the University of North Texas), composed a dissertation on curriculum for dance band majors. His work became the basis for a jazz studies degree at North Texas, the first public university to offer such a degree (Milkowski, 2001).

In 1947, The North Texas Two o'Clock Lab Band was the first performing jazz ensemble for which students received credit hours (Milkowski, 2001). In 1945, engineer, pianist and arranger Lawrence Berk began teaching at the Schillinger House of Music. The school changed its name to the Berklee School of Music in 1954. In 1966, Berklee awarded its first Bachelor of Arts degrees. Seven years later, Berklee was accredited and became the Berklee College of Music (Milkowski, 2001). To this day, North Texas and Berklee are two of the leading jazz studies programs in America. Edwards, Griffin, and O'Meally (2004) provided further validation of collegiate jazz studies:

One of the wondrous oddities of our current moment is that the best advice to a serious jazz player in training is not to drop out and study in New York's nightclubs but to attend one of the several conservatories where excellent jazz instruction, by accomplished jazz artists, is richly available. (p. 1)

Jazz ensembles in high schools have become more prevalent as well. In 1960, there were approximately 5,000 high school jazz bands; by 1970, that number tripled (Milkowski, 2001). Music educators interested in jazz education met in 1965 at the Music Educators National Convention (MENC), and formed the NAJE (National Association for Jazz Educators), now an international organization). In 1968, it became an affiliate of MENC (Milkowski, 2001).

Jazz education extends beyond high school and college ensembles. Ferguson (2004) suggested the importance of elementary school students learning about various jazz genres. Yet, some educators and researchers hold negative attitudes about the appropriateness and/or effectiveness of jazz in education (Dobbins, 1988; Mark, 1987; Whyton, 2006). Whyton (2006) explained "jazz education is discredited through claims that it is responsible for stifling creativity and the development of jazz" (p. 74). Bash (1991) noted the difficulty of teaching and evaluating jazz improvisation. One such difficulty stems from the fact that many educators lack the knowledge and skill to effectively teach jazz. Sawyer (1999) claimed that "music educators have traditionally been concerned with teaching skills related to the notated music of the European canon: Composition, reading, and instrumental performance" (p. 192).

Others have cited the musical benefits of studying jazz performance. Dobbins (1988) listed the following musical benefits:

- a. ability to maintain tempo
- b. necessity for understanding of music theory
- c. creative interdependence between musician and group
- d. musical experience integrated into the daily lives of students

Chappell (2007) noted the advantage of musical interaction when using jazz as a teaching tool. One form of interaction takes place when soloists and rhythm section players respond to each others' rhythmic, melodic, and harmonic devices. Wehr-Flowers (2006) stated:

Jazz studies offer students an opportunity to be creative and expressive through improvisation in an art form derived from musical elements of many cultures. Jazz improvisation is also spontaneous improvisation in a musical language that is uniquely American; therefore, the study of jazz and its people and culture can be considered an essential component of studying American history and American music education. (p. 338)

Recent emphasis on accountability and standardized objectives in education provides further validation. Jazz studies provide a musical format in which teachers may address each of the nine National Standards for music education (Dunscumb & Hill, 2002; Wehr-Flowers, 2006).

Jazz education has been a substantial component of secondary and post-secondary music curriculums for over 60 years. The contributions of jazz to American music history and music education establish an enduring position for jazz studies and performance. Research on jazz performance and jazz improvisation is needed to inform the growing field of jazz educators and pedagogues. Examinations of musical expression and creativity may produce results transmittable to other musical genres.

Jazz Improvisation

Improvisation is a defining element of jazz performance (Chappell, 2007; Gould & Keaton, 2000; Rose, 1985) and an essential aspect in music education (Mark, 1996; Lehman, 1999; Dunscumb & Hill, 2002). As one of nine National Standards for music education, improvisation is considered not only an essential element of jazz performance, but it is also an important skill in demonstrating musical creativity. Poulter (2008) explained that

Improvisation constitutes the original element in the musical evolution of all societies. Even today, most indigenous and folk music styles retain improvised elements. Some, such as ragas and flamenco, operate according to well-developed and complex patterns of improvisation. (p. 7)

Sawyer (1999) stated that “several music educators have pointed out that improvisation requires the ability to think musically, what is sometimes called ‘audiation’; whereas performing from a score does not require this kind of cognitive processing” (p. 203). Yet, because improvisation does not have high value in Western music, teachers rarely learn the skill (Sawyer, 1999). Byo (1999) found that of the nine National Standards, music educators are least likely to implement improvisation and composition. This is likely due to the challenging nature of teaching creative acts in music.

The spontaneous nature of improvisation has led many to ask the question: Can improvisation be taught? The lack of familiarity with jazz and improvisation breeds the “standard naïve view that it is pure inspiration” and can’t be taught (Sawyer, 1999, p. 203). May (1998) explained “jazz improvisation has often been thought of as a gift of self-expression that lends itself to neither instruction nor evaluation” (p. 1). Bessom, Forcucci, and Tatarunis (1980) disputed this view: “Improvisatory skill does not come easily, but it is possible to teach it to high school students, and even beginning levels of improvisation can contribute a great deal to music learning” (p. 143). Poulter (2008) explained the necessity for improvisation practice. Aspiring improvisers must master certain musical elements (e.g., rhythm, harmony, melody, and stylistic expression) in order to effectively function within the jazz genre. Poulter (2008) stated that “while the inclination to improvise is universal, the *ability* to improvise musically must be attained through ‘rehearsal’” (p. 5).

Educators have designed and implemented methods for attaining improvisation ability. Bingham (2007) designed and tested an improvisation module for beginning band students. The purpose was to develop improvisation skills for beginning wind musicians in a concert ensemble setting. While an abundance of resources are available that aid individual instruction, Bingham

(2007) noted that improvisation materials designed for group settings are limited. Bingham's study included the following variables: judges' scores on a pretest consisting of six melodies, posttest scores for the same melodies, a post-treatment measurement of students' ability to play arpeggios, and a measure of improvisational ability. Scores for each variable ranged from 1 to 10, though no subscores for particular performance aspects were given. No correlation coefficients were reported. A paired *t*-test was used to measure posttest gains on performance of melodies. Improvement was found to be significant ($p = 0.00$ for five of the six melodies, though only 52% of the total sample scores ($N = 72$) were included. Bingham (2007) reported that the module improved students' articulation in terms of maturity.

To teach improvisation, educators must be able to objectively evaluate student progress. The challenge involved with improvisation stems from the fact that improvisation requires mastery of many musical skills. Poulter (2008) characterized successful improvisation as that which "exhibits the characteristic elements of the common practice styles of jazz performance" (p. 29). He duly noted the necessity for recognizable indicators of success. Poulter (2008) proposed that those indicators include:

- a. musical fundamentals
- b. pulse and meter
- c. internal rhythm
- d. articulation
- e. correct style
- f. rhythmic interest
- g. note choice
- h. solo development
- i. space
- j. interaction
- k. melody and phrasing
- l. dynamics
- m. special effects
- n. overall shape

- o. creativity
- p. emotional impact
(p. 29-33)

Rose (1985) stated: “problems arise when attempts are made to evaluate the quality of an improvised solo” (p. 46). He explained that isolation of musical elements is necessary to better evaluate student abilities. Rose (1985) divided jazz improvisation into eight elements:

- a. transition/continuity
- b. scales, modes and non-harmonic tones
- c. response/sensitivity
- d. expressiveness
- e. continuity/sense of direction
- f. technical skill
- g. accuracy
- h. exploration
(p. 47)

Dunscomb and Hill (2002) also argued that improvisation can be taught. Their theory stemmed from the belief that the key to improvisation ability is internalizing the language of jazz, often referred to as “jazz vocabulary” (Berg, 2002; Berliner, 1994, p. 95; Dunscomb & Hill, 2002, p. 10; Wilson, 2002, p. 190). Azzara (1993) explained that “improvisation means that an individual has internalized a music vocabulary and is able to understand and to express musical ideas spontaneously” (p. 330). Furthermore, if students learn to improvise through construction of patterns via use of scales, modes, and arpeggios, educators must be privy to ways those devices are synthesized in the formation of melody. If jazz performance is indeed analogous to linguistics, then articulation may be considered critical to performance ability.

Johnson-Laird (1988) provided further support for the language analogy. According to Johnson-Laird, improvisers depend upon “a set of basic structures that are committed to memory” (p. 77). Improvising requires application of those basic structures, as in the process of

conversing. Johnson-Laird (1988) substantiated the importance of formal structure in music with a theory proposed by Igor Stravinsky:

The advantage of studying music is that it can be treated as a purely formal, syntactic exercise; and at least one great composer, Stravinsky, argued in his *Poetics of Music* that music should be composed and listened to as purely formal patterns in time. By studying musical improvisation, a psychologist accrues yet another advantage: improvisers perform in “real time”, that is, they cannot go back and change what they have played. (p. 77)

Johnson-Laird further noted that improvisers initially learn through aural imitation. Imitation (i.e. the aural approach) has long been the method utilized by jazz performers. As did Poulter (2008), Berg (2002) stressed the importance of ear-training via call and response practice: “Remember, any language is most quickly assimilated through listening and imitation” (p. 43). Berliner (1994) explained that “artists’ aural understanding and appreciation of music guide interpretation of theoretical material and drive its applications” (p. 168). He stated that theoretical and aural knowledge coexist. While some jazz musicians learn primarily through theoretical/syntactical approaches, others have been brought up in the aural mode. Berliner’s text constitutes a thorough case study on the process of learning to improvise. Included in his explorations are the relationship between composition and improvisation, pathways to understanding improvisation (absorption, interpretation, and synthesis), and standard practices of improvisers throughout differing jazz genres.

Literature pertaining to jazz improvisation reveals that improvisation ability requires practice, skill mastery, and unique forms of cognition. The creative nature of jazz improvisation presents educational challenges, but findings demonstrate that it can be taught. Improvisation ability is most effectively facilitated when educators utilize criteria indicators for success. The analogy of jazz improvisation to linguistics is a recurring theme found in literature pertaining to jazz improvisation. This analogy has implications for research in the areas of jazz improvisation

and expression. Language acquisition methods (i.e., aural imitation) have been considered in jazz methodologies and studies pertaining to jazz improvisation research.

Improvisation Research

Elliott (1983) called for “more rigorous standards of research and intellection” (p. 171) in the field of jazz studies. Though jazz research may be considered to be in an infantile stage, many studies exist regarding improvisation. Quantitative research in the field of jazz studies is challenging due to the personal, subjective, and creative nature of spontaneous music performance. Poulter (2008) explained “while current practices are increasingly informed by research and sound pedagogy, they remain inescapably rooted to past exigencies” (p. 15). However, many studies on the subjects of jazz and/or improvisation have been conducted which serve as models for the present study. Some have examined non-jazz improvisation (Azzara, 1993; Brophy, 1998; Partchey, 1973) while others (Bash, 1984; Briscuso, 1972; Burnsed, 1978; Horowitz, 1995; Laughlin, 2001; Madura, 1996; Marcus, 2004; May, 1998; Paulson, 1985; Pfenninger, 1990; Tumlinson, 1991) have conducted studies specific to jazz improvisation. McDaniel (1974) examined musical, cultural, and socioeconomic differences between jazz and non-jazz musicians. The nature of improvisation with regard to skill development has also been investigated (Berliner, 1994; Brophy, 2005; Johnson-Laird, 1988; Partchey, 1973; Pressing, 1987; Sawyer, 2000; Webster, 1987, 1990).

Briscuso (1972) explored relationships between jazz improvisation ability and Musical Aptitude Profile (MAP) (Gordon, 1965) scores. Briscuso’s (1972) study involved high school musicians ($N = 48$). He administered improvisation instruction once per week for a 30 week period. Students performed prepared and spontaneous improvisations on a 32-measure “pop song” (p. 15) and a 12-bar blues. Improvisations were rated by three judges using five-point

Likert scales (5 = excellent, 4 = above average, 3 = average, 2 = below average, 1 = poor) for the following criteria:

- a. harmonic awareness
 - b. rhythmic development and interest
 - c. melodic expressiveness
 - d. ability to play with jazz style
 - e. individuality
- (p. 17)

Interjudge reliability ranged from $r = .44$ to $.73$. Briscuso (1972) claimed that because students played arrangements during treatment, that the research was an investigation of jazz style and interpretation. “The general objective of the course was to develop improvisational facility that would demonstrate students’ ability to play jazz style” (p. 14). However, no specific results were reported on the style or expression criteria.

Student improvisation scores were divided into three equal levels (highest $n = 18$, middle $n = 18$, and lowest $n = 18$ scores) based upon MAP results. An ANOVA was used to examine interactions between total means on each of the four performances, type of improvisation (spontaneous and prepared), and aptitude level. Interactions between jazz improvisation ability and MAP scores on the Rhythm and Tonal Imagery subtests were not significant, but interactions with the Musical Sensitivity subtest were reported to be significant at the $p = .05$ level. This indicated that relationships exist between MAP Musical Sensitivity scores and improvisation achievement for both spontaneous and prepared improvisation. Briscuso (1972) also obtained significant results for interactions between improvisation ability and the two types of improvisation. Student scores on prepared improvisations were higher than scores on spontaneous improvisations. These results indicated that “with additional specific instruction, all students, regardless of aptitude levels, are able to improve improvisational performance” (p. 37).

Some researchers have developed reliable instruments for evaluation of students' creative musical products. Partchey (1973) rated sixth graders' ($N = 165$) improvisations on mallet percussion instruments. Three judges evaluated student products using a nine-point scale for the following criteria:

1. pitch accuracy
2. rhythmic clarity
3. tonal variety
4. rhythmic variety
5. unity.

The first two criteria were considered performance criteria and the last three were considered creative criteria. The rating scale ranged from 1 to 9, using the terms "weakest" and "strongest" as anchors. Interjudge reliability coefficients on pretest and posttest performances ranged from $r = .91$ to $.95$ for performance, creativity, and performance/creativity combined.

Participants were divided into three treatment groups: feedback, models and repetition. Each treatment involved a particular form of intervention between initial and subsequent improvisation performances. The repetition treatment involved no intervention. Partchey used an ANOVA to examine the effects of treatments on gain scores. No significance was found for mean gains among the treatment groups. Significance was found for gain scores within groups on the creativity ($p < .05$) and combined ($p < .01$) tests. This indicated that treatments did not have significantly different effects, but that each of the treatments produced significant gains on creativity and combined test scores. Mean gains (creative = 5.80/combined = 7.73) for the feedback treatment group were higher than the other two groups (models group creative = 3.60/combined = 1.85, repetition group creative = 1.85/combined = 3.25). This result led Partchey to administer a t -test to examine differences between scores for the feedback group and

the average of scores for the other two groups. Those differences were evident, but not significant ($p < .20$).

Brophy (2005) conducted a three year longitudinal study on the developmental nature of children's ($N = 62$) xylophone improvisations. He designed and administered a measure of mallet skill to control for instrumental ability. Brophy (2005) analyzed structural characteristics of improvisation, including "repeated and developed melodic motives, repeated and developed rhythmic motives, pulse adherence, phrases, and antecedent/consequent phrases" (p. 120). Quantification of structural characteristics was expressed by number of occurrences. Each characteristic was operationally defined. For example, a developed melodic motive was defined as "3-7 pitches that form a distinct pattern that is simultaneously different from and similar to a previously performed melodic motive" (p. 125).

To establish reliability, two judges participated in quantification (range $r = .81$ to $.91$). A repeated measures MANCOVA was used in data analysis, with age (range 7-9) as the independent variable and structural characteristics as dependent variables. Results indicated significant effects ($p < .049$) of age for repeated melodic motives, pulse adherence, repeated rhythmic motives, and antecedent/consequent phrases, but no significant effects for development of melodic motives. Mallet skill was found to have a significant effect ($p < .01$) on improvisation ability. Brophy proposed that improvisation is developmental in nature, noting that experience is related to one's ability to improvise meaningfully. The research design utilized in Brophy's study provided a model for future studies, especially regarding operational defining of structural characteristics in music and the application of control for instrumental ability.

Azzara (1993) investigated the effects of improvisation study on the music achievement of fifth grade ($N = 66$) wind and percussion students. Azzara designed an improvisation curriculum,

which served as the treatment for the study. At the end of the treatment period, participants performed three researcher-composed etudes used to measure musical achievement. One etude was student-prepared, another was prepared with help from the instructor/researcher, and the third was sight-read. Four judges rated instrumental performance of the three etudes using five-point scales on each of three musical dimensions (tonal, rhythm, and expression). Azzara achieved high interjudge reliability (range $\alpha = .90$ to $.96$) using Cronbach's alpha.

Azzara's (1993) rating scales consisted of continuous criteria for the tonal and rhythmic dimensions and additive criteria for the expressive dimension. Each criterion level was described verbally. Additive criteria for the expressive dimension were:

1. The student gives movement to the music.
 2. The student demonstrates an understanding of dynamics.
 3. The student has good tone quality.
 4. The student plays with an appropriate style of articulation.
 5. The student demonstrates an understanding of the appropriate phrasing.
- (p. 334)

Groups were divided into experimental (receiving improvisation instruction) and control (no receiving improvisation instruction). Group mean differences of instrumental achievement were analyzed using a two-way ANOVA. Azzara found that those who received improvisation instruction performed at significantly higher achievement levels than students without improvisation instruction on two of the three etudes ($p < .05$). He concluded that "improvisation skills contribute to more accurate student instrumental performances when reading from notation" (p. 339).

Instrumental jazz improvisation researchers include Burnsed (1978), who rated middle school (grades 7-9) students' (n experimental = 114, n control = 121) blues improvisations with the purpose of developing a reliable, formal evaluation of jazz improvisation. Experimental treatment in Burnsed's study consisted of 20 minute improvisation lessons for five weeks. The

control group received no additional treatment. Burnsed obtained pretest and posttest ratings for improvisation, sight reading ability, and students' attitudes toward band. His improvisation rating instrument was adapted from Partchey's (1973) measure of sixth grade mallet percussion solos. Burnsed asked three judges to evaluate eight criteria of solos using a three-point rating scale. The three levels were described as low, middle, and high. Improvisation scores ranged from 3-24.

Criteria included the following:

- a. repetition
- b. imitation
- c. rhythmic contrast
- d. tonal contrast
- e. phrasing
- f. rhythmic accuracy
- g. pulse accuracy
- h. pitch accuracy

He achieved moderate interjudge reliability ($r = .58$, $r = .72$ and $r = .76$, composite $r = .69$).

Burnsed explained that moderate reliability was likely caused by a few factors. The rating criteria modeled after Partchey (1973) may not translate well to jazz. Another consideration was that one of the three judges had little experience with middle school band students.

T-test results suggested that improvisation instruction had significant effects ($p < .05$) on sight-reading ability within all grade levels and treatment groups except for the 8th grade control group and the 9th grade experimental group. ANCOVA results for the overall effects of improvisation instruction on sight reading ability were not significant ($p < .267$). Burnsed administered Gordon's (1965) MAP to measure students' musical aptitude. He found that aptitude and improvisation posttest scores did not strongly correlate ($r = .29$).

Burnsed used the Watkins-Farnum (1954) Performance Scale (WFPS) to obtain pretest and posttest measures of instrumental sight reading ability. Due to time constraints, sight reading performances were limited to 8-measure phrases from three selections. Three judges rated WFPS

phrase selections for pitch and rhythm accuracy, using additive scales ranging from 1-8 (one point for each accurate measure) on each of the criteria. Reliability coefficients ranged from $r = .89$ to $.93$.

In the same study, Burnsed (1978) measured students' attitudes toward band using a researcher-designed attitude profile. The profile consisted of 23 items, each consisting of four responses, ranging from strongly disagree (1 point) to strongly agree (4 points). A sample item stated that "band would be important even without concerts and football halftime shows" (p. 110). Reliability for the attitude scale was calculated using Cronbach's alpha, and ranged from $r = .87$ to $.94$. An ANCOVA for pretest to posttest differences between treatment groups on the attitude profile resulted in significance ($p < .02$). Experimental group students' attitude profile scores toward band improved, while control group students' attitude profile scores did not improve. This suggested that students' attitudes toward band improve after experiencing improvisation instruction.

Bash (1983) examined the effectiveness of three instructional methods on the acquisition of jazz improvisation skills in high school instrumentalists ($N = 60$). The first method was technical, with emphasis on chords and scales. The second method was aural, and supplemented the first method through vocal and instrumental imitation. Bash (1983) claimed that "all aural perception activities encompassed stylistic gestures of the non-technical dimension" (p. 53). The third method was analytical, and supplemented the first method with analysis of classic jazz recordings. Treatments were administered one hour per week for seven weeks at a local college on Saturday mornings. Experimental treatments from other studies tend to take place in the context of jazz ensemble rehearsal.

Bash (1983) created an Improvisation Performance Instrument (IPI), in which he employed seven-point Likert scales (low = 1-2, average = 3-5, high = 6-7) for ten criteria:

1. note accuracy (within chords)
 2. progression accuracy (among chords)
 3. intonation
 4. time
 5. style (appropriate to the music)
 6. excitement
 7. communication of ideas
 8. phrasing
 9. expression (plays with emotion)
 10. articulation (uses a variety of attacks)
- (p. 199)

Eighteen jazz educators participated in a validity assessment of the IPI. Bash expressed validity of the IPI through agreement percentiles (range 73% to 94%) resulting from those assessments. The IPI was administered in pretests and posttests. Participants were divided into three groups for the varying forms of treatments and one control group, which received no improvisation instruction. Improvisation products assessed with the IPI consisted of two choruses of blues. Bash found that the IPI may serve as a predictor for improvisation potential. Three jazz educators judged the total sample of improvisations. Reliability for composite IPI scores ranged from $r = .83$ to $.95$. Bash measured relationships between IPI pretest scores and age ($r = .197$), Gordon (1965) MAP total raw scores (range $r = -.154$ to $.117$), and scores on the Musical Sensitivity portion of the MAP ($r = -.154$, $.075$, and $.010$ on the three Musical Sensitivity subtests). This suggested little to no relationship between age or musical aptitude and improvisation ability.

Bash examined effectiveness of instructional treatments using a multivariate ANCOVA with IPI posttest scores as the dependent variable and the three forms of treatment as independent variables. He found significant differences between the control and all three

instructional groups ($p = .001$), as well as significance between the technical treatment and the two non-technical instructional treatments ($p = .004$), but no significant differences ($p = .294$) between the two non-technical treatments.

Tumlinson's (1991) ratings instrument is among the most inclusive found in jazz improvisation research. Tumlinson (1991) purported that "no such model existed which embodied all the elements recognized by experts in the field" (p. 9). Tumlinson sought "to develop and test systematically a theoretical model that delineated the constructs and subsumed variables of jazz improvisation performance" (p. 5). The study involved student and professional wind musicians. Tumlinson analyzed jazz pedagogy materials to develop a framework of previous construct delineation. Through factor analysis, Tumlinson identified 33 variables among seven constructs, which consisted of:

- a. harmonic appropriateness
- b. rhythmic usage
- c. melodic usage
- d. jazz style
- e. individuality
- f. expressiveness
- g. form

After surveying existing literature (among which was Bash, 1984; Burnsed & Price, 1984; Schilling, 1987) on jazz assessment and pedagogy, Tumlinson wrote the 33 variables as statements. Among the 33 was the following variable: "demonstrates control in selecting tones that correspond with the sounding chord" (1991, p. 143). Another variable regarding articulation was stated as: "Uses a wide variety of articulations" (p. 146). As a result of studying articulation, Tumlinson found that "this area lacked distinctiveness from the other stylistic groupings" (p. 96). Tumlinson's finding implies a definitive link between articulation and style, because articulation

related to style in the same manner as other expressive performance elements (e.g., tone quality and rhythmic feel).

Tumlinson developed lists of categorical terms and then composed statements using those terms. Key terms included in the style construct were “rhythmic feel, articulation, sound manipulation, and tone” (p. 48). Each statement included an explanation, and was used as part of the Descriptive Improvisation Measurement Instrument (DIMI). Content validity was established by a panel of two jazz experts, who made suggestions and contributed to the editing of the initial list. A secondary purpose of the study was to examine interrelationships among variables.

The study ($N = 120$) included 60 students and 60 professionals. Ages for student participants were not given. The professional samples consisted of prior recordings, with varying styles, song titles and instrumentation. Tumlinson (1991) reported that the variety of performances, especially the variability of quality exhibited in the rhythm sections, was problematic for the reliability of the study.

Tumlinson attained interjudge reliability using Cronbach’s alpha (range $\alpha = 0.0$ to 0.87). As did May (1998), Tumlinson (1991) found improvisation to be a single factor. Another pertinent finding was that student improvisations accounted for only five constructs, whereas professional improvisations accounted for the seven constructs previously listed. The five student constructs were:

- a. rhythmic/melodic variety
- b. fluency
- c. style/time feel
- d. melodic breadth
- e. melodic/harmonic congruity

Tumlinson provided a thorough source of descriptor variables, which could be used for those devising a jazz improvisation measurement instrument.

Laughlin (2001) examined aural versus notation based pedagogical practices and their influence on harmonic accuracy in jazz improvisation. As with Paulson's (1985) study, Laughlin's study involved aural imitation through the use of call and response. Laughlin's work is related to the current study in terms of research design (judged results of pretest and posttest jazz performances using Likert scales for experimental and control groups), treatment, statistical analysis, and the population examined. Participants ($N = 20$; n experimental = 8, n control = 12) consisted of high school students, grades 9 through 12, with no jazz experience. Independent variables included written and aural instruction. The dependent variable was harmonic skill.

Laughlin (2001) developed lessons for both the written (control) and aural (experimental) methods. While some of the materials were borrowed from Reeves (1989), Laughlin gave no explanation for the manner in which lesson content and sequencing were established.

Participants in the control group were given written phrases composed by the researcher. No articulations were marked on the written phrases. A performance evaluation measure was modeled after those of Burnsed and Price (1984), Pfenninger (1990), and Tumlinson (1991).

Laughlin (2001) examined the following five performance criteria:

- a. harmonic awareness
- b. rhythmic development and interest
- c. melodic expressiveness
- d. ability to play with jazz style
- e. individuality

Laughlin's (2001) measure, however, was more specifically oriented to harmonic accuracy. The evaluation measure included six items, each ranked on a scale from one (lowest) to five (highest). Total test scores ranged from 6 to 30. Items for evaluation consisted of:

- a. harmonic proficiency
- b. demonstration of harmonically appropriate skills
- c. demonstration of control in selecting tones that correspond with each chord
- d. demonstration of the ability to solve problems and adjust

- e. harmonic and melodic inventiveness
- f. correct notes

Descriptive statements are given for five of the six items, though some statements (e.g., those for “harmonic proficiency” and “demonstration of harmonically appropriate skills”) appear synonymous. The descriptive statement for harmonic proficiency was “to what degree does the student demonstrate control of harmonic materials?” (p. 92). The descriptive statement (in this case, a question) for harmonically appropriate skills was “does the soloist perform appropriate or correct notes for the harmonic environment? Indicate a ‘5’ always, ‘4’ mostly, ‘3’ usually, ‘2’ sometimes, ‘1’ never” (p. 92).

Six judges rated pretest and posttest recordings of student improvisations over the Miles Davis tune “So What.” Judges included music graduate students, high school teachers, and university professors. Interjudge reliability was tabulated using Spearman’s rho among individual items for combined pretest/posttest scores and ranged from $r = .47$ to $.88$. Judges received written instructions prior to rating recorded samples, but no training session was conducted prior to data collection.

Laughlin made internal consistency calculations “to compare combined pretest and posttest scores among the related question items” (2001, p. 34). Cronbach’s Alpha for internal consistency was $\alpha = .97$. Laughlin explained that the alpha score was tabulated from combined scores, but did not reveal whom, or how many judges generated the scores. Alpha scores are typically used to measure internal consistency among judges for tests having multiple parts. This test was exclusive to the harmonic accuracy component of improvisation, and may be considered to have only one part.

Laughlin compared judges’ combined pretest/posttest scores and gain scores using an ANOVA. Results indicated significant differences (range $p = .0001$ to $.0019$) among judges’

scores on each of the six harmonic accuracy items. This suggested a lack of consistency among judges. Gain scores among the judges were not found to be significantly different. ANOVA comparisons for gain scores lacked significance (range $p = .079$ to $.765$), with the exception of one item ($p = .026$).

Laughlin found that though judges' scores varied, levels of pretest and posttest gains were fairly equivalent. A Mann-Whitney comparison of pretest to posttest differences on each item for both the experimental and control groups revealed significance ($p = .0001$) for each of the six items. Differences between the experimental group (range $M = 2.95$ to 3.36) and control group (range $M = 2.45$ to 2.82) for mean posttest scores on each item do not appear to be significant. However, mean gains for the aural treatment group (range $M = 1.00$ to 1.79) were higher than those of the notation treatment group (range $M = .65$ to $.82$) for each of the six items. Therefore, Laughlin concluded that the aural method was more effective for beginning improvisers.

Pfenninger (1990) made modifications to existing rating scales (Burnsed, 1978; McDaniel, 1974; Partchey, 1973) to measure jazz improvisation achievement. Participants were college jazz majors ($N = 20$). Pfenninger divided improvisation into three categories (tonal element, rhythmic elements and expressive elements) based upon Gordon's (1965) Music Aptitude Profile (MAP):

In Pfenninger's (1990) study, six judges were asked to rate student improvisations over the tune "All the Things You Are," using five continuous criteria for tonal and rhythm dimensions. Five additive criteria were considered for the expressive element. Continuous criteria for the tonal dimension were the following:

1. maintains tonality of the chord progression
 2. maintains note accuracy within and among chords
 3. cohesion of tonal phrases
 4. development and transposition of ideas
 5. effectively plays and resolves non-harmonic tones (plays outside)
- (1990)

Continuous criteria for the rhythmic dimension were the following:

1. maintains consistency of tempo
2. performs beat subdivisions and macro beats accurately
3. performs melodic rhythm accurately
4. develops rhythmic motives “including the transposition of rhythmic ideas” (p. 56)
5. interaction with the rhythm section
(1990)

Additive criteria for the expressive dimension were the following:

1. plays with a suitable jazz tone, influenced by previous jazz musicians
2. exhibits a variety of timbres
3. plays with style suitable to the music
4. plays throughout the range of the instrument
5. builds intensity throughout the solo, “through the use of momentum, tension, release, and climax” (p. 57)

Interjudge reliability among the three dimensions ranged from $r = .37$ to $.95$, with the highest scores pertaining to the rhythmic dimension. Composite reliability for all judges' scores on each dimension resulted in the lowest reliability for expression (tonal $r = .77$, rhythmic $r = .78$, expression $r = .67$). Pfenninger correlated scores among the three dimensions (rhythm/expression $r = .71$, tonal/expression $r = .18$, rhythm/tonal $r = .40$). This indicated that the rhythmic and expressive dimensions were closely related and that the weakest relationship existed between the tonal and expressive dimensions.

Madura (1996) investigated order of predictors for particular vocal improvisation tasks. Participants ($N = 101$) consisted of college jazz vocalists. As with Pfenninger's (1990) study, Madura divided improvisation into three dimensions (tonal, rhythm, and expression) and divided those dimensions into 18 items (Table 2-1) for consideration.

Tasks included improvising over blues and ii-V7-I progressions. Madura (1996) considered individual characteristics, including jazz theory knowledge and imitative ability. In Madura's (1996) study, independent variables served as predictors for vocal improvisation

achievement. Independent variables included jazz theory knowledge, imitative ability, jazz experience, instrumental lessons, gender, and general creativity. Three judges rated vocal improvisation tasks in each of the dimensions using a five-point scale. Key findings were as follows:

- a. The order of best predictors on the blues task was jazz theory knowledge, jazz experience, and imitative ability.
- b. The order of best predictors on the ii – V7 – I task was imitative ability, jazz theory knowledge, and jazz experience.
- c. “Instrumental lessons, voice lessons, gender, and general creative ability were not found to be significant predictors of vocal jazz improvisation achievement” (1996, p. 252).

May (1998, 2003) examined factors related to instrumental jazz improvisation achievement, including jazz theory knowledge, aural skills, and aural imitation. No treatment was administered prior to data collection. She used factor analysis of criteria from previous studies to identify the component factors underlying instrumental jazz improvisation. May’s (1998) research is pertinent to the current study for a number of reasons. She designed an improvisation measurement instrument based upon previous studies, examined students’ two-chorus F blues improvisations, and her participants ($N = 73$) consisted of wind players who performed in jazz ensembles. She designed the following four measures:

- a. Measure of Jazz Theory Achievement (MJTA)
- b. Measure of Aural Skills (MAS)
- c. Measure of Aural Imitation (MAI)
- d. Instrumental Jazz Improvisation Measure (IJIM)
(2003)

May (1998) examined mean raw scores and percentile ranks to provide a reflection of difficulty level for each measurement instrument. She found that the MAI was most difficult (total possible score = 70, $M = 31.16$, correct responses $M = 45\%$), followed by the MAS (total

possible score = 36, $M = 20.76$, correct responses $M = 58\%$), and MJTA (total possible score = 50, $M = 30.31$, correct responses $M = 65\%$).

May's (1998) improvisation measure was modeled after Burnsed and Price (1984), Madura (1992), Pfenninger (1990), and Schilling (1987). May (1998) explained "the instrumentation employed by Schilling, Burnsed & Price, and Pfenninger represents a synthesis of previous literature and provides a basis for further investigation of the nature of instrumental jazz improvisation" (p. 4). Content validity and reliability of May's (1998) IJIM were examined with consideration to several issues, including:

- a. criteria from previous studies
- b. interjudge reliability reported on measures used in those studies
- c. specific methods for evaluation to be used by the raters (e.g., descriptive terms given for each dimension being measured)

May (1998) used Cronbach's alpha, yielding internal consistency measures for the Measure of Aural Skills ($\alpha = .84$), Measure of Aural Imitation ($\alpha = .88$), and Measure of Jazz Theory Achievement ($\alpha = .94$). Interjudge reliability for the each dimension of the improvisation measure ranged from $\alpha = .91$ to $.97$. May suspected high interjudge reliability was due to the fact judges listened to and rated each dimension independently before moving on to the next. Judges also underwent a training session, during which examples of the lowest and highest achievement levels were demonstrated for use as anchors.

The improvisation test involved two performances: two choruses of a 12-bar blues in F and an improvisation on "Satin Doll." Three judges rated each improvisation product using seven-point scales (low to high) for the following seven dimensions:

- a. technical facility
- b. rhythm/time feel
- c. melodic/rhythmic devices
- d. style

- e. harmony
- f. expression
- g. creativity
(May, 2003)

Scores ranged from 7-49 for each improvisation task. Mean scores were lower for “Satin Doll” ($M = 26.15$) improvisations than for blues ($M = 28.19$), indicating greater difficulty on the former task. A t -test ($t = 2.45$, $df = 72$, $p < .02$) demonstrated that the difference in difficulties between the two improvisation tasks was significant. Scores were lowest for the harmony dimension on the blues ($M = 3.70$) and the style dimension on “Satin Doll” ($M = 3.60$). Scores were highest for technical facility on the blues ($M = 4.36$) and expression on “Satin Doll” ($M = 3.92$).

The improvisation rating system listed one scale used to assess each of the seven dimensions. Each dimension was described with bullet point descriptors as criteria. For example, the creativity dimension was described as “shows originality and freshness of ideas,” and “elaborates and develops ideas within style constraints” (1998, Appendix G). May’s description of creativity emphasizes the style dimension and alludes to the importance of constraints, as described by Meyer (1989) and Poulter (2008). May’s (1998) style and expression dimensions were given independent ratings, yet included similar criterion descriptors. Style criteria were as follows:

- tone quality enhances style
- uses standard jazz articulation
- uses special effects
- rhythmic and pitch patterns are appropriate to style
(1998, Appendix G)

Expressiveness criteria were as follows:

- creates and maintains intensity
- shapes ideas

- uses dramatic devices
- tone color enhances improvisation (1998, Appendix G)

Pearson correlations among all dimensions on the IJIM blues task were high (range $r = .71$ to $.96$) and significant at the $.001$ level. Correlations for the “Satin Doll” task were yet stronger. This finding led May (2003) to consider improvisation to be a single construct. May came to the following conclusion:

High correlations among all criteria across both improvisation tasks and the high correlation between the total Blues score and total Satin Doll score ($.83$) suggested that jazz improvisation achievement might not be multidimensional. (p. 251)

May used factor analysis to further explore the single construct concept. A 10:1 subject-to-variable ration was established, using the seven dimensions of improvisation for 73 participants. She proceeded to use oblique rotation, in which only one factor was found to meet the eigenvalue criteria of one. May (1998) explained that “this factor, with an eigenvalue of 6.43 accounted for 92 percent of the variance in the composite improvisation tasks” (p. 68). This finding is significant for the current study, in which improvisation was rated as a single construct consisting of multiple dimensions. May (2003) further suggested that “the multiplicity of subskills contributing to achievement in instrumental jazz improvisation should be developed simultaneously rather than in sequential fashion” (p. 255). Implications from these results may lead future jazz educators and researchers to approach improvisation in a holistic manner, rather than using building blocks to construct abilities independently.

A one-way ANOVA was calculated to compare mean subscore differences on each test and composite IJIM scores, by year in school and instrument. Results yielded significance ($p < .02$) for year in school on the IJIM, and by instrument on the MAI ($p < .03$). No significance was

found for mean differences between year in school on the MJTA, MAS, and MAI, or between instrument on the MJTA, MAS, and IJIM.

Upon completion of May's four tests, participants answered a Subject Experience Survey, which called for background information including instrument, year in school, piano experience, improvisation class experience, and self evaluation of improvisation ability. Participants were asked to rank themselves on a three-point scale (beginner, having moderate ability, or advanced). May (1998) found that the strongest predictor variable for instrumental jazz improvisation achievement was self-evaluation of improvisation, followed by aural imitation, jazz theory achievement, improvisation experience, and aural skills.

May (2003) found that objective measurement of the expressive dimension in instrumental improvisation is possible, as well as that of the technical dimension. Her research is among the most thorough and conclusive in the area of jazz improvisation measurement. It serves as a model for all subsequent studies in terms of jazz measurement, improvisation assessment, and statistical analysis.

A prime consideration for teachers of improvisation concerns the ways in which students learn to develop melodic ideas. Practice of scales and patterns does not translate to student development of melodic improvisation. Paulson (1985) developed an imitative instructional approach to improvising effective melodic statements in jazz solos. Paulson's approach centered on the hypothesis that generation of effective melodic ideas in jazz is positively influenced by the "systematic utilization" of imitation. Paulson labeled elements of melodic solos, including sound, rhythm, pitch, and dynamics. Paulson was simply concerned with developing a program of study for improving improvisation through the use of imitation. He concluded that subsequent studies would be needed to evaluate this program of study.

The preponderance of instructional jazz materials has resulted in detailed programs of instruction. Increasingly detailed programs of instruction have coincided with advancing sophistication of jazz music. However, researchers (Marcus, 2004) have noted that the trend toward more formalized methods for learning to play jazz has led students away from aural-imitative approaches.

The importance of aural skills is a recurring theme found throughout the literature (Berliner, 1994; Caramia et al., 2001; Laughlin, 2001; Marcus, 2004; May, 1998; Paulson, 1985; Poulter, 2008). May (1998) divided aural skills into two realms: Perceptual (ability to identify intervals, scales, etc.) and imitative (ability to imitate intervals, scales, etc.). Marcus (2004) conducted a qualitative analysis of the use and viability of transcription as a method for assimilating jazz style. Forty-one jazz faculty members from colleges throughout the United States were interviewed. Open-ended questions regarding transcription were posed and answers were audio recorded. For the sake of comparison, four music educators from schools for the blind were interviewed. Data from those educators reveal the importance of aural methods. It was concluded that current methods do not adequately utilize aural techniques. Marcus suggested development of a system for utilizing transcription.

Coggiola (2004) explored aesthetic responses of college music majors ($N = 128$) with ($n = 64$) and without ($n = 64$) jazz ensemble experience. Student preference for four jazz selections of varying melodic complexity was measured using a Continuous Response Digital Interface (CRDI). Complexity of selections was determined by a panel of five jazz experts, who reached 100 % consensus agreement upon the rank order of complexity. Incidentally, the selection considered to be most conceptually advanced was “Dr. Jekyll,” recorded by the Miles Davis

sextet featuring Julian “Cannonball” Adderly, John Coltrane, Red Garland, Paul Chambers and “Philly” Joe Jones.

Participants listened to each selection in its entirety, while turning the CRDI dial (range 0 to 256) to reflect their degree of aesthetic response. Mean responses to selections, in order of least to most conceptual advancement, of the non jazz group were 182, 187, 200, and 161 (reflecting lowest aesthetic response for the most conceptually advanced selection). Mean responses to selections of the group having jazz experience were 165, 202, 197, and 202 (reflecting highest aesthetic response for the second most and most conceptually advanced selections).

Coggiola used an ANOVA to compare differences in aesthetic responses between the two groups. The most dramatic difference ($p = .000$) existed between groups for the selection of highest conceptual advancement. ANOVA results yielded significant differences due to stimuli ($p = .001$) and by group due to stimuli ($p = .001$). Coggiola concluded that jazz ensemble experience is related to heightened aesthetic response when listening to jazz selections of high complexity. Decades earlier, Gordon (1965) elaborated that “there is reason to believe that the aesthetic expressive-interpretive dimension of aptitude is important to creative and improvisation achievement” (p. 50).

Berliner’s (1994) theoretical case study is a qualitative examination of the process of learning to improvise. He explored the relationships among composition and improvisation, pathways to understanding improvisation (absorption, interpretation, and synthesis), and standard practices of improvisers throughout differing jazz genres. Berliner sought to de-mystify the art of improvisation by examining creative processes. For example, Berliner notes the necessity of spontaneous evaluation, which contributes to spontaneously creative products.

Berliner did not report a definitive set of findings resulting from the case study. Rather, the entire text itself constitutes an extremely comprehensive collection of findings, consisting of commentaries from prominent jazz artists (including Red Rodney, Rufus Reid, Dizzy Gillespie, Miles Davis, Max Roach, James Moody, Chuck Israels, and countless others), historical accounts, and musicological analyses. Analyses include transcriptions which are encoded to reflect performance nuances. Berliner's qualitative findings pertain to a multitude of considerations for improvisation, including skills, relationships with language, relationships with composition, relationships with other arts, the concept of group interaction, and the nature of evaluation involved with group interaction. Berliner (1994) provided the following statement, which appropriately describes the complex nature of jazz improvisation pursuits:

An unwavering commitment to learning and creativity characterizes the inter-related music specialties of jazz improvisers and their passionate pursuits. Jazz activities blend the composer's imaginative exploration of musical ideas with the performer's mastery of musical instruments, the theorist's penchant for analysis with the historian's curiosity about the development of musical tradition, the educator's concern for making musical language accessible to the non-specialist with the concern all share with 'passing it on.' (p. 485)

A review of literature pertaining to improvisation research uncovered several themes, among which were the following:

1. development and reliability of quantitative improvisation measures
2. performance elements used in ratings assessments of improvisation ability
3. predictive factors of improvisation ability
4. aural methods versus written methods

Researchers have developed quantitative improvisation measures having a wide range of reliability outcomes. Most measures were administered by a panel of judges, who rated improvisation products using Likert scales. The most reliable ratings were administered by judges having (1) experience specific to the style of music being performed, and (2) knowledge

of participant ability levels in the given age group. Training sessions for judges appears to enhance reliability of improvisation ratings.

Measurement ratings examined in the literature were based upon performance element criteria, which had varying levels of specificity. Ratings criteria were typically divided into the broadest categories (i.e., the tonal, rhythmic, and expressive dimensions), and then were broken down into more specific performance factors (e.g., harmonic accuracy, or swing feel). Performance elements were labeled “constructs” (broad and abstract attributes, such as “style”), “dimensions,” (more specific considerations, such as “melodic devices”) and “factors,” or “criteria” (the most specific considerations for ratings, such as “articulation”).

The organizational nature of ratings criteria used in previous studies provided a model for the development of a jazz performance measure for the current study. Jazz improvisation ratings measures that included the style construct contain criteria (e.g. rhythmic feel, articulation, and tone quality) which may be appropriate for comprehensive measurement of jazz performance. Aural methods for learning improvisation appeared to be superior to any alternative approaches, which was an important consideration for design and implementation of treatments used in the current study.

Jazz Pedagogy

Early jazz compositions were often unwritten. Consequently, musicians learned from each other aurally (Laughlin, 2001; Marcus, 2004). Berliner (1994) explained that “one conventional way for young artists to share information is through informal sessions, a mixture of socializing, shoptalk, and demonstrations known as hanging out” (p. 37). As the music has continued to increase in complexity, formal methods have become more abundant. A wealth of jazz education sources exist today, including method texts (Baker, 1983; Bash & Kuzmich, 1989; Beach & Jarvis, 2002; Campbell, Casale, Coker, & Greene, 1970; Dunscomb & Hill, 2002; Haerle, 1980;

Haerle, 1989; Lawn, 1995; Reeves, 1989; Wilson, 2002), special volumes dedicated to jazz education and research (*Bulletin of the Council for Research in Music Education*, volumes 95/96; Caramia et al., 2001; Meadows, 2005; Poulter, 2008), and background “play-along” series developed by Jamey Aebersold (for example, volume 54, *Maiden Voyage: Fourteen Easy-to-Play Jazz Tunes*, 1992) and others.

Jazz method books frequently contain emphasis on nomenclature, chord progressions, and chord/scale relationships. Azzara (1993) noted pedagogical emphasis particular to patterns and scales. One such text is Reeves’s (1989) *Creative Jazz Improvisation*. Reeves’s method claims to be a creative approach, yet discussions of originality and melodic development are conspicuously absent. Rather, the text progresses from major scales to modes to harmonic progressions and song forms. A considerable portion of the text is comprised of transcribed solos. The method seems to be more product-oriented than process-oriented. Product-oriented approaches appear to be a trend among many of the jazz methods available.

Berg (2002) developed a more current improvisation method titled *Chop Monster*. The multi-volume method is designed for used both with individuals and when teaching improvisation in big band rehearsal. Berg addressed the creative aspect of melodic construction based upon jazz language. Methods of melodic instruction are detailed, which include basic scales, chromatic tones, and harmonic language. While jazz language and improvisation are addressed, the text(s) do not include a chapter on style or interpretation. No suggestions or methods are given for techniques regarding articulation.

Babad (1999) proposed a blueprint for heightening the expressive component in jazz improvisation. Babad’s stated goal was to aid performers in progressing from “practice to praxis” (p. v). According to Babad, the four approaches to learning improvisation are:

- a. melodic embellishment
 - b. chordal/arpeggio method
 - c. scale/mode approach
 - d. pattern method
- (p. v)

An overview of each approach is given, supported by musical illustrations. Babad explained solo construction in terms of intensity, with specific suggestions for increasing and decreasing musical intensity. Articulation is not among the given suggestions. To help musicians generate musical ideas (i.e., melodicism), Babad listed communicative and creative devices (e.g., use of theme and variations when building a solo). Once again, articulation is not included. All suggestions appear to be contributed by the author and are not grounded in experimental research.

Comprehensive methods for jazz ensemble performance (Bash & Kuzmich, 1989, Beach & Jarvis, 2002; Dunscomb & Hill, 2002; Lawn, 1995; Wilson, 2002) have become more readily available. Bash and Kuzmich (1989) authored a thorough method for jazz ensemble directors, complete with practical suggestions, technical information (from proper instrumental and sound equipment to techniques for string players), and a philosophical rationale for including jazz ensembles in band programs. An Audition Evaluation Form is included containing the following criteria:

- a. time
 - b. tone or blend
 - c. articulation (“attacks, releases and breathing to achieve proper jazz concept”) (p. 31)
 - d. range
 - e. intonation
 - f. sight reading
 - g. improvisation
- (1989)

Beach and Jarvis (2002) collaborated on a jazz band handbook for high school and collegiate educators. Content is organized and presented in a manner that the text may be used in

jazz pedagogy classes. A chapter is devoted to phrasing, articulation, and dynamics. Topics range from swing interpretation to use and placement of accents to melodic contour and phrasing. Recordings of both negative and positive examples provide a demonstration of techniques. The articulation section consists of information regarding accents, note initiation, and duration, as well as ornaments/effects. No suggestions are presented for tongue-slur patterns.

Transcription books constitute insightful resources on the musical vocabulary of professional jazz musicians. One of the most prominent transcription collections is the *Charlie Parker Omnibook* transcribed by Aebersold (1978). Though the *Omnibook* is universally used by saxophonists and other instrumentalists, not a single articulation is provided. The reader is left to determine articulation patterns with no guidance or suggestions.

Some jazz texts, however, do address the creative aspect of spontaneous melodic construction. In *Jazz Improvisation* (1983), David Baker thoroughly addressed melodic development. Baker discussed variation of melodic contour, tension and release, density, repetition, sequence, augmentation, diminution, truncation, and fragmentation, among many other aspects of developing a melody. Included in the text is a chapter titled “A Psychological Approach to Communicating Through an Improvised Solo” (Baker, 1983, p. 113). This chapter deals with emotional response and musical meaning.

Wilson (2002) designed a step-by-step method aimed at developing big band musicianship. This method addresses issues such as cutoffs, articulation, and running sectionals, as well as a thorough outline of chord/scale relationships for improvisation. Included are two pages on the note initiation aspect of articulation specific to jazz. In addition, Wilson (2002) contributed 30 “Bluesy Articulation Exercises” (p. 69). A useful addition would include specific tonguing/slurring patterns in melodic contexts. While the exercises challenge a player to initiate

notes in a variety of ways specific to jazz, no specifics are given on tongue-slur patterns.

However, given the wealth of method materials available, a standardized practice of articulation with application to jazz melodies is needed.

Baker's (1983) *Jazz Improvisation: A Comprehensive Method of Study for All Players* is a well-known method. Baker outlined chord-symbol interpretation, melodic practice/performance patterns, inflections (e.g., glissando and bending pitches), ear training, and song forms. The 132 page volume includes less than a page on articulation. Rather than addressing the topic in-depth, Baker recommended that the student draw on other sources for articulation patterns.

Coker's (1970) *Patterns for Jazz* is a widely used text in jazz fundamentals and improvisation courses. While his text provides many ways to interpret chord symbols, with countless patterns to be used over chords and progressions, not a single line is devoted to articulation. If players learn such patterns without the proper knowledge of how to execute them, they run the risk of sounding contrite and like amateurs, as opposed to sounding like seasoned jazz musicians.

Bowman (1988) contributed a critical overview of doctoral research on jazz pedagogy in an aforementioned volume of the *Bulletin of the Council for Research in Music Education*. Studies range from 1972 to 1985. Though somewhat dated, this overview provides a start for those seeking foundations of jazz research. The earliest study reviewed was conducted by Briscusco (1972), who explored relationships between musical aptitude and four jazz improvisation tasks. Those tasks included blues and a 32-measure song form (AABA), both approached with and without preparation. While the relationship between aptitude and the Tonal and Rhythm imagery subtests was not significant (Bowman provided no statistics), Musical Sensitivity subtest scores revealed a statistically significant relationship to improvisation

achievement. Another review is contributed by Hores (1977), who compared efficacy between aural and theoretical methods. Bowman cited a lack of thorough, statistical analyses, as well as a number of design problems. Among the studies reviewed, common themes appeared that were critical for jazz research. These themes included the lack of a clear problem statement and the lack of substantiation for researcher claims. Briscusco (1972) and Hores (1977) are secondary sources, but Bowman's critical reviews constituted a necessary image of jazz research shortcomings during the 1970s and early 1980s. Other studies reviewed include Burnsed (1978) and Bash (1984), which are given closer attention in this literature review.

Members of the Music Teachers National Association and the International Association of Jazz Education collaborated in devising a *Jazz Studies Guide* (Caramia et al., 2001). The manual is intended to satisfy a "need for a concise, thorough, unbiased approach to teaching jazz" (2001, p. 3). Skills encompassing five levels of difficulty are divided into the following four categories:

- a. listening
 - b. ear training
 - c. playing/demonstrating
 - d. performing
- (2001)

Skills range from attendance of live performances to arpeggiation of chord progressions. The manual is best suited as an outline for student achievement in improvisation. Lists of artists, song titles pertaining to particular skill components, and other resources are given, which include jazz education periodicals and internet sites. The term "style" is used only in the context of varieties of jazz styles. Articulation is not mentioned and the manual lacks specific methodology.

Poulter (2008) developed systematic methods for learning and teaching jazz improvisation in the school jazz ensemble. His text includes standards for selecting musical materials (big-band charts), as well as standards for evaluating improvisation. Poulter (2008) explained the

importance of the relationship between jazz style and improvisation: “Improvisation has been both an essential aspect of professional performance and a vehicle for learning jazz style” (p. 9). Included is a comprehensive list of representative jazz improvisation resources, jazz theory manuals, jazz ensemble method texts, small group (combo) guides, and resources devoted to the rhythm section.

Meadows (2006) compiled a comprehensive source dedicated exclusively to jazz scholarship. Though Meadows included annotations of DVDs, history texts, reference works, sources on jazz culture, methods, and jazz theses and dissertations, no journal articles are included. This source provides a current perspective on the state of jazz scholarship. Revised from its first edition (Meadows, 1995), the 2006 edition adds more than 800 new entries, yet only seven new dissertations are specific to jazz improvisation. Of those seven dissertations, four deal with free jazz and not methodology. Among the many subheadings, there is no subheading for jazz style or interpretation.

Jazz Pedagogy Summary

The current review of jazz pedagogy literature provides evidence that authors of jazz improvisation methods typically devote little, if any, attention to articulation. One exception is John McNeil’s (1999) *The Art of Jazz Trumpet*. McNeil (1999) explained that “swing—the rhythmic content and feel of a line—is totally dependent on accents, and accents depend on articulation patterns” (p. 29). McNeil drew a comparison of swing era interpretation (in which eighth notes were typically played with a 12/8 feel) and modern jazz style (in which the eighths are more often played evenly). McNeil provided practical tips and exercises for practicing jazz articulation. Exercises include a variety of melodic shapes, which influence the way(s) in which lines may be articulated. For instance, melodic leaps are best facilitated by tonguing, while step-wise melodies can be tongued or slurred. Articulation exercises are written in multiple keys.

McNeil recommended adapting classical exercises (for example the Second Study in Herbert L. Clarke's (1984) Technical Studies) to work on accents and tongue/slur patterns.

Coughlin (2005/2006) authored a two-volume beginning jazz clarinet method with specific consideration granted to articulation. In Volume I, Coughlin addressed rhythm and articulation. Volume II contains emphasis on syncopation and composition, with applications for jazz articulation in the form of melodies and etudes. The unique aspect of Coughlin's work is that articulations are addressed both in exercises and supplemental etudes, which appear at the end of each volume. Coughlin (2005) asserted that articulation influences the swing feel, and that one articulation pattern in particular is fundamental for swing. "There is a general articulation pattern in jazz—when we have groups of eighth notes, we tongue the notes that are off the beat, and we slur into the notes that are on the beat" (2005, p. 14).

Goins's (2003) publication is intended for high school and college jazz band directors without the advantage of having taken a course in jazz pedagogy. The text is comprehensive, including a chapter on articulation. Goins (2003) suggested:

Countless articles have been written in an attempt to clear the air about the what, how and why related to articulation. For some directors, every new article that is written only serves to create an even murkier picture concerning what is the "right" way to do it. (p. 60)

Explanations for the interpretive aspect of articulation are addressed through vocal syllables. For example, Goins (2003) noted that jazz bands performing with a strict articulation style would have the "ricky-tickeys" (p. 61). Appropriate syllables are noted, giving the director a set of guidelines for particular rhythmic values (e.g., "dat" for staccato). Goins also addressed the relationship between articulation and technique:

Students on all wind and brass instruments need to develop good tonguing techniques in order to execute proper phrasing and articulation. The swing factor, or sense of time is directly related to how well one is able to articulate musical passages. (p. 63)

Others who have addressed specific articulation methods include Aebersold (2000) and Zentz (n.d.). Aebersold contributed a two-page guide with written suggestions and musical examples for practice. He suggested that practice of the given exercises, along with listening to recordings, will enhance individual musicianship. He did, however, explain that the articulation must become second-nature before style is improved. “The articulation has to become AUTOMATIC before it will begin to sound natural” (Aebersold, 2000, p. 1). Likewise, Coughlin (2005) noted that “initially, slurring and tonguing in this way may seem a bit awkward. However, if you practice it very slowly first, it will become natural” (p. 14). Zentz (n.d.) provided suggestions for articulation style, but also typical patterns of tonguing and slurring with relation to melodic contour.

Articulation in Jazz Style

Articulation is considered a primary factor in musical expression. Rose (1985) explained “through the use of dynamics, phrasing, articulation, tone, and tension and release, the improviser is able to develop the emotive qualities of a solo” (p. 47). Aebersold (2000) substantiated that articulation is a way in which musicians express themselves musically. Berliner (1994) explained the crucial relationship between articulation and melodic interpretation: “They vary such subtleties as accentuation, vibrato, dynamics, rhythmic phrasing, and articulation or tonguing, striving to interpret the melody freshly, as if performing it for the first time” (p. 67). Poulter (2008) asserted that “articulation is inseparably connected with proper swing style” (p. 30). Likewise, various song styles, including Latin jazz, blues, bossa nova, and jazz fusion, are largely contingent upon idiomatic articulation. “The style or genre of a song affects components of the improvised section, including the articulation, harmonies, and subdivision of the beat” (Poulter, 2008, p. 51).

Bash and Kuzmich (1989) cited a more subtle link between articulation and style and melodic interpretation, even when an alternate definition of articulation is implied:

What makes the development of jazz so distinct from other kinds of music is its individual nature. Jazz requires not only an individual interpretation of melody, it demands spontaneous individual invention of new melodies, individual articulation of style and rhythm that exceeds notation, and individual interpretation of a total musical sound. (p. 4)

McNeil (1999) also mentioned the connection between articulation and individuality. However, it is important to note here that the nature of freedom involved in articulation is different when playing in a large jazz ensemble. In the large jazz ensemble setting, players are expected to articulate uniformly, whereas in jazz combos, articulations may be more interpretive.

Bash and Kuzmich (1989) considered articulation a basic, fundamental concept of jazz musicianship. They claimed the lack of time efficiency involved with the rote method should lead jazz educators to method texts, which “provide a faster and more thorough way to teach jazz basics (p. 42). The need for uniform articulation in jazz ensemble performance is well documented, yet jazz methods appear to be lacking in specific procedures for learning standard articulations.

Articulation may be predefined (as when interpreting a melody in which the articulation patterns are specified) or highly variable, particularly in the context of improvisation. Goins (2003) noted that rules for articulation are dictated by musical context. According to Berliner (1994), variation of articulation increases and relieves rhythmic tension and dictates the nature of one’s swing feel. Poulter (2008) considered articulation one of a few “flexible parameters . . . that improvisers must address” (p. 12). While structural elements of tunes (such as harmony, form and meter) are static or fixed, articulations may vary. The variable nature of articulation makes it a challenge to teach and learn uniformly. This variability is likely a reason that the issue of articulation patterns is seldom addressed in jazz method texts.

However, forms of articulation are considered to be standard. Aebersold (2000) explained that “some players enjoy using the standard swing style articulation very common to the Swing and Bebop eras (p. 1). Zentz (n.d.) provided an explanation of what that “standard” style is: “In general, a stream of eighth notes will be played with an articulation pattern of slurring off an upbeat into a downbeat. This takes the stiffness out by taking the stress and weight off the downbeat” (p.1). Aebersold (2000) also noted the penchant for modern players to lean toward more legato, relaxed forms of articulation.

Poulter (2008) asserted that articulation (as well as swing feel and stylistic playing) must be learned by listening to professionals and mimicking them. Goins (2003) felt that listening is the “ideal way of developing the strongest sense of phrasing and articulation” (p. 68).

Articulation, however, is multi-dimensional and may be assimilated in more ways than by listening. The nature with which one initiates individual notes is a particular aspect of articulation that may best be learned by listening to professionals. Articulation patterns, as in the operational definition of “articulation” for this study, may well be learned through practice exercises. Those exercises may, in turn, translate into melodic and improvisatory performance.

Few if any studies have been conducted regarding the interpretation of jazz melodies. Rohwer (2001) examined middle, high school, and college wind musicians’ ($N = 90$) perceptions of musical expression when performing a non-jazz melody. She sought to discover expressive aspects that musicians varied when asked to play a melody expressively. Participants performed two renditions of a researcher-composed melody: one devoid of expression and one performance containing expressive elements.

Rohwer found that when playing “expressively,” experienced musicians varied the same factors as inexperienced musicians, but to different degrees. Elements of expression included

dynamics, timing, articulation, and tempo. Seventh graders varied articulation more than other expressive elements. This led Rowher to conclude that articulation is a good starting point for educators when teaching musical expression to less experienced musicians.

Though no studies appear to have directly related articulation to jazz interpretation or improvisation, there is substantiation for teaching and assessing proper articulation. Bash (1991) related that “there are numerous articulations that are particularly relevant to jazz performance that create a more meaningful performance in the context of the style” (p. 47). Benward and Wildman (1977) asserted that “anyone who has heard a non jazz player read a transcribed Charlie Parker solo and then has compared that performance with the original recording knows the importance of articulation for idiomatic jazz performance” (p. 63).

Gudmundson (2006) explained the importance of unified articulation within sections of the jazz ensemble. The difficulty of attaining this ideal is evidenced by his assertion that “quite often, articulations in standard, commercially available big band arrangements are not overly detailed, or can even be misleading” (2006, p. 40). However, Gudmundson believes that standardization of articulation leads to stylistic improvement.

Droe, Geringer, Madsen, and MacLeod (2006) examined articulation style as an independent variable and its effect upon listeners’ perceptions of modulated tempo. Articulation style, however, was limited to staccato and legato-style tonguing. No implications appeared for the effects of articulation on stylistic interpretation.

Articulation has been linked with style in studies regarding improvisation (Bash, 1984; Berliner, 1994; Burnsed, 1978; Laughlin, 2001; May, 1998; Pfenninger, 1990; Tumlinson, 1991). A thorough review of literature, however, uncovers no experiments linking articulation to melodic interpretation. The nature of melodic development in improvisation is a related issue to

the current study. Sloboda (1985) purported: “The essence of improvisation . . . is in the melodic line” (p. 143). Bingham (2007) and Poulter (2008) confirmed the importance of learning to improvise via performance and embellishment of melodies. If methodical articulation practice is demonstrated to improve stylistic interpretation for melodies, implications may arise for the effects of articulation on style in jazz improvisation as well.

Table 2-1. Madura’s dimensions of improvisation

Tonal dimension	Rhythmic dimension	Expressive dimension
Correct notes	Rhythmic feel	Scat syllables
Tonal language	Rhythmic figures	Vocal sound
Variety	Variety	Sound variety
Originality	Originality	Range variety
Motivic development	Motivic development	Dynamic variety
Unity	Unity	
Intonation		

(Madura, 1996)

CHAPTER 3 METHODOLOGY AND PROCEDURES

This chapter consists of an outline of the methods and procedures that were used in the study. Descriptions of the jazz articulation survey, participants, data collection, and analysis methods are included.

Jazz Articulation Survey

A purposive sampling of 9 high school and 10 collegiate jazz music educators agreed to complete a survey on their views concerning articulation and stylistic expression. Purposive sampling was chosen to obtain expert opinions on the importance of articulation and its relationship to stylistic interpretation. Survey participants were among the best-known, widely published, and most active jazz performers, educators, and researchers. Findings from the survey further demonstrated the need to conduct research in the area of jazz interpretation.

A 13 item survey (Appendix A) on the nature and importance of jazz articulation was completed by 19 jazz educators. Six of the respondents were primarily high school music educators, 10 were collegiate educators, and 3 have taught at both the high school and collegiate levels. High school educators had an average of 13.6 years of experience, while collegiate educators had an average of 14.7 years of experience. Survey participants were chosen for their level of experience and contributions in the field of jazz education. Fifteen of 19 participants listed a wind instrument as their primary instrument. Non-wind musicians played percussion (one), piano (one), and double bass (two). One of the bass players also played saxophone.

Articulation survey questions were rated using a continuous scale from zero to five (zero meaning “not at all” or “not at all important” and five meaning “very much” or “very important”). When asked about the importance of articulation to jazz style (Appendix A), 18 of 19 participants (94.7 %) chose number five, suggesting articulation was very important to jazz

style. Fourteen (73.7%) of the respondents felt the importance of teaching specific articulation patterns (item 9) to be at a level four or five. Twelve respondents (63.2%) felt that articulation could be effectively learned (item 10) out of context (i.e., through scales and patterns rather than melodies and improvisations). Seventeen (84.2%) respondents added that articulation would best be taught both in and out of context (item 11).

Responses on the Jazz Articulation Survey demonstrated strong agreement among educators that articulation was a crucial and teachable component of jazz style. When asked to list the five musical characteristics most important to stylistic interpretation in jazz, 18 of 19 respondents included articulation among their five. The only items showing a lack of agreement pertained to the amount of specificity regarding articulation in high school and professional jazz arrangements (Appendix B). This lack of agreement suggested that the degree to which written articulations are specified is highly variable. In other words, some jazz arrangements provide written articulations, but many do not. It appears appropriately evident that high school arrangements provide more written articulations, though there is little agreement as to how much.

Survey results validate the need for articulation studies in jazz performance. Results were used in the development of research methods and procedures for the current study. The consensus regarding relationships between articulation and style led the researcher to develop specific articulation exercises (Appendix F) and to investigate student abilities in jazz style performance.

Pilot Study

Prior to the current study, a pilot was conducted which contributed to the development of a jazz performance rating instrument. The rating instrument developed for the pilot (Appendix N) was revised and expanded for the current study. In the pilot study, middle and high school

student ($N = 34$) improvisations were rated and analyzed according to technical, rhythmic, melodic, and stylistic characteristics. Ratings criteria were derived largely from studies performed by Burnsed (1978) and Pfenninger (1990).

The purpose of the pilot was to examine selected characteristics of student rhythmic and melodic improvisations and to develop a reliable rating instrument for jazz improvisation. Prior to data collection, middle school students ($n = 16$) participated in two 30-minute jazz improvisation clinics. High school students ($n = 18$) participated in one 30-minute clinic. Clinics took place during jazz ensemble rehearsals at each school.

During the jazz clinics, participants learned the sequence of I^7 , IV^7 and V^7 chords in a basic blues (Appendix L). They played simple melodic patterns (e.g., scale degrees 1–2–3–5, or C–D–E–G if in the key of C), the B-flat minor pentatonic scale, and rhythmic improvisations ranging from 2 to 12 measures in length. A sample ($n = 8$) of participants performed four excerpts, which were recorded for data analysis. Those excerpts included the following:

1. b-flat minor pentatonic scale
2. scale/technical exercise
3. 12 measure rhythmic improvisation
4. 12 measure melodic improvisation

Recorded performance excerpts were analyzed by the researcher, and then rated by four doctoral music students. Written instructions were provided for each rater, but no prior training session took place. Ratings criteria included technical proficiency, rhythmic accuracy, melodic structure, and style. Rhythmic and melodic improvisations were accompanied by the Aebersold (1992) Volume 54 play along CD. Participants performed one chorus of blues improvisation. High school participants learned B-flat, E-flat, and F bebop scales. The scale was applied to a blues melody (Appendix L) composed by the researcher and performed by the jazz ensemble.

The purpose of teaching the bebop scale was to provide students with a framework for using chromatic passing tones.

Data collection included recordings of four performances by each participant. As a measure of instrumental skill, each student performed the three bebop scales and the minor pentatonic scale. Each participant also performed a 12-measure rhythmic and 12-measure melodic improvisation. Reliability was calculated using Pearson's r product moment correlation coefficient. Those correlations yielded low positive to moderately strong positive results (range $r = .17$ to $.56$).

Reliability is increased when conducting a training session for judges in which ratings criteria are specified. May (1998) established high interjudge reliability after conducting a training session for judges. Another consideration for the modest reliability results found in the pilot was the fact that three of the four judges were not jazz educators. Educators with extensive jazz experience would likely provide more reliable ratings. These factors were accounted for in the design of the main study.

The pilot study rating instrument was expanded and revised for the main study. For example, technical proficiency was assessed in the pilot using only a single Likert scale. Judges were provided with written terms such as "time accuracy," "pitch accuracy," "consistency of tone," and "articulation accuracy" to be used as guidelines for the rating. In the current study, technical proficiency ratings consisted of those four criteria, however, each criteria received an independent rating. Ratings criteria for the current study also included quantitative guidelines for each numerical rating (Appendix C). The intention was to develop a more thorough and accurate rating index, which would in turn increase reliability and validity of the current study.

Approval (Appendix G) for this study was obtained through the Institutional Review Board (IRB) of the University of Florida. Permission was granted to include minors as participants with parental consent and student assent. The IRB approved parental consent and student assent letters (Appendix I) were distributed and collected prior to initiation of treatments. Upon obtaining IRB approval, the researcher solicited the approval of the school districts of Alachua and Palm Beach counties (Appendix G), as well as permissions from the local administration at each high school.

Participants

Participants in the current study ($N = 33$) were high school students ranging from 10th through 12th grade. Participants were recruited from two high schools, one in northern Florida and the other in southern Florida. The northern Florida school existed in a university community and the southern school existed in a metropolitan area. School populations were nearly identical in size, both having slightly more than 2,300 students. Each school employed approximately 100 faculty members.

The relatively low number of participants was due to the fact high school jazz bands contain a limited number of wind players. Another factor was that high school bands typically maintain busy performance schedules, making it difficult to locate educators willing to grant instructional time toward such a study. Previous researchers have also contended with this issue. In the case of Laughlin (2001), “Directors consented to one session per week for a total of four weeks. This was sufficient, in the opinion of the researcher, to gain significant data results” (p. 36). The current study required four days of instructional time per week for a three-week period. One director granted consent, contingent upon the treatment period not extending beyond the proposed amount of time.

Schools were purposely selected based upon the size and quality of the band program. Criteria for quality band programs were as follows:

1. Each school's jazz band received "superior" ratings for at least five consecutive years at the district Music Performance Assessment.
2. Each school's jazz band rehearses a minimum of four class periods (approximately fifty minutes in a period) per week.
3. Each school's jazz band had been formally recognized for excellence by administrators in its school district.

Samples were chosen purposefully for the following reasons: Jazz bands typically include 15 (or more) wind musicians, and students in high quality music programs are more likely to practice individually, which was a necessity for this study. High-caliber band students often take private lessons, enhancing their technical skill. In order to control for differences in instrumental ability, students performed a pretest scale exercise. That exercise consisted of the bebop scale using three different articulations (Figure 3-1). Students were rated for technical facility on a five-point scale for each of the three scale exercises.

The two participant groups contained unequal numbers. The control group ($n = 18$) consisted of six trumpet players, six trombonists, and six saxophonists. The experimental group ($n = 15$) consisted of six trumpet players, three trombonists, and six saxophonists. The unequal number of trombonists is due to current limitations of the experimental group band program. That program had two jazz bands causing a thin distribution of trombonists. Participants for the main study consisted solely of wind players due to the particular nature of articulation (i.e. tongue-slur patterns) being examined.

Members of both groups' rhythm sections participated in treatments, but were not required to perform pretest and posttest tasks. Treatment involved performance of jazz melodies and improvisations, allowing inclusion of rhythm section musicians as accompanists. Rhythm section players performed melodies and improvisations in addition to providing accompaniment. Keyboard and bass players performed scales and exercises along with wind musicians.

Percussionists performed scales and exercises on vibraphone. All music used during treatment included written parts for rhythm section players.

A measurement instrument was developed and titled the Edmund Jazz Interpretation Profile (EJIP). The EJIP was administered using a pretest/posttest research design. All students were first administered the EJIP in addition to the Musical Sensitivity portion of Gordon's Musical Aptitude Profile (1965). The jazz interpretation profile (EJIP) included these four items:

1. bebop scale with varying articulations
2. "Billie's Bounce," a 12-bar blues in the key of F
3. "Mr. P.C.," a C minor blues
4. two choruses of F blues improvisation

The bebop scale was included to account for initial differences in technical ability among participants. The two melodies were chosen because both were 12-bar blues, varied in levels of difficulty, and varied in terms of melodic direction ("Billie's Bounce" contains many melodic skips, and "Mr. P.C." consists almost exclusively of stepwise motion.).

Blues was chosen for the improvisation item because, as Poulter (2008) stated, "the blues form is the most common and important form in jazz" (p. 63). Blues also provides a logical point of departure for beginning improvisers. May (1998) explained that "blues improvisation, which seems to be less difficult than other improvisation tasks utilized in jazz improvisation research, may be the most effective beginning point for improvisation instruction" (p. 88).

Sample student pretest and posttest improvisations (Appendix M) were transcribed by hand and transferred to Finale files. Each sample consists of one chorus for the participant. Samples were chosen from participants who exhibited the most improvement or those who demonstrated particular skill in improvisation. An informal analysis was conducted to examine differences between pretest and posttest improvisations and to seek tendencies among individuals. Those analyses are described in Chapter 5.

Copyright permissions were obtained for the use of the two blues melodies, as well as use of the Aebersold (1992) accompaniment track. Permission to use and record the accompaniment track was granted by a representative of Jamey Aebersold Jazz. Permission to use “Billie’s Bounce” in print form was granted by Atlantic Music Corporation, a division of Criterion Music. Permission to use “Mr. P.C.” in print form was granted by Jowcol music.

Pretest performances were recorded either before or after school, depending upon student availability, and without interfering with instructional time. Posttest data were gathered before school or during jazz ensemble class outside the thirty-minute treatment period. All pretest performances were sight-read. Sheet music used throughout the study was written using Finale 2003 and transposed for each instrument.

Prior to playing, participants were afforded 45 seconds to study each blues melody. Tempos were established by playing metronome clicks prior to each performance. Those tempos were as follows: (1) scales: quarter note = 100 beats per minute, (2) “Billie’s Bounce”: quarter note = 110 beats per minute, and (3) “Mr. P.C.”: quarter note = 130 beats per minute. F blues improvisations were recorded with a rhythm section accompaniment track (Aebersold, 1992). Considering the fact that many participants lacked improvisation experience, all were given a written copy of the F minor pentatonic scale. Participants were instructed to improvise via the given pentatonic scale and/or using the chord changes (also provided) supplemented by their own knowledge of blues improvisation.

The purpose of including Gordon’s MAP was two fold: (1) Participant scores for musical sensitivity were used as control variables to account for initial differences in aptitude, and (2) Participant scores were used as a measure of construct validity. May (1998) explained that “performer characteristics, such as musical aptitude, creativity, cognitive style, and technical

ability may also account for differences in jazz achievement” (p. 9). Multiple reasons existed for using only the Musical Sensitivity portion of the MAP. Gordon (1965) explained that one’s “musical success cannot go beyond his ability to interpret and express these factors in a musically sensitive manner” (p. 11). Gordon (1965) was pluralistic when referring to musical aptitudes. He explained that the test affords analyses of specific functions of each aptitude.

The collective music aptitudes of groups of students may be compared through the use of either school grade or musically select percentile norms provided with the MAP. Subtest, total test and composite test results may be used for that purpose. (p. 64)

The Musical Sensitivity portion is a stand alone test and is the only portion which measures student preferences. The Rhythmic and Tonal portions measure aural discrimination. Rhythmic and tonal components were included in the researcher-designed profile.

Control Group Treatment

The scope and sequence of improvisation treatment (Appendix D) for both the experimental and control groups is based upon Poulter’s (2008) text. Poulter’s work was chosen because it is among the most current, is published by MENC, and is specifically geared toward teaching improvisation in a jazz band context. Improvisation instructional treatment includes content from difficulty levels designated as grades I, II, and III (Table 3-1). Treatment was administered during a three week period, involving four lessons per week, each lasting 30 minutes. Group A (control) students participated in improvisation class and jazz ensemble, but received no additional instruction.

Experimental Group Treatment

In addition to the model designed from Poulter’s (2008) sequence of instruction, articulation lessons were designed using Aebersold’s (2000) and Don Zentz’s (n.d.) methods as models. As with the improvisation instruction, articulation lessons involved 12 half-hour sessions. Lessons were delivered over a three-week period (four lessons per week), and taught to

the entire group. Treatment was limited to three weeks due to circumstantial constraints (e.g., performance obligations and district and state level Music Performance Assessments). High school music educators were not able to consent to more than three weeks for this study.

Articulation lessons (Appendix E) progressed from tongue-slur patterns applied to the mixolydian mode to tongue-slur patterns applied to jazz melodies. Students progressed through a battery of technical etudes involving tongue-slur patterns. Group B students were also encouraged to practice articulation melodies and etudes away from school. To provide structure, a practice log (Appendix F) was given to each participant. The practice log was used as a checklist and returned to the researcher upon completion of the treatment period. Students were encouraged to practice for a total of almost three hours over a 14-day period (ranging from 10 to 20 minutes of practice during each given day).

Each group underwent a posttest performance of the EJIP after three weeks. Students performed profile tasks individually. Individual scores were norm-referenced between Groups A and B. Experimental group pretest and posttest results on the EJIP were compared to determine the extent of improvement. Composite scores and scores from each section of the EJIP were analyzed and compared to determine the effect of instructional treatments upon interpretation and overall performance ability.

Reliability and Validity

Judges' scores on the EJIP were correlated with the purpose of establishing reliability. Two types of reliability tests were conducted: Pearson's r product-moment correlation coefficient and Cronbach's coefficient alpha. Correlations were calculated using judges' scores from each subtest on the EJIP, as well as total test scores on both the pretest and posttest.

Construct validity was investigated by comparing individuals' EJIP pretest scores with their scores on the Musical Sensitivity portion of the MAP. Those correlations included

composite subtest scores on the EJIP and MAP, as well as pretest totals. An explanation of how composite subtest scores were determined is provided in Chapter 4.

Two methods were used to establish content validity: (1) a thorough survey of existing literature on jazz improvisation measurement, and (2) input from a panel of three collegiate jazz educators. The following improvisation measurement instruments were examined and used as models for content inclusion in the current study: Bash, 1984; Briscuso, 1972; Burnsed and Price, 1984; Laughlin, 2004; May, 1998; Pfenninger, 1991; Schilling, 1987; Tumlinson, 1991. For example, Tumlinson (1991) found key terms regarding the construct of jazz style, which consisted of the following:

- a. rhythmic feel
- b. articulation
- c. sound manipulation
- d. tone

Three of the four terms were used in the current study as descriptors for the style measurement. Each of Tumlinson's seven constructs of student performance was included for consideration. Laughlin used five of Tumlinson's seven constructs of jazz improvisation, omitting "form" and "expressiveness," which may be closely related to style. The current study includes application of four of those constructs (excluding only "individuality"). Of Tumlinson's 33 jazz performance variables, 20 are included for consideration in the Jazz Interpretation Profile.

Jazz educators participating in content validity assessment included the two judges involved in the study and a doctoral music educator with more than 20 years of experience in the field of jazz studies and jazz education. Judges added input on criteria that may be ambiguous or absent from the measure. Jazz educators completed a questionnaire (Appendix J) regarding critical musical considerations when assessing jazz performance. They were asked to list

descriptors relative to aspects of jazz performance being assessed in the EJIP (e.g., technical proficiency and stylistic expression in melodic performance). Jazz educators also provided descriptors related to each performance selection on the EJIP.

After revisions were made to the EJIP, jazz educators completed a Content Validity Rating Index (Appendix K). They were asked to rate each of the three sections (scales, melodies and improvisation) of the EJIP on a scale from 1 to 10 (10 being highest). Results from the Content Validity Rating Index are presented in Chapter 4.

Data Analysis

Independent variables included in data analysis were musical instrument, jazz ensemble experience (expressed by the number of months in jazz band), articulation instruction, and improvisation instruction. Dependent variables included student scores on the jazz interpretation profile and improvisation ratings. Scores on the Musical Sensitivity section of the MAP were extraneous variables. A one-sample paired *t*-test was used to examine the differences in the performances of Group A and Group B. A one-way analysis of variance (ANOVA) was calculated to compare the performance of participants by the number of months in jazz band and by instrument on the jazz interpretation measure. One way ANOVAs and *t*-tests were computed using Minitab15.

A three-way linear model ANOVA was calculated to examine interactions among three factors and EJIP scores. The three factors observed were:

1. EJIP subtests
2. differences from the pretest to the posttest
3. group (A and B)

The three-way ANOVA was computed using Statistical Analysis Software (Base SAS9).

Residual and Residual versus normal percentiles plots were included in analyses to determine assumptions of normality within the data.

All data were recorded using a Zoom H4 stereo digital recorder. Each recorded performance was evaluated by a panel of three judges. In addition to the researcher, judges included two jazz educators. Both jazz educators had more than 10 years of experience judging high school jazz bands at district Music Performance Assessment. All judges have extensive jazz performance backgrounds, as well as experience directing high school and college jazz bands. One judge was a 20-year veteran trombonist and active professional composer with pieces played the The Airmen of Note and the Boston Pops. The other judge had over 35 years of collegiate jazz teaching experience, played in the University of North Texas One o' Clock band and was previously voted national Jazz Educator of the Year. Judges underwent a one-hour, detailed training session in which examples of specific performance levels were demonstrated among the various criteria. During the training, judges listened to recorded examples of the highest and lowest levels for evaluative criteria. High and low performance examples provided the judges with anchors for determining the outermost levels of the rating scale.

When employing multiple judges, standard practice dictates that they rate at least 20% of the sample. In the current study, rated samples for the two additional judges consisted of approximately 33% of the total sample. After the training session, each judge was given an envelope containing pretest and posttest recordings contained in a single CD. Judged samples were randomly selected and randomly ordered to ensure fully-blind datasets. Using Randomizer.org, participant recordings were ordered with the inclusion of pretest and posttests, and control and experimental group members.

Rating scales were linear and intervallic, ranging from one (lowest) to five. Criteria for assessing stylistic interpretation included articulation, swing feel, rhythmic flow, and characteristic nature of tone. Each criterion was defined for the judges. For example, "Technical

Proficiency” was defined by instrumental facility, overall accuracy, consistency of tone, and intonation. Judges were also given numeric criteria (Figure 3-2) for assigning scores on the melodic interpretation portions. A “1” was described as “totally lacking in the category.” A “2” was given when participants performed with “several blatant errors, at or near 50% accuracy.” A “3” was given when a participant exhibited “three or more blatant errors” and was “lacking overall consistency.” A “4” was given when the performer played with two or fewer errors for that given category. A “5” was given only to those “without errors or with only one minor flaw.” “Blatant” and “minor” errors were explained for the judges. A minor error was described as nearly undetectable, while a blatant error was considered to be obvious, such as a missed pitch or rhythm. Judges were instructed to listen to each recording four times, each time assessing a particular performance dimension.

Posttest questionnaires were administered to both the experimental and control group. Control group participants were asked about their views on jazz improvisation and the methodology in which they participated (Appendix H). The experimental group questionnaire (Appendix H) was designed to ascertain participants’ views on articulation exercises, stylistic interpretation, and the process they experienced. To encourage honest responses, questionnaires did not include participants’ names and were collected by the band directors. Responses provided insight on methods for delivery of instruction on improvisation, articulation, and stylistic expression.



Figure 3-1. The bebop scale

1 = Totally lacking in the category	2 = Several blatant errors (at or near 50% accuracy)	3 = Three or more blatant errors. Lacking overall consistency	4 = Plays consistently well. Two or fewer errors.	5 = Without errors, or only one minor flaw.
--	---	--	--	--

Figure 3-2. Ratings descriptors on melody tests 1 and 2

MR. PC

JOHN COLTRANE

TRUMPET IN B \flat

A

© 1977 Jowcol Music

BILLIE'S BOUNCE

CHARLIE PARKER

TRUMPET IN B \flat

B

© 1945 - 1975 Used with permission from the Atlantic Music Corp. All rights reserved

Figure 3-3. Selections for melodic interpretation without articulation A) 12-bar Minor blues. B) Standard twelve-bar blues (concert F).

Mr. PC

JOHN COLTRANE

TRUMPET IN B \flat

The image shows a musical score for the trumpet part of the song "Mr. PC" by John Coltrane. The score is written for a trumpet in B-flat and is in 4/4 time. It consists of three staves of music. The first staff begins with a treble clef, a key signature of one flat (B-flat), and a common time signature (C). The music starts with a quarter rest, followed by a series of eighth and quarter notes. The second staff begins with a measure rest, followed by a series of eighth and quarter notes. The third staff begins with a measure rest, followed by a series of eighth and quarter notes. The score is marked with measure numbers 5 and 10.

© 1977 Jowcol Music

Figure 3-4. Minor blues with articulations

SAMPLE MINOR II - V - I PHRASES

EDMUNO

C INSTRUMENTS

G M7(b9) C 7(b9) F MIN7

A-FLAT MAJOR F HARMONIC MINOR (OR F HARM. MINOR THROUGHOUT)

5

F HARMONIC MINOR SCALE

9

D M7(b9) G 7(b9) C MIN7

13

MINOR II - V - I IN C (THINK C HARMONIC MINOR)

17

C HARMONIC MINOR SCALE

Figure 3-5. Sample minor ii-V-I phrases

Table 3-1. Jazz improvisation lesson contents

Grade one	Grade two (includes items in Grade one and...)	Grade three (includes items in Grades one, two, and...)
Major (Ionian) scales/chords	Changing modalities (major/mixolydian/minor)	Minor tonic chords (C- Δ 7)
Dominant (Mixolydian) scales/chords	Slow to moderate harmonic movement (basic blues)	Half-diminished chords
Minor (Dorian) scales/chords	Major ii-V-I	Altered dominant chords
Moderate tempi	Standard 32-bar song form	Minor ii-V-i
Common time	Moderate tempi	Minor blues
	$\frac{3}{4}$ Time signatures	Moderately fast tempi

(Poulter, 2008)

CHAPTER 4 RESULTS

This chapter includes a thorough description of the Edmund Jazz Interpretation Profile (EJIP) measurement instrument used in data collection. Also included are statistical analyses pertaining to the research questions from Chapter 1. Statistical measures included Pearson's r correlations and measures of Cronbach's alpha as determinants of interjudge reliability. One-sample t -tests were calculated to examine pretest to posttest differences within groups. Two-sample t -tests were calculated to examine mean differences on posttest results between the experimental group and the control group. A three-way linear fixed model ANOVA was calculated to examine interactions between three independent variables (subtest title, pretest/posttest scores, and group) and subtest scores on the EJIP. Themes investigated in data analyses included:

- a. the extent of the effect articulation instruction has on interpretation of jazz melodies, technical facility, jazz improvisation ability, stylistic interpretation within improvisation, and overall jazz performance
 - These issues were investigated via statistical analyses, including one-sample and two-sample t -tests and analyses of variance (ANOVA).
- b. the extent of articulation instruction in high school jazz ensembles
 - This issue was addressed via a survey of 19 high school and college jazz educators.
- c. relationships between improvisation instruction and articulation instruction and differences between their effects on interpretation of jazz melodies, technical facility, jazz improvisation ability, stylistic interpretation within improvisation, and overall jazz performance
 - These issues were investigated via statistical analyses, including one-sample t -tests, one-sample paired t -tests, two-sample t -tests and three-way linear model analyses of variance (ANOVA).
- d. common attitudinal themes among high school jazz ensemble musicians regarding articulation instruction, improvisation instruction, and stylistic interpretation

Reliability and validity of the EJIP were assessed via standard research methods. These methods included: (1) calculation of correlation coefficients, (2) internal consistency methods,

(3) qualitative input from judges regarding important considerations for jazz performance assessment, and (4) quantitative assessments of each section of the EJIP.

Data were collected from 18 participants in the control (Group A) group and 15 participants in the experimental group (Group B). Data from the experimental group were subject to an attrition rate of 6.7 %. Scores from one experimental group participant were eliminated due to excessive absences, which compromised posttest results from that individual. The groups were unequal due to limitations of student participation in jazz band at the experimental group school. This group did not have a complete saxophone section, which typically consists of two altos, two tenors, and one baritone. The trombone section consisted of only three students. There was one more trumpet, trombone, and saxophone player in the control group than in a typical jazz ensemble (usually five in each section; this group had six per section).

Datasets included Gordon Musical Sensitivity scores, pretest and posttest scores on the Edmund Jazz Interpretation Profile (EJIP), demographic information (Table 4-1), and a post treatment questionnaire. In addition to judged scores generated by the researcher, two judges participated in the study. Each judge scored pretests and posttests for six students from the control and five students from the experimental group. This constituted one third of the total sample, which exceeds standard practice, where 20% or more are rated when employing multiple judges.

Content Validity

Content validity was established via a questionnaire and an assessment completed by a panel of three jazz educators. A questionnaire (Appendix J) was administered eliciting open-ended responses from panel members regarding critical musical considerations when assessing jazz performance. The questionnaire consisted of items referring to the following components and ratings criteria on the EJIP:

1. the bebop scale used in the EJIP
2. the melodies used in the EJIP
3. blues improvisation
4. instrumental/technical proficiency
5. rhythmic/time feel
6. stylistic expression in jazz

Outcomes from this particular investigation of content validity were compared with previous criteria included on the EJIP and included to enhance content validity. Terms and concepts from the responses were used to develop descriptive criteria for each performance rating. Twelve of the judges' 15 responses (Table 4-9) were included in section I of the EJIP (bebop scale patterns used to assess technical proficiency). Thirteen of 17 responses were included in section II (melodies) and 17 of 20 responses were included in section III (improvisation).

After revising the EJIP, a Content Validity Rating Index (Appendix K) was completed by the same panel of judges. Judges found that the three sections of the EJIP were highly valid. On a scale from 1 to 10 (10 being highest), judges' mean ratings on the validity of section I was 9.3. Judges also rated section III to adequately assess blues improvisation at a mean rating of 9.3 out of 10. Section II (melodies) was rated the lowest (8.3 out of 10). The Judges' mean rating on the three parts combined was 8.97, for a total mean rating of 26.9 (out of 30) among the three judges.

Construct Validity

Scores on Edwin Gordon's test of Musical Sensitivity (a portion of the MAP) were used to examine construct validity (Table 4-10). Using Pearson's r product-moment correlation coefficient, students' scores on the test of Musical Sensitivity were correlated with pretest and posttest scores. Pretest scores were predicted to best relate to aptitude because participants were not able to prepare for the pretest, which was sight-read. Posttest scores were correlated with Musical Sensitivity scores to determine whether or not this prediction was true. Correlations yielded a range of $r = -.21$ to $.36$. Though most correlations were positive, they tended to be

moderately low, including several negative relationships. An explanation for these results is given in chapter 5.

A correlation between Musical Sensitivity raw scores and pretest totals ($r = .33$) was also calculated. This relationship was found to be nearly significant ($p = .06$). Positive relationships were established between Musical Sensitivity subtest scores and subtest scores on the EJIP for phrasing and style, but not balance. The strongest positive relationship ($r = .35$) existed between pretest EJIP style scores and the style portion of the MAP. Correlations between MAP scores and those on the posttest were consistently weaker than those on the pretest.

Descriptive Statistics

Data were gathered using the Edmund Jazz Interpretation Profile (EJIP). The EJIP (Appendix C) consisted of four parts or subtests. Each subtest contained four criteria (Table 4-2). Criteria were rated using five-point Likert scales. Descriptors were provided for each criterion rating on each subtest (Appendix C). For example, on the scale subtest, time accuracy was described as “steadiness of the beat,” and “plays the proper tempo.” On the melody and improvisation subtests, style/expression was given the descriptors “articulation,” “swing style,” and “characteristic tone” (“use of dramatic devices” was added with the descriptors on the improvisation subtest). Judges were given a description of the rating levels for criteria ratings on the melody subtests (Figure 3-2/Appendix C). For example, a 1 was given to participants “totally lacking in the category” and a 5 was given to participants who performed “without errors, or only one minor flaw.”

Criteria ratings within each subtest were summed to form composite subtest scores. Composite subtest scores consist of the subtotal on each of four subtests (scales, melody1, melody2, and improvisation). For example, each participant received four scores on the scale subtest, consisting of “time accuracy,” “pitch accuracy,” “consistency of tone,” and “tonguing

accuracy.” Each score was worth 1 to 5 points, for a possible total of 20 points on the composite scale subtest. Each participant earned four composite subscores per test, or eight composite subscores on the pretest and posttest combined. The total test amounted to 80 possible points. Pretest means and standard deviations were calculated for total test scores and each of the four subtests (Table 4-3). The same calculations were made for the posttest (Table 4-3).

Three of the four subtests (melody1, melody2, and improvisation) included a performance element labeled “Style/Expression.” Means and standard deviations for style criteria were calculated. The maximum possible style rating was 15. The scales subtest was intended strictly as a test of technical ability and did not include a style rating. Ratings for technical facility on those same subtests (melody1, melody2, and improvisation) were combined to form a technique performance element rating. The maximum possible technique rating was also 15.

Gain Scores

Research sub-question 2 was: To what extent does methodical articulation practice enhance stylistic expression of melodies? The research sub-questions included inquiries regarding the effects of articulation practice on technical facility, improvisation ability, and stylistic interpretation when improvising. To answer these sub-questions, gain scores were calculated for all participants on each section of the EJIP.

Gain scores were calculated by subtracting pretest scores from those on the posttest (Table 4-4). Means were calculated from those gains within each participant group. Mean gains included composite subtest and total gains, as well as style gains and technique gains.

The control group exhibited higher ability during the pretest, but the two groups were nearly equal during the posttest. Therefore, the experimental group demonstrated higher gains. Mean pretest totals for the control and experimental groups were 51.50 and 49.57, respectively.

Mean posttest totals for the control and experimental groups were 60.72 and 60.71, respectively. This resulted in gain scores of 9.22 for the control group and 11.14 for the experimental group.

Similarly, the experimental group demonstrated higher posttest gains on composite style ratings. Control group pretest and posttest style means were 8.94 and 10.94, respectively (mean gain = 2.0). Experimental group pretest and posttest style means were 8.57 and 11.50, respectively (mean gain = 2.93). The correlation between individual participants' total gain scores and mean style gains measured $r = .85$, demonstrating that style gains were consistent with total-test gains.

Reliability

Judges' total scores, as well as composite subtest scores from each section of the EJIP, were correlated with the purpose of establishing reliability. Pearson's r correlation coefficients were calculated to provide a measure of reliability between pairs of judges. Cronbach's coefficient alpha was measured to account for variances in scoring for the three judges combined. Judges scored a total of 11 participants (Group A $n = 6$, Group B $n = 5$) on both the pretest and posttest. This amounted to approximately 33% of the total sample.

Judges' combined (pretest and posttest) totals were correlated using the Pearson r product moment correlation coefficient (Table 4-5). Pearson correlations were calculated using both Microsoft Excel2007 and Minitab15. Significance of the correlations is expressed in p values. Judge 2 and judge 3 rated a total of 11 participants on both the pretest and posttest (resulting in a total of 22 test scores). Therefore, each judge awarded eight composite subtest scores for each participant, for a total of 88 subtest scores. The correlation between judge 1 and judge 2 on combined pretest and posttest total scores ($n = 22$) was $r = .76$. Scores from judge 2 and judge 3 demonstrated a coefficient of $r = .89$. Scores between judge 1 and judge 3 were $r = .82$. Each relationship was found to be significant at $p = .000$.

Judges' composite subtest score ($n = 44$) correlations for the pretest (Table 4-6) ranged from $r = .54$ to $.95$. Significance levels ranged from $p = .000$ to $.083$. All subtest correlations on the pretest were significant with the exception of the improvisation dimension, as rated by judge 1 and judge 3. Correlations on the improvisation subtest ($n = 22$) were among the lowest (range $r = .39$ to $.69$). When eliminating improvisation ratings, which may be deemed the most subjective component involved with jazz assessment, correlations were higher. The combined subtest correlation ($n = 66$) between judge 1 and judge 2 (without improvisation ratings) was $r = .81$. Combined subtest correlations between judge 1 and judge 3 were $r = .80$, and for judge 2 and judge three, $r = .87$.

Correlations from the posttest ratings (Table 4-7) were lower in comparison with those on the pretest (range $r = .33$ to $.85$). Six of 12 posttest subscore correlations were found to be significant (range $p = .000$ to $.322$). In comparison, 11 of 12 pretest subscore correlations were significant. Judges rated both pretest and posttest samples fully blind. Data samples from each group, as well as pretests and posttests, were combined and rated in random order. Because each data sheet was encoded, judges were not aware of differences between pretest and posttest recordings. As in the pretest, improvisation ratings were among the weakest relationships.

In addition to Pearson's r correlations, interjudge reliability was calculated using Cronbach's coefficient alpha (Table 4-8). Previous researchers (Azzara, 1993; Laughlin, 2001; May, 1998; Tumlinson, 1991) have used Cronbach's alpha as a measure of internal consistency among judges for tests having multiple parts. Boyle and Radocy (1987) explained that interjudge reliability can be expressed by using "coefficient alpha, with each judge considered an 'item' and the sums of scores . . . considered the sources of overall variance" (1987, p. 256). Because alpha scores include scores from all three judges and the EJIP contains multiple parts, alpha scores

may provide a more acute measure of interjudge reliability. Cronbach's alpha was calculated for scores among the three judges for the pretest and posttest using three sets of scores:

- a. total scores from the three judges (consisting of each participant's pretest and posttest totals combined, $n = 33$)
- b. all pretest and posttest composite subtests (44 composite subtests for each judge, $n = 132$)
- c. independent subtests for both the pretest and posttest ($n = 33$) The range of reliability scores was $r = .71$ to $.95$.

According to Hinton, "it is conventional to view an alpha of .70 or greater as indicating a reliable scale" (2004, p. 303).

Measures of Cronbach's coefficient alpha reflect a higher degree of reliability than those resulting from Pearson's r correlations. Notably, similar patterns exist between reliability established by using Pearson's r and that of Cronbach's alpha. Those similarities include:

- a. Lowest reliability scores are found on the posttest for melody2 and improvisation.
- b. Highest reliability scores resulted from pretest composite scores.

Analyses

Research sub-question 5 was: Do students who practice articulation studies improve overall jazz performance ability to a greater extent than those who do not engage in such practice? A number of statistical measures were used to answer this query. Those included one-sample t -tests, two-sample t -tests and analyses of variance.

Means, gain scores and confidence intervals on melodic elements are found in Table 4-11. Mean scores on the melodic elements of the EJIP were calculated to examine the effects of improvisation instruction and articulation instruction on melodic interpretation (research sub-question 2). Means and pretest to posttest gains within each group reflect differences between experimental and control groups. The experimental group demonstrated greater mean gains on composite subtest scores for the two melodies combined, and melodic style.

Though the experimental group improved to a greater degree, both groups showed significant improvement.

One-sample paired *t*-tests (Table 4-12) were calculated to examine significance levels of pretest to posttest differences made by each group in the areas of style, melodic performance, improvisation, and total gains. Both groups demonstrated significant improvements from the pretest to posttest in all categories. A one-way ANOVA was used to examine pretest to posttest differences for each group in the melodic style category. That result was significant ($p = .02$) for the experimental group, but not significant ($p = .21$) for the control group.

Two-sample *t*-tests (Table 4-13) were calculated to examine mean differences between the experimental and control groups for a number of posttest categories, including gain scores. Results indicate differences between the groups, though none of the differences were found to be significant at the .05 level. The measures for style gains (reported $p = .06$ /rounded up from $p = .55$) and melodic style gains ($p = .09$) were near significance.

A three-way linear fixed effects model ANOVA was computed to examine interactions among three factors: (1) EJIP subtests, (2) pretest versus posttest performance, and (3) group and EJIP scores. Each factor was an independent variable in the form of nominal data. In the ANOVA calculations, “subtest” referred to each individual subtest title (e.g. scales subtest), hence the application of nominal data (as opposed to subtest scores). Likewise, “pretest or posttest” referred to the different instances in which the test was taken. “Group” referred to Groups A and B. The ANOVA model was designed in this manner because subtest criteria were not homogenous.

The ANOVA model was computed using Statistical Analysis Software (Base SAS9). The statistical model used least square means in estimation of effects because the groups contained

unequal numbers of participants. A Tukey-Kramer adjustment for multiple comparisons was employed to examine interactions among multiple independent variables. The model contained a total of 256 observations (32 participant scores on four subtests = 128 observations/doubled to account for both pretest and posttests = 256).

Results from the three-way ANOVA (Table 4-14) suggested significance ($p < .0001$) for interactions between EJIP subtests and EJIP total scores without accounting for differences from the pretest to the posttest. Significance ($p < .0001$) was found between pretest and posttest results for the total sample (pretest $M = 12.63$, posttest $M = 15.16$). Group differences without consideration to pretest to posttest differentiation were not significant ($p = .3184$). When pretest to posttest differences were included as a factor, interactions between Group A and Group B EJIP scores were not significant ($p = .24$). When pretest to posttest differences were included as a factor, interactions between EJIP subtests and total scores was found to be significant ($p = .0016$). Differences between Group A and Group B (Table 4-15) pretest scores were not significant ($p = .4149$). Results suggested little to no difference ($p = .9993$) between the groups on posttest results.

Two plots were created to check assumptions of normality for data used in the three-way ANOVA analyses: A residual plot (Figure 4-1) and a residual versus normal percentiles plot (Figure 4-2). The plots are included because they demonstrate that analyses from the three-way ANOVA provided dependable results. Results on the residual plots suggest that conclusions drawn from the data are accurate. The residual plot demonstrates overall balance with respect to the central line, meeting the assumption of normality. The residual versus normal percentiles plot demonstrates a linear pattern, with minimal amounts of tailing at both ends, which also suggests that data met the assumption of normality. A General Linear Model ANOVA (Table 4-16) was

calculated to determine the overall performance of the statistical model. Results ($p < .0001$) from the General Linear Model ANOVA reveal that the model was significantly effective.

Relationships among Posttest Results and Independent Variables

A one way ANOVA (Table 4-17) was measured to examine the effects of independent variables (instrument, jazz ensemble experience, and grade level), MAP style subscores and MAP total raw scores on jazz performance. Dependent variables included posttest style, posttest scales, style gains, overall gains and posttest totals. The relationship between total gain scores and musical sensitivity ($p = .03$) was the only finding of significance. The comparison between total gains and students' grade level neared significance ($p = .06$).

Post-treatment Questionnaires

Data from post-treatment questionnaires were collected and analyzed to elicit students' views on improvisation and articulation instruction. Student responses aided the researcher in answering research sub-question 6: What were the students' attitudes regarding jazz improvisation instruction and jazz articulation instruction? Questionnaire items were written to elicit open-ended responses. Questionnaires (Appendix H) contained identical content, with the exception of the following items found only within the experimental group questionnaire:

- a. Do you feel the articulation exercises benefitted you musically? If yes, in what way(s)?
- b. What would you change about this approach to teaching jazz style? (e.g., More call and response playing, more melodic embellishment, less focus on scales)
- c. In terms of style, what do you think about when playing jazz on your instrument, as opposed to playing other musical genres?

Item b above was similar for both groups, but the control group's item referred to "jazz improvisation" and the experimental group's item was specific to "jazz style." Because rhythm section players participated in the treatment at both schools, their responses were considered in analyses.

In addition to 18 wind players, six members of the rhythm section completed questionnaires in the control group. A total of 18 responses were collected from the experimental group, including six rhythm section players. Two trumpet players from the experimental group were absent the final day of treatment when the questionnaire was administered. Responses were analyzed using triangulation, a process in which the researcher recorded all responses from each group, and then narrowed those down to consist of common themes and points of interest. Response sets from both groups were then compared, indicating a number of common themes and points of interest between the two groups.

All 24 members of the control group (Group A) responded positively when asked if the improvisation instruction benefitted them musically. Sixteen of the 18 experimental group (Group B) participants responded positively on the same question. The two negative responses came from rhythm section players, who played a lesser role in the study. When asked how the improvisation lessons benefitted them, a number of students (A = 6, B = 2) responded that they felt “more comfortable” or “confident” when improvising. Several (A = 3, B = 5) mentioned musical benefits of scale study and learning about chord changes (A = 3, B = 7). A few students (A = 1, B = 2) mentioned the benefit of learning new musical “ideas” or “licks and ideas.” One observation of interest from an experimental group participant was that the instruction led to the perception of improvisation as “simplicity rather than madness.”

When asked if and how articulation exercises benefitted them musically, 17 of 18 experimental group participants responded positively. The lone negative response was from a percussionist who did not participate in articulation exercises. Four participants felt the exercises improved their ability to swing. Three felt the exercises improved their improvisation ability. Three also responded that the exercises helped them learn to “blow through phrases” (When

playing jazz phrases, students were taught the importance of using legato articulation, which contributes to a smooth and flowing manner of playing.). Two students reported that their playing felt “more natural” or “smooth.” Two students felt the exercises led to improved jazz style.

When asked about the most effective portion(s) of instruction, control and experimental group participants responded with fewer common themes. Some responses, however, demonstrated agreement among the two groups. This outcome was predictable, considering content differences between the two forms of treatment. While five control group participants acknowledged that written assignments were most effective, no students from the experimental group felt the same. Of those five, two respondents stated:

- a. “I was able to visualize what I wanted to play.”
- b. “I could actually see what we were trying to do.”

Nine members of the experimental group replied that articulation instruction was the most effective aspect of their experience. Several (A = 7, B = 5) mentioned the effectiveness of learning scales and modes. Others (A = 7, B = 3) commented on the effectiveness of class improvisation experience and practice. A number of respondents (A = 3, B = 1) noted the benefit of “going down the line”, an activity in which each player was required to solo. Two of those listed the importance of listening and one stated, “I liked listening to others for ideas.” Five experimental group participants noted the effectiveness of ear training via call and response playing. Four participants from each group cited benefits from learning about chords.

When asked what they would change about the methods of instruction, students listed a variety of responses. Six control group participants mentioned the need for more melodic embellishment, yet none of the experimental group members felt the same. Some (A = 5, B = 2) stated the need for more solo experience during class. Four control group members desired more

instances of “going down the line.” Likewise, four control group members reflected the need for more call and response playing. Two from each group noted the need for a longer treatment period with more time for practice. Two from each group wanted less emphasis on scales, but some (A = 4, B = 1) desired more variety in the scales studied. Two experimental participants reflected the need for more articulation practice, and one felt a need for less. In a particularly poignant response, one participant called for “more emphasis on cool riffs to add to my jazz vernacular.” This response is especially noteworthy, considering previously mentioned relationships between language and jazz improvisation.

Students were asked to describe their thoughts when improvising over an F blues. Those responses suggest that improvisation instruction was influential for students when facing the blues “task.” Several (A = 6, B = 2) respondents found improvisation to be easier and that they were more competent due to the instruction (though the question was not directly related to instructional treatment). A large number (A = 10, B = 12) of respondents thought about chord and/or scale tones. Some (A = 1, B = 6) mentioned thinking about chord changes (e.g., hitting chord tones consisting of the third and seventh from the I chord to the IV chord, or A/E-flat to B-flat/A-flat, which consist of half-step relationships). This is an interesting point considering the fact that control group students experienced slightly more in-depth improvisation instruction. Five control group participants stated their desire to make an “interesting,” “cool,” or “awesome” solo. Three members of the control group cited use of the blues scale and two of those mentioned using the blues scale in relation to the melody and chords. One experimental group participant explained the importance of “going beyond the blues scale.” Other responses of interest included:

- a. “Forget everything and just blow.”
- b. “Just let go.”
- c. “I’m trying to hear the changes.”

This final response was important, given the necessity for listening when playing jazz. The fact that only one participant mentioned he was listening provides an impetus for including more ear-training and listening experiences with instructional improvisation methodology.

Finally, members of the experimental group were asked to explain their thoughts on jazz style and unique musical characteristics involved with playing jazz. Half the group referenced rhythm or time. Six members implied jazz is “more laid back” or “relaxed.” Four members wrote that they thought about “how to swing.” One felt that jazz is “less technical,” and another stated in terms of style, that it is important to play “what you want.” The following comments were additional thoughts of interest:

- a. One student wished to develop an individual “personal style.”
- b. One student stated “It’s more about expressing how you feel.”
- c. One student claimed, “It depends on the style of jazz really.”

The motive for administering post-treatment questionnaires was pragmatic. One cannot underestimate the importance of student perspectives when developing a methodological course of instruction. Student responses were generally positive, yet provided crucial pieces of information to be considered for jazz pedagogues and those intending to conduct similar research studies regarding jazz improvisation and/or style.

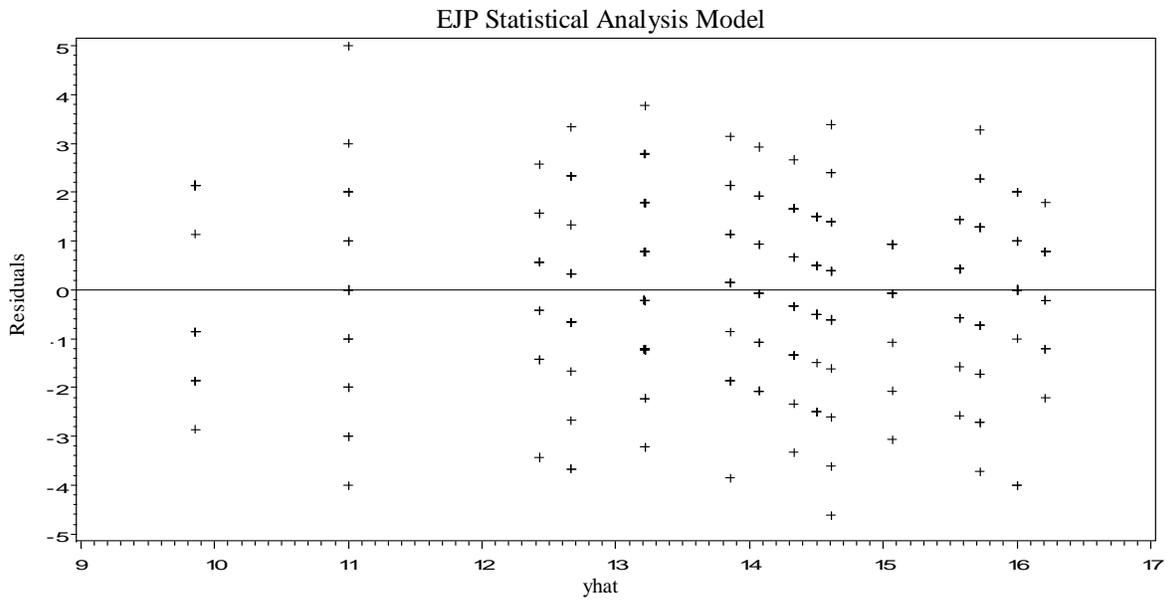


Figure 4-1. Residual plot of EJP data used in three-way linear ANOVA

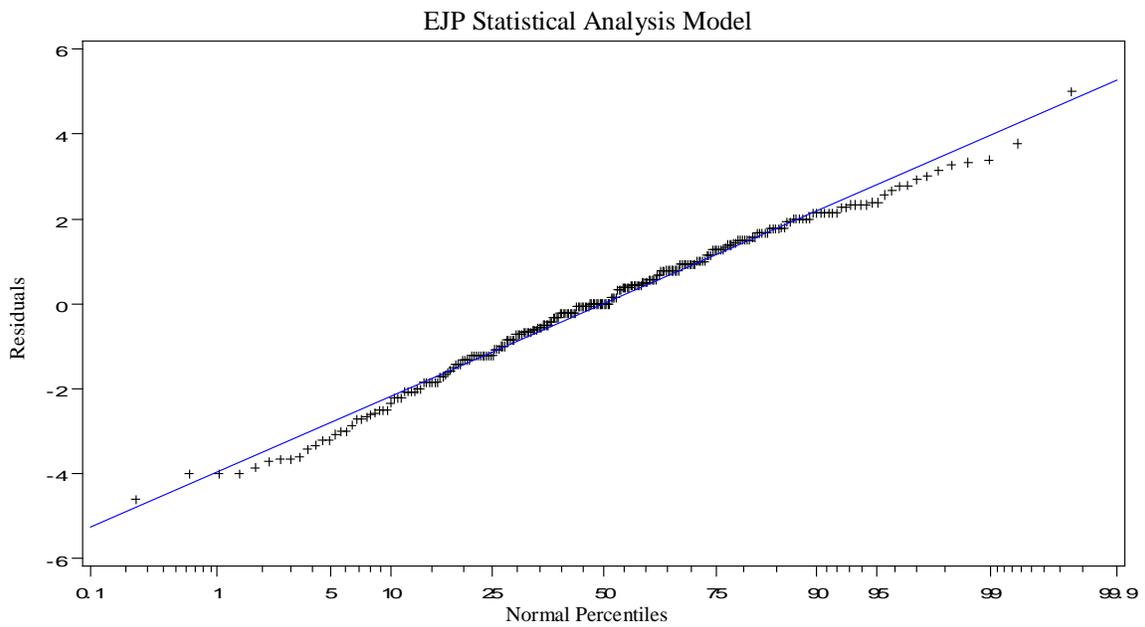


Figure 4-2. Residual vs. normal percentiles plot

Table 4-1. Demographics ($N = 32$)

Demographic	Group A($n = 18$)	Group B($n = 14$)
Grade level (n)		
Grade 10	2	3
Grade 11	7	6
Grade 12	9	5
Jazz experience ^a		
<i>M</i>	9.00	11.50
<i>Median</i>	10.00	16.00
<i>SD</i>	6.83	7.52
Instrument		
Alto saxophone	3	3
Tenor saxophone	2	2
Baritone saxophone	1	1
Trombone	6	3
Trumpet	6	5

^a Expressed by mean number of months in jazz ensemble

Table 4-2. EJIP subtests and criteria scoring ranges

Subtest	Subtest criteria	Criterion score range	Subtest score range
Scales	Time accuracy		
	Pitch accuracy	1-5 ^a	4-20
	Consistency of tone		
	Tonguing accuracy		
Melody1	Technical proficiency		
	Pitch accuracy	1-5 ^b	4-20
	Rhythm/time feel		
Melody2	Style/expression		
	Technical proficiency		
	Pitch accuracy	1-5	4-20
Improvisation	Rhythm/time feel		
	Style/expression		
	Rhythmic accuracy		
	Technical proficiency	1-5	4-20
	Melodic structure		
	Style		

^a For a description of criteria, see Appendix C.

^b Melody subtests included descriptions for each of the levels (Figure 3-2).

Table 4-3. Means and standard deviations on the EJIP

Test component	Group A(<i>n</i> = 18)		Group B(<i>n</i> = 14)	
	Pretest <i>M(SD)</i>	Posttest <i>M(SD)</i>	Pretest <i>M(SD)</i>	Posttest <i>M(SD)</i>
Subtests				
Scales	14.61(2.09)	15.72(1.99)	14.13(1.55)	16.20(1.08)
Melody1	11.00(2.33)	14.50(1.47)	9.73(1.87)	13.67(1.99)
Melody2	13.22(2.07)	16.00(1.68)	12.40(1.50)	15.40(1.24)
Improvisation	12.67(2.09)	14.33(1.64)	13.27(1.16)	14.90(1.33)
Total test	51.50(7.11)	60.56(1.50)	49.57(4.88)	60.71(3.95)
Performance elements				
Style/expression	8.94(1.47)	10.94(1.26)	8.57(1.16)	11.50(0.76)
Technique	9.78(1.56)	11.56(1.15)	8.79(0.97)	11.00(0.96)

Table 4-4. Mean gains on subtests, total test and performance element scores

Test component	Group A(<i>n</i> = 18)	Group B(<i>n</i> = 14)
Subtests		
Scales	1.11	2.14
Melody1	3.50	4.00
Melody2	2.78	3.14
Improvisation	1.67	1.86
Total test	9.06	11.14
Performance elements		
Style/expression	2.00	2.93
Technique	1.78	2.21

Table 4-5. Reliability coefficients for pretest/posttest combined

Test component	Judge(J)	
	J1	J2
Subtests		
Scales	J2	.82***
	J3	.79***
Melody1	J2	.71***
	J3	.89***
Melody2	J2	.79***
	J3	.75***
Improvisation	J2	.39
	J3	.45*
Total test	J2	.76***
	J3	.82***
Performance elements		
Style/expression	J2	.66**
	J3	.76***
Technique	J2	.65**
	J3	.63**

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 4-6. Pretest reliability coefficients

Pretest component	J1	J2
Subtests		
Scales	J2	.79**
	J3	.89***
Melody1	J2	.68*
	J3	.76**
Melody2	J2	.92***
	J3	.78**
Improvisation	J2	.76**
	J3	.54
Total test	J2	.95***
	J3	.90***
Performance elements		
Style/expression	J2	.85**
	J3	.78**
Technique	J2	.72*
	J3	.62*

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 4-7. Posttest reliability coefficients

Posttest component		J1	J2
Subtests			
Scales	J2	.85**	—
	J3	.73*	.83**
Melody1	J2	.53	—
	J3	.72*	.88**
Melody2	J2	.42	—
	J3	.51	.57*
Improvisation	J2	.33	—
	J3	.47	.66*
Total test	J2	.60	—
	J3	.80**	.83**
Performance elements			
Style/expression	J2	.45	—
	J3	.83**	.75**
Technique	J2	.56	—
	J3	.58	.41

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 4-8. Coefficient α for reliability among the three judges

Test component	Pretest	Posttest
Scales	.89	.90
Melody1	.90	.83
Melody2	.90	.71
Improvisation	.84	.71
Test total	.95	.84

Table 4-9. Content validity: suggested EJIP criteria

Test component		J1	J2	J3
I.	Scales	Note accuracy	Pitch accuracy	Note accuracy
		Time	Rhythm style	Articulation
		Articulations	Stylistic articulation	Time
II.	Melodies	Pitch accuracy	Tone throughout	Tempo
		Mature sound	Phrasing	Intonation
		Note accuracy	Key center accuracy	Accuracy
		Swing feel	Jazz phrasing using historical inflections	Articulation-weight
		Time, time, time	Jazz rhythms	Phrasing
		Inflections	Tone throughout	Time
		Good horizontal (diatonic) intonation	Articulation smoothness	Tempo
III.	Improvisation	Timing-staying in the pocket of the groove	Understanding of blues form	
		Time, time, time	Key accuracy/center	Style
		Note choice	Blues, mixture of scales	Creativity
		Swing feel	Energy/conviction	Making the changes
		Inflections, shaping the line	Historical inflections	Articulation
		Creativity	Understanding blues form	Phrasing
		Rhythmic development instrumentally idiomatic licks	Technical ability in use of tone Musicality in phrasing/dynamics	Time

Table 4-10. Pearson's r correlations: MAP musical sensitivity and EJIP scores ($n = 11$)

	Raw score	Percentile rank	Music Sensitivity Subtest		
			Phrasing	Style	Balance
EJIP Pretest					
Style	.24	.25	.26	.35*	-.21
Melody1	.28	.26	.27	.37*	-.17
Melody2	.22	.25	.28	.28	-.21
Improvisation	.25	.28	.17	.26	.07
Pretest total	.33	.36	.29	.37*	-.05
EJIP Posttest					
Style	.05	.11	.09	.03	-.06
Melody1	.22	.25	-.01	.52**	-.08
Melody2	.14	.18	.12	.10	.08
Improvisation	-.03	-.03	.09	-.08	-.11
Posttest total	.21	.23	.13	.26	.01

* $p < .05$ ** $p < .01$

Table 4-11. One sample t -test of melody component scores ($N = 32$)

Melody component	Group A($n = 18$)	Group B($n = 14$)
	$M(CI)$	$M(CI)$
Pretest melodies	24.22(22.14-26.30)	22.29(20.48-24.09)
Posttest melodies	30.5(29.17-31.84)	29.43(27.97-30.89)
Melodic gain	6.28(4.59-7.97)	7.14(6.47-8.67)
Pretest melodic style	5.89(5.33-6.45)	5.43(4.84-6.02)
Posttest melodic style	7.5(7.01-7.99)	7.64(7.36-7.93)
Melodic style gain	1.61(1.10-2.13)	2.21(1.70-2.73)

Table 4-12. One-sample paired t -tests for mean gains within groups

EJIP component	Group A($n = 18$)		Group B($n = 14$)	
	p	T	p	T
Style gains	.000	5.53	.000	11.95
Melodic gains	.000	7.85	.000	11.07
Melodic style gains	.000	6.59	.000	9.28
Improvisation gains	.016	2.66	.001	4.08
Total gains	.000	5.48	.000	11.82

Table 4-13. Two-Sample *t*-tests for mean pretest to posttest differences between groups (N = 32)

EJIP component	<i>p</i>	<i>T</i>
Style gains	.06	2.00
Melodic gains	.21	1.28
Melodic style gains	.09	1.73
Improvisation gains	.82	0.23
Total gains	.31	1.04
Posttest Improvisation	.18	1.39
Posttest style	.16	1.45

Table 4-14. Three-way fixed effects ANOVA: IVs/scores (N = 32)

Source (IV)	<i>DF</i>	<i>F</i>	DV (Scores ^a)		
			<i>MS</i>	<i>SS</i>	<i>p</i>
EJIP section	3	130.19	90.17	270.50	< .0001
Pretest/posttest	1	130.19	401.60	401.60	< .0001
Group	1	1.00	3.08	3.08	.3184
Section*pre/post	3	5.24	16.16	48.49	.0016
Group*pre/post	1	1.39	4.29	4.29	.2395
Section group	3	2.36	7.29	21.87	.0718

^a Scores refers to individual subtest scores on the pretest and posttest for the entire sample.

*Interactions examined among two IVs and EJIP scores (e.g., group, pre/post differences, and scores)

Table 4-15. Three-way fixed effects ANOVA: group/pretest/posttest (N = 32)

	Group A posttest (<i>n</i> = 18)	Group B pretest (<i>n</i> = 14) <i>p</i> values	Group B posttest
Group A pretest	< .0001	.4149	< .0001
Group A posttest	—	< .0001	.9993
Group B pretest	—	—	< .0001

Table 4-16. GLM^a ANOVA to examine performance of the three-way fixed ANOVA model

Source	<i>DF</i>	<i>F</i>	<i>MS</i>	<i>SS</i>	<i>p</i>
Model	15	16.09	49.64	744.58	< .0001

^a General Linear Model

Table 4-17. ANOVA for effects of instrument, grade, experience, and MAP scores ($N = 32$)

Source	DF	F	MS	SS	<i>p</i>
Instrument					
Posttest style	4	1.54	1.71	6.85	.22
Style gain	4	.72	1.38	5.53	.59
Total gain	4	.89	28.8	115.3	.49
Posttest scales	4	1.45	3.81	15.22	.24
Posttest total	4	1.37	27.2	108.7	.27
Grade level					
Posttest style	2	.16	.20	.39	.86
Style gain	2	2.23	3.85	7.70	.13
Total gain	2	3.04	86.00	172.00	.06
Posttest scales	2	1.30	3.54	7.08	.29
Posttest total	2	.19	4.10	8.30	.83
Experience					
Posttest style	7	1.85	.38	2.63	.12
Style gain	7	1.43	2.43	16.99	.24
Total gain	7	1.06	33.4	233.7	.42
Posttest scales	7	1.29	3.35	23.48	.30
Posttest total	7	1.36	26.2	183.7	.27
Musical Sensitivity Style					
Posttest style	10	.90	1.11	11.07	.55
Style gain	10	.93	1.77	17.74	.53
Total gain	10	.76	26.4	264.00	.66
Posttest scales	10	.34	1.20	12.01	.96
Posttest total	10	.45	11.5	114.70	.90
Musical Sensitivity Raw Score					
Posttest style		.58	.88	14.04	.86
Style gain	16	1.14	1.98	31.72	.40
Total gain	16	2.73	46.2	739.30	.03
Posttest scales	16	1.00	2.77	44.29	.50
Posttest total	16	.36	11.1	177.90	.98

CHAPTER 5 DISCUSSION AND CONCLUSIONS

This study was an investigation of the effects of articulation practice on jazz performance for high school wind musicians. The relationship between articulation and stylistic interpretation was a critical issue for consideration. Connections between articulation and a number of jazz performance components were examined. Those components included particular aspects of jazz performance, such as technical facility, melodic interpretation, improvisation ability, and stylistic interpretation. In this chapter, research questions are addressed with explanations of how the findings contributed to answering those questions. The chapter concludes with a brief reflective discussion concerning jazz style, methodology, and assessment.

An underlying purpose of this study was to develop a systematic methodology for assimilation of jazz style. The considerable link between articulation and jazz style led to development of a method in which wind musicians could learn to increase the fluidity of their sound. Results from the study demonstrate that articulation practice leads to improvement of overall jazz performance, as well as specific aspects of jazz performance. Caution must be exercised in any attempt to generalize results of this study to the overall population due to the study's relatively small sample size and duration of treatment.

Data Collection

Statistical power of analysis was assessed using GPower software. The power of analysis from this population size resulted in a measure of .28. The ideal power of analysis measure is .80 or greater. In order to achieve .80, this study would necessitate 128 participants. In this study, however, sample size was limited due to availability. Demanding performance and rehearsal schedules of high school band programs made it difficult to obtain permission to work with student research participants. Additionally, the rigid schedules of both band programs involved

in the study resulted in very short treatment stages (a total of 12 instructional hours with each group). Convenience sampling was used to overcome difficulties associated with obtaining permissions to conduct research using high school student participants. This form of sampling also enabled the researcher to administer treatment to jazz ensembles in two separate schools. Each school was chosen based upon levels of excellence achieved by the jazz band program.

Many steps were taken to obtain research permission to work with high school participants in two Florida school districts. One district's research advisory board required a research proposal consisting of a research rationale, thorough description of statistical design and methodology, literature review, and explanation of research variables with statistical measures of effect size. If the proposal, which amounted to more than 20 pages, was lacking in any aspect, the researcher would have been denied permission.

Pretest and posttest data were collected from the two groups. Eighteen participants from a north central Florida high school were recruited for the control group. Fifteen participants from a south east Florida high school were recruited for the experimental group. Each group underwent a three-week treatment period involving jazz improvisation instruction. In addition to improvisation instruction, experimental group participants received methodical instruction on jazz articulation. Materials for the articulation treatment included scale patterns, arpeggios, sample jazz phrases, and applications of articulation patterns to jazz melodies.

All data were gathered during jazz ensemble classes, during the school day, or immediately after school on each high school's campus. One consideration was the time of day each jazz ensemble met. While both schools' rehearsals took place in the morning, one band met at "zero hour," which occurs before the regular school day (in this case, treatment took place from 7:50

a.m. until 8:20 a.m.). The other band was administered treatment from 10:00 a.m. until 10:30 a.m.

Both treatment periods took place during the fall semester. The control group's (Group A) treatment window took place from September 29 to October 16 and the experimental group's (Group B) treatment occurred from November 3 to November 20. The difference in treatment periods could have resulted in student maturation, considering the latter group (experimental) began treatment five weeks later than the initial group. There was, however, only a two-week window between the end of control group treatment and the onset of the experimental group treatment.

Students in each group were eager to participate and experience jazz instruction. The fact that students would typically spend most of their rehearsal time performing ensemble pieces made improvisation instruction somewhat of a challenge for both the researcher and the participants. The challenge was due to the individual nature of improvising. Every student was engaged in the performance of scales, arpeggios, melodies, and improvisations, yet it became evident that improvisation instruction for high school students would best take place in smaller "doses" (10 to 15 minutes at a time).

Findings

Results from both forms of instruction were positive, evidenced by the fact that participants in both groups improved jazz performance skills. Mean scores from the pretest to the posttest indicated that both groups improved in all areas measured, which included composite scores for subtests, performance element style scores, composite technique scores, and combined melody scores. It is notable that, on average, students receiving articulation instruction improved more in terms of technique, melodic performance, stylistic expression, improvisation, and overall jazz performance. That improvement was expressed by gain scores, which were calculated by

subtracting pretest scores from posttest scores. Two-sample *t*-test results did not yield significance ($p \leq .05$) for the experimental group's performance gains, yet gain score differences occurred between the experimental and control groups.

Research sub-question 1 involved the importance of articulation in jazz performance. A panel of jazz experts was surveyed, providing detailed validation for this type of study. Research sub-question 2 involved the extent to which articulation instruction enhanced stylistic expression of melodies. The experimental group was found to have improved mean composite style scores by +2.93 and the control group by +2.0. Mean gain scores for the two melodies combined also demonstrated more improvement for the experimental group (experimental = +7.14, control = +6.28). Pearson *r* correlations suggested that style score gains were an accurate representation of students' overall improvement. Correlations between participants' total gains and style gains measured $r = .85$.

Research sub-question 3 involved the impact of articulation studies on technical facility. In the study, a collection of bebop scales was used as a measure of instrumental technical ability. Posttest results on the scale subtest revealed that the experimental group improved by +2.14 and the control group improved by +1.11. Composite scores for technique were calculated by adding scores for technical facility on the two melody subtests and the improvisation subtest. Experimental group students improved mean composite technique ratings by +2.21, and control group students improved by +1.78. Again, differences were not found to be significant at the .05 level, yet differences existed between groups.

The extent of improvement on improvisation, resulting from articulation studies, was addressed in research sub-question 4. Improvisation is a primary component of jazz performance, and it provides a significant means for demonstrating musical creativity (not exclusively in jazz

but also in styles apart from jazz). The critical link between improvisation and jazz performance made improvisation a necessary and key factor in the study. The experimental group again made more improvement on composite improvisation scores (experimental = 1.86, control = 1.67), but the difference was minimal. The subjective nature of creativity and difficulty when assessing creative products likely contributed to the lowest reliability coefficients, low mean gain scores, and lack of significance when considering improvisation scores a dependent variable in this study.

Perhaps most telling was the overall effect of articulation studies on the experimental group. Upon recording pretests of participants in the experimental group, concern arose that individual ability levels were lower than anticipated. While both band programs are known for excellence and both fit the criteria for inclusion in the study, students from the control group exhibited stronger musicianship skills, particularly during the pretest phase. The researcher was concerned that experimental group students lacked the capacity for improvement necessary to demonstrate benefits from articulation instruction. Those students, however, made greater total gains from pretest to posttest (experimental = +11.14, control = +9.06).

The initial difference of mean pretest scores was +1.93 in favor of the control group. After receiving treatment, the experimental group not only closed that gap, but earned a higher mean total (by +.15). It is conceivable that those results were due to a “ceiling effect” for the control group. However, posttest mean scores revealed that room still existed for improvement in both groups. The highest individual posttest scores among control and experimental group individuals were 67 and 66, respectively, whereas the highest possible score was 80.

Results from Pearson’s *r* correlations and Cronbach’s alpha demonstrate scores on the EJIP were reliable. Lowest degrees of reliability resulted from improvisation scores (combined

pretest and posttest range $r = .39$ to $.69$). Reliability differences existed between the pretest and the posttest. Posttest results demonstrated lower coefficients, particularly for melody2 (range $r = .42$ to $.57$) and improvisation (range $r = .33$ to $.66$). Judges' scores on those particular subtests revealed wide ranges between highest and lowest composite scores for some participants. In two cases, ranges for improvisation scores were as much as nine points on a twenty point test. Those ranges contributed to and likely accounted for lower reliability numbers. Improvisation is perhaps the most subjective component of jazz performance for assessment. When considering reliability without improvisation scores, judges' reliability measures ranged from $r = .80$ to $.87$.

Coefficient alpha was calculated to provide a more accurate reflection of interjudge reliability, accounting for differences among all three judges' scores simultaneously. All alpha scores were above $.70$, reflecting a reliable measure. Once again, the lowest reliability scores were found on the posttest for melody2 and improvisation (both measuring $.71$).

According to a panel of three jazz educators, content on the EJIP was considerably valid. Jazz educators considered criteria to be an effective representation of the content being measured. Open-ended responses regarding important considerations for jazz assessment demonstrated a high degree of agreement from judge-to-test. The rating index completed by each of the judges also demonstrated agreement both from judge-to-judge and from judge-to-test.

Scores on Gordon's Musical Sensitivity portion of the MAP were intended as a measure of construct validity. Correlation coefficients between MAP scores and those on the EJIP did not reflect a high degree of agreement. However, positive relationships were established between MAP scores and pretest composite subtest scores. Pretest totals from the EJIP correlated with MAP raw scores at $r = .33$. A higher correlation ($r = .35$) was found between EJIP pretest composite style scores and the style portion of the MAP. In fact, style scores on the MAP

showed significant relationships ($p = < .05$) with three measures from the EJIP pretest (style, melody1 and pretest total).

Some findings from the EJIP/MAP correlations were of particular interest. Correlations for both pretest and posttest scores with each section of the MAP maintained narrow ranges, reflecting a high degree of consistency (e.g., the range when correlating MAP raw scores with EJIP total pretest scores was $r = .22$ to $.33$). Positive relationships were found between MAP style scores and total scores on the EJIP (which includes ratings for stylistic performance). Posttest correlations were consistently lower than those on the pretest. Higher pretest correlations may indicate a degree of construct validity for the EJIP, considering the MAP is an aptitude test. When correlating MAP scores with gain scores on the EJIP, those correlations were found to be negative (they were calculated, but not reported in Chapter 4). The negative relationship between gain and the MAP was no surprise considering gain scores are more closely related to performance achievement, which occurred due to instruction (as opposed to aptitude, which is innate).

Because students sight-read material on the pretest, they relied upon innate abilities, as opposed to individual achievement, which would result from practice and knowledge of the test. However, it is important to note that the EJIP is not an aptitude test. It called for participants' instrumental performance, whereas the MAP required participants to listen and make preferential choices regarding short musical excerpts. Some relationships were established between musical sensitivity and EJIP scores, yet the two tests were intended to measure separate constructs.

The extent of improvement of overall jazz performance, resulting from articulation studies, was addressed in research sub-question 5. *T*-tests and ANOVAs were measured to examine differences between the two treatment forms. The first measures were used to determine

treatment effects for each group. Two-sample *t*-tests revealed significant differences within groups from pretest to posttest. Gain scores within groups indicated that both treatments had a significant effect on participants. When *t*-tests were run to examine mean pretest and posttest differences between the two groups, those results were not significant, with the exception of gain scores on the style portion. Articulation practice produced greater style gains (experimental = +2.93, control = +2.00), melodic style gains (experimental = +2.21, control = +1.61), and overall melodic gains (experimental = +7.14, control = +6.28).

The lack of significant pretest to posttest differences between groups does not allow for rejection of the null hypothesis, though differences between the two groups on style gains approached significance. A central premise for this study was the close relationship between articulation and style and that practice of articulation exercises could enhance one's stylistic capabilities. In this regard, articulation exercises had a significant effect on stylistic interpretation in jazz performance.

A three-way linear fixed model ANOVA provided data regarding interactions among three independent variables (subtest, pretest or posttest, and group) and subtest scores on the EJIP. Results from the ANOVA reveal a significant ($p < .0001$) interaction between "subtest" (scales, melody1, melody2, and improvisation) and subtest scores. This result suggests significant differences among participant scores on the subtests. Means from the subtests revealed that overall, participants scored highest ($M = 15.15$) on the scales subtest and lowest ($M = 12.30$) on melody1. This was expected, due to the relative difficulty level involved with playing melody1. Improvisation ($M = 13.82$) and melody2 ($M = 14.31$) ranked second and third, respectively, in terms of difficulty. When "pretest or posttest" was included as a factor along with subtests,

results ($p = .0016$), suggested that participants made significant improvements from the pretest to the posttest.

Results regarding differences between the groups were similar to results from the two-sample t -tests. No significant differences were found. However, statistics from the three-way ANOVA suggest differences between the groups and that those differences became less significant for posttest scores. Differences were more likely to be found between the two groups on the pretest ($p = .4149$) than on the posttest ($p = .9993$). These values imply that there was much less difference (or virtually no difference) between the two groups at the posttest and that the experimental group was “catching up.” This result was among the most compelling, but also provided the most statistically sound evidence for the claim that articulation exercises enhance jazz performance.

Research sub-question 6 pertained to students’ attitudes regarding the treatment in which they participated. This subject was investigated by collecting and encoding student responses on written questionnaires administered at the end of each treatment stage. Nearly all responded that the treatment provided musical benefits. Some concern existed about the Hawthorne effect influencing positive responses. Students may not have wanted to portray themselves in a negative light. To avoid this, responses remained anonymous and were collected by the band director at each school before being collected by the researcher.

Themes emerged from the questionnaires which merited special attention. A vast majority of participants in the experimental group felt articulation instruction was beneficial. Several felt it was the most beneficial aspect of the treatment. This sentiment shed some light on the nature of the articulation instruction, considering the fact that most students simply want to play jazz band tunes, as opposed to learning and practicing scales and exercises. The sequential nature of

instruction may have contributed to students' positive views on both improvisation and articulation instruction.

Several students referred to a gain in confidence as a result of improvisation instruction. The task of improvisation can be daunting, especially for those lacking experience. To spontaneously function within the musical realms of melody, harmony, rhythm and form necessitates making and executing choices without time to plan. As a result of instruction, many participants found improvisation to be much less intimidating. Some students wrote that they wished they were put "on the spot" more often during rehearsals. This indicates that given proper instruction, students can develop a desire to confront the task of improvisation, even when required to create musical products before their peers.

Sample Improvisations

Seven sample choruses (a chorus consists of one repetition of the 12-measure form) of blues improvisation were transcribed for analysis (Appendix M). Two participants from the experimental group were chosen for analysis, based on the amount and nature of improvement from the pretest to the posttest. Pretest and posttest improvisations from one participant from the control group were chosen for the same reason. The seventh improvisation, a posttest product from the control group, was chosen because that participant garnered the highest rating (17 out of 20).

A trombonist from the experimental group made a four-point improvement (pretest improvisation = 12, posttest = 16). The posttest improvisation was performed more accurately, confidently, and with fewer intonation problems than the pretest improvisation. The most telling improvement, however, was demonstrated in the participant's ability to delineate tonality. In the pretest improvisation, the trombonist appears to be playing in the key of B-flat over an F blues. The solo begins with the notes B-flat and A-flat, which could indicate the root and seventh of B-

flat⁷. The solo also ends with two B-flat quarter notes (emphasizing the fourth scale degree over a seventh is forbidden in jazz performance).

In the posttest, the trombonist clearly outlines the key of F in the first measure. Even more impressive is the fact this participant made the change from F⁷ to B-flat⁷ from the fourth to the fifth measure. Making those changes was a key aspect in improvisation instruction because the thirds and sevenths of those two chords are a half-step apart. When students are taught to utilize the blues scale exclusively, they miss out on the opportunity to make those changes.

It must be noted that during this study, students were presented with the F minor pentatonic scale when improvising. That scale was provided because many students had little or no experience improvising at the onset of the treatment stages. Treatment did, however, involve study of chord tones and changes in the blues and other forms. Students were also given a set of chord changes to read when improvising. However, in the estimate of the researcher, few, if any, students possessed the ability to properly read and delineate those changes. Given a more extensive treatment period, students would likely demonstrate much more success reading chord changes and delineating harmony.

Pretest and posttest solos from an alto saxophonist in the experimental group were chosen because the player played with fewer “clams” (“clam” being a pitch that is missed in a manner that causes an obvious sounding error) in the posttest. This soloist was also chosen because the chord change from the fourth to the fifth measure was demonstrated accurately. This player improved three points from pretest to posttest. The posttest solo ends strongly with a mixture of triplets and syncopation, ending solidly on the tonic pitch.

A trombonist from the control group demonstrated the greatest pretest to posttest gains, improving from 9 to 14 points. The pretest solo was wrought with rhythmic accuracy problems.

In fact, the solo could not be transcribed accurately because many of the rhythms were simply in “the cracks.” Several clams appear in the pretest solo, but the posttest is played with a much greater degree of rhythmic accuracy. Though this trombonist relied on the tonic pitch extensively, the posttest solo made much more musical sense. The act of simplifying pitch and rhythmic choices when improvising often contributes to greater success.

The highest rated solo among all participants was played by a tenor saxophonist on the posttest. This musician used a number of appropriate pitches outside the minor pentatonic scale and exhibited perhaps the greatest penchant for jazz inflection. Those inflections included bent tones, turns, and falls (pitches that descend rapidly, sounding as if they are falling from high to low). The tenor player made nice use of blue notes, both beginning and ending the solo using the flattened seventh scale degree in a bluesy, melodic manner. Perhaps the most mature aspect of this solo was the variety of melodic shape, alternating between steps and skips, both ascending and descending. Inflection and melodic shape were incorporated along with note choices that contribute to a melodically interesting solo.

Theoretical Implications

Results reported in this study infer certain theoretical and methodological implications for jazz education and research. One of the unique and appealing characteristics of jazz performance is its inimitable musical style. Jazz is considered by some to be mysterious or even sexy. This is likely due to the spontaneity of the music, but also unique style characteristics exhibited in jazz performances. For instance, instrumental timbres of jazz musicians often differ from those of their counterparts in classical music. Jazz trumpet players may strive to achieve a “fluffy” or airy tone, while classical trumpet players most often seek to maintain the clarity or purity of their tone. Jazz wind musicians also employ a number of instrumental effects or inflections, such as growls and pitch bends, which are less common in other performance styles. These differences

sometimes lead to the belief that jazz music (and jazz musicians) is rebellious. The rebellious nature of the music may, in fact, contribute to the paradigm (for some) that jazz cannot be taught methodically. It also leads to the thought (again, for some) that jazz must always be an individual endeavor, independent of commonality.

Though a wide variety of jazz genres, performance approaches, and methods for study exist, common musical components appear that are closely linked with style. One of those components is articulation. Jazz pedagogues have continually emphasized the importance of “proper articulation,” but what exactly does that mean? How do we know if one is articulating properly? Furthermore, is proper articulation a function of instrumental technique or is it exclusively related to stylistic ability?

Many feel that the only way to learn proper articulation is through assimilation. One respondent on the jazz articulation survey conducted within the course of this study felt very strongly that the only way to learn jazz style was through listening. The importance of listening to professional jazz musicians (or professionals of any musical genre for that matter) cannot be underestimated. Listening must be included in any program of musical instruction. The methodologies for both experimental and control groups included listening as an important instructional constituent. However, supplemental methods for enhancing the stylistic capabilities of student musicians exist. Student improvement resulting from this study demonstrates the possibilities of enhancing students’ musical expression by incorporating patterned learning and providing rules for interpretation.

Issues

A number of issues must be considered which may have influenced results of the study. After experiencing articulation instruction, participants exhibited increased improvement in jazz performance. When *t-test* comparisons were calculated, differences in achievement between the

two groups were not found to be significant. Given an extended treatment period (perhaps 10 weeks), results would likely be more dramatic, demonstrating a greater degree of statistical significance.

Treatments were not administered simultaneously. Duplication of this study might be more effective through use of random selection. Students within the same school could be recruited and then randomly assigned to two groups. Homogeneity of the groups would be more likely through such a method. Additionally, simultaneous administration of treatment could take place. If two or more schools were selected, they could be chosen within the same district, but would need to contain students of similar ability levels. Another suggestion would be to include college students as participants, which could increase sample size. Increasing the sample size would also enhance the statistical power of analysis for such a study.

Another consideration for studies related to musical style is the extent and nature of listening that occurs. A more thorough study may utilize a structured approach in planning and administering listening activities. Listening could be used as an independent variable to examine the extent of its importance as related to performance of musical style.

In the current study, performance of one scale with three variations of articulation was used as a measure of technical ability. This measure was intended to account for initial differences between two groups. A more thorough measure for technique would provide a more accurate measure of technical ability. That measure could include a variety of scales, arpeggios, and technical etudes.

Any study on musical performance involving multiple instruments must take instrument into account as an independent variable. Instrument could potentially pose a threat to internal validity of results (e.g. saxophonists all show more improvement and there are an unbalanced

number of saxophonists in the sample). ANOVA results (Table 4-17) revealed that instrument did not have significant effects for posttest style, style gains, total gains, or posttest totals. These findings led to the conclusion that instrument did not pose a threat to internal validity.

Implications for Music Education

Results from this study suggest that articulation exercises enhance jazz performance ability. Methods and materials from this study may constitute the germination of a comprehensive methodology on jazz style for wind musicians. Through the review of literature, no method texts were found to exclusively contribute to acquisition of stylistic ability. Several authors provided suggestions, but many suggestions (such as declarations on the importance of listening) were of a general variety. Very few sources offer specific exercises involving articulation patterns. Considering the corroboration of researched methods and the sequential nature of instruction used in this study, production of a jazz style methodology could prove a significant contribution to existing jazz pedagogy literature.

Conclusions

Results from this study suggest the following conclusions:

1. Though considered a primary element of musical style, articulation is an under-addressed skill in jazz education.
2. Methodical articulation practice enhances stylistic expression in both melodies and improvisations. The extent of stylistic enhancement may depend upon the amount of time devoted to instruction.
3. Practice of articulation exercises results in increased technical ability when performing scales, melodies, and improvisations. Again, the extent of those increases may depend upon the amount of time devoted to instruction.
4. Assessment of jazz improvisation ability is subjective. Further research is needed to determine the effects of articulation exercises on improvisation ability and stylistic performance when improvising.

5. Students engaging in articulation practice exhibited greater improvement in overall jazz performance ability than those who did not engage in such practice.
6. Students can develop positive attitudes when engaging in improvisation and articulation instruction. Students possess a number of common views and attitudes when engaging in these types of instruction.

Jazz style can be taught and learned. *T-test* results ($p = .06$) of mean differences between experimental and control groups for style gains were among the most telling statistical results from this study. Students may acquire skill in even the most subjective aspects of musical performance. An added benefit could result from transference of stylistic methodology to other musical genres and ensembles. If educators are indeed able to define interpretation “rules”, student musicians could learn to play more expressively. String players could learn to articulate and phrase more fluidly. Band musicians could attain similar skill increases. The primary differences among musical genres lie in their unique stylistic characteristics. Studies such as this one may aid in determining effective ways of discerning and developing those characteristics.

Proper insight must be maintained when using technical studies or exercises to teach the expressive component of music. Any such course of study should be accompanied by representative structured listening experiences. The synthesis of technical practice and structured listening may contribute to enhancement of not only stylistic abilities, but also overall musical abilities.

Researchers in the area of jazz style and interpretation should give special attention to a number of considerations. One consideration is the plausible idea that the link between musical articulation and style is analogous to that of linguistics. In language, we not only use the term “articulate,” but also the concept of accent. Linguistic accents occur in the form of regional styles of speech, and in the form of syllabic emphasis. In music, articulation and accent are nearly synonymous. The definition of articulation given for this study involves tongue-slur

patterns, which influence the strength and placement of accents. Future studies on jazz style could include theories from linguistics or even mirror studies in linguistics.

An additional consideration for future research pertains to the development of style and expression through ear-training exercises. Researchers have examined the relative merits among aural-based and theory-based approaches to learning improvisation. The relationship between aural-based approaches and stylistic interpretation could bear further implications for methods pertaining to style acquisition.

Meyer's (1989) theory of musical style, syntax, and stylistic constraints provided a theoretical rationale for this study. Participants involved in this study improved performance as a result of practicing articulation patterns. Results from this study support Meyer's theory that style involves the "replication of patterning" (p. 3). Practice of articulation exercises exclusively could be considered an atomistic approach to learning jazz style. As Poulter (2008) surmised, students learn effectively when the cognitive load is reduced. Practice of articulation exercises can and should include applications of those exercises to both melodies and improvisations.

Practice of scales and exercises in the course of improvisation study is sometimes a subject of controversy. The body of literature on jazz improvisation contains many method texts filled with content related to chord/scale relationships, but lacking in stylistic considerations. Recent methods appear to be more inclusive, containing rhythmic and melodic approaches to improvisation. No matter the approach, development of musical expression and creativity may be a structured process. Csikszentmihalyi (1996), one of the world's foremost authorities on creativity, supports the supposition that musicians engaging in creative acts must first learn tradition and technique. Individualism may occur after exploring the limits of tradition and technique.

Discussion

Results from this study indicate that musical style and expression are skill related. Results also indicate that the contexts related to performance of jazz style are grounded in activity. Ultimately, it is the process of learning and acquiring skill that influences results. During the treatment stages of this study, high school musicians underwent instructional processes which cultivated their appreciation of jazz style and improvisation, resulting in great enjoyment for the researcher. Participants in this study developed skill through discipline and the employment of stylistic constraints. Consequently, participants' jazz appreciation and individual performance ability were enhanced.

Scientific examination of jazz performance (or any musical performance) presents a unique set of challenges, particularly when concerned with the expressive domain. Researchers frequently become consumed with the goal of achieving a particular level of significance (i.e., $p = .05$) necessary in establishing legitimacy. Yet, in this study the researcher was concerned with more than seeking a particular level of significance. This study was about seeking truth and establishing consequential relationships. It was also about examining the process of learning to play authentic jazz style. Such a claim leads one to question what constitutes "authentic jazz style." Is authenticity or quality, for that matter, not subjective? Fortunately they are. The subjective nature of music is one of its characteristics that make it so wonderful and mysterious.

It is the opinion of this researcher that music is not created with the purpose of being objective. Each individual has unique ways in which to interact with, process, and evaluate music. Music education researchers can and should investigate effective ways of communicating knowledge, so the music we value and cherish is passed on to future generations. The goals of music educators and music education researchers should include discovery and invention of methods by which others can actively enjoy learning about and making music.

APPENDIX A
JAZZ ARTICULATION SURVEY

Dear Educator,

Thank you for taking the time to complete this survey. Your input benefits a research project that will serve to inform the field of jazz education in the matters of articulation and stylistic interpretation. For the purpose of this survey, please consider the following definition for articulation: Patterns of tonguing and slurring for wind instrumentalists.

1. Which level do you currently teach?
a. College b. High School

2. How many years have you taught at that level?

3. Please list the instrument(s) you play.

4. To what extent do you feel articulations are specified in wind parts of high school level jazz band arrangements?

0	1	2	3	4	5
none	very little	little	moderate	much	very much

5. To what extent do you feel articulations are specified in professional jazz band arrangements?

0	1	2	3	4	5
none	very little	little	moderate	much	very much

6. To what extent are you able to address articulation patterns during jazz band rehearsal?

0	1	2	3	4	5
none	very little	little	moderate	much	very much

7. How important do you feel articulation is for jazz style?

0	1	2	3	4	5
not at all					very important

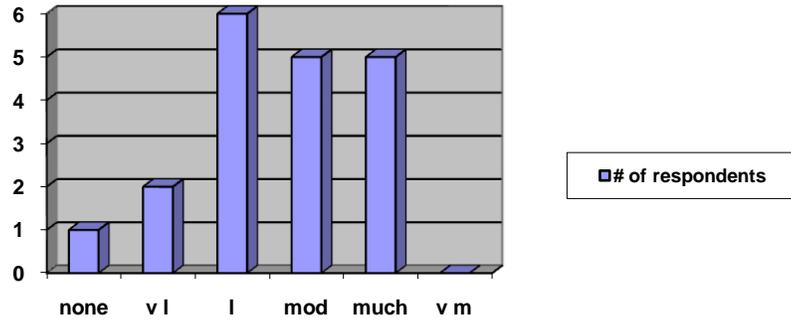
8. How important do you feel articulation is for technical facility?

0	1	2	3	4	5
not at all					very important

9. How important do you feel it is for jazz educators to teach specific articulation patterns?

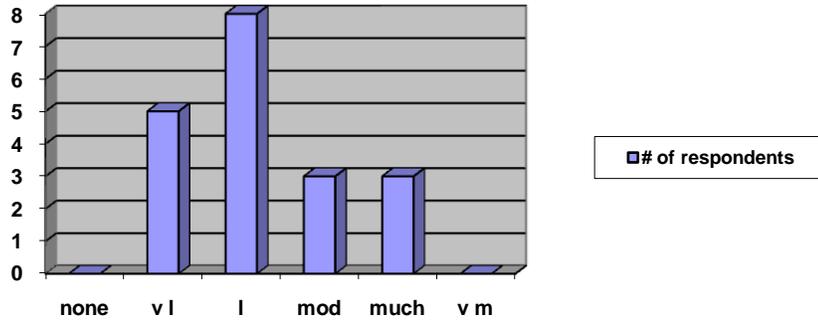
APPENDIX B
JAZZ ARTICULATION SURVEY RESPONSES

To what extent do you feel articulations are specified in wind parts of high school level jazz band arrangements?



Extent of articulation specificity
vl – very little, l – little, mod – moderate, vm – very much

To what extent do you feel articulations are specified in professional jazz band arrangements?



Extent of articulation specificity
vl – very little, l – little, mod – moderate, vm – very much

APPENDIX C
EDMUND JAZZ INTERPRETATION PROFILE (EJIP)

Jazz Interpretation Profile

Participant: _____

Part I: Scales

Listen to CD track 1. Please listen to all three variations on the bebop scale. Rate the overall scale performance for the following categories (1 = lowest and 5 = highest):



Scale performance ratings

*Note: Each performer was given metronome clicks (quarter note=100) prior to playing. Each scale includes a repeat.

Time accuracy	1	2	3	4	5
steadiness of the beat					
plays the proper tempo					
Pitch accuracy	1	2	3	4	5
Plays notes without “clams”					
(NOT intonation)					
Consistency of tone/intonation	1	2	3	4	5
(not tone quality, which may be affected by the recording quality)					
Tonguing accuracy (articulation)	1	2	3	4	5

Part II: Melodies

Listen to CD track 2. Please rate the following melodic performance in the following categories on a scale of one to five (1 = lowest and five = highest). Aspects to be considered are listed below each category.

BILLIE'S BOUNCE

CHARLIE PARKER

Melody1 performance ratings

*Note: Each performer was given metronome clicks (quarter note=116) prior to playing. Performers consistently miss concert E-natural on the “and-of-four” in measure seven. A courtesy accidental should have been included, but was not.

Technical proficiency	1	2	3	4	5
Instrumental facility					
Overall accuracy					
Consistency of tone/intonation					
Pitch accuracy	1	2	3	4	5
Plays notes without “clams” (NOT intonation)					
Rhythm/time feel	1	2	3	4	5
Steadiness of beat					
Swing style					
Style/expression	1	2	3	4	5
Articulation					
Swing style					
Characteristic tone					

***When judging style, consider your other ratings. If you have trouble deciding, the style rating should fit somewhere in-between your lowest and highest ratings.**

1 = Totally lacking in the category	2 = Several blatant errors (at or near 50% accuracy)	3 = Three or more blatant errors. Lacking overall consistency	4 = Plays consistently well. Two or fewer errors.	5 = Without errors, or only one minor flaw.
--	---	--	--	--

Melody2 performance ratings

Listen to CD track 3. Please rate the following melodic performance in the following categories on a scale of one to five (1 being lowest and five being highest). Aspects to be considered are listed below each category.



Melody2 performance ratings

*Note: Each performer was given metronome clicks (quarter note=130) prior to playing. Please disregard those who tag the last eighth note on the repeat. It was not appropriately marked 1st x only.

Technical proficiency	1	2	3	4	5
Instrumental facility					
Overall accuracy					
Consistency of tone/intonation					
Pitch accuracy	1	2	3	4	5
Plays notes without “clams” (NOT intonation)					
Rhythm/time feel	1	2	3	4	5
Steadiness of beat					
Swing style					
Style/expression	1	2	3	4	5
Articulation					
Swing style					
Characteristic tone					

*When judging style, consider your other ratings. If you have trouble deciding, the style rating should fit somewhere in-between your lowest and highest ratings.

1 = Totally lacking in the category	2 = Several blatant errors (at or near 50% accuracy)	3 = Three or more blatant errors. Lacking overall consistency	4 = Plays consistently well. Two or fewer errors.	5 = Without errors, or only one minor flaw.
--	---	--	--	--

Part III: Improvisation

Listen to CD track 4. **Please rate the performance of the blues improvisation on a scale of one to five in each of the four categories.** Aspects to be considered are listed below each category.

*Note: Participants played two choruses of F blues with Jamey Aebersold volume #54. Please do not judge participants based on the quality of the recording.

Rhythmic Accuracy	1	2	3	4	5
Steadiness of beat					
Rhythmic feel					
Steadiness of beat subdivisions (eighth notes, etc.)					

Technical Proficiency	1	2	3	4	5
Rhythmic complexity					
Instrumental facility					
Melodic range					

Melodic Structure	1	2	3	4	5
Variation of melodic shapes (steps/skips, etc.)					
Note accuracy/choices					
Use/development of motifs					
Establishes beginnings and endings of phrases					

Style	1	2	3	4	5
Tone quality					
Articulation					
Swing feel					
Use of dramatic devices					

Thank you very much for your participation!

Yours truly,

David Edmund

APPENDIX D
JAZZ IMPROVISATION LESSONS

Day 1: Aptitude – Administer Musical Sensitivity portion of Gordon’s *Musical Aptitude Profile*.

Day 2: Melodic embellishment in the blues

- Read the lead sheet for “Now’s the Time,” a twelve-bar blues in F.
- Explain and demonstrate melodic embellishment. Engage students in one-bar call and response phrases.
- Employ three volunteers to embellish the melody over four of the twelve measures.
- Rhythmic improvisation on the tonic pitch: Each participant takes a turn.
- Play the Mixolydian mode beginning with three pitches: F, B-flat and C (I, IV and V of a basic blues)

Day 3: Review/arpeggiate chords

- Review melody to “Now’s the Time” and the Mixolydian mode.
- Demonstrate blues improvisation using the Mixolydian mode.
- Read “Buchholz Blues” and learn Mixolydian scales in B-flat, E-flat and F.
- Perform arpeggios consisting of 1st, 3rd, 5th, and 7th scale degrees using call and response.
Play arpeggios in the context of the blues progression

Day 4: Pentatonic improvisation

- Review melody to “Buchholz Blues” and three mixolydian modes.
- Play 1-2-3-5 (pentatonic fragment) over each chord in succession.
- Demonstrate improvisation using major pentatonic scales.
- Read “Billie’s Bounce.” Sing the rhythm, play chord roots.
- Read “Mr. P.C.” Listen to recordings of “Billie’s Bounce and “Mr. P.C.”

Day 5: Blues review

- Review the mixolydian mode beginning on F, B-flat and C.
- Review “Buchholz Blues” and learn the bebop scale for each of the three chords.
- Demonstrate improvisation using the bebop scale.
- Employ three soloists, one for each four-measure phrase.
- Review 1-2-3-5 for each chord.

Day 6: Bebop scale review and the ii – V – I progression

- Review the three bebop scales learned.
- Engage students in call and response phrases using the bebop scale in the blues form.
- Divide students into three groups: Group 1 plays chord roots; Group 2 plays a simple bass line; Group 3 plays a background phrase with a given rhythm. Groups rotate while each individual solos.
- ii – V – I in B-flat major: Start the B-flat major scale on the proper scale degree. Arpeggiate each chord 1-3-5-7-5-3-1. Transpose to the key of F. Play the arpeggios and a sample ii – V – I phrase.

Day 7: Dorian mode review and the iii-IV-ii-V progression

- Play C, F and G dorian modes, as related to the corresponding major scale.
- Review the sample ii – V – I phrase in F. Play chords roots up to measure nine. Substitute the ii – V phrase for measures nine and ten.
- Jamey Aebersold Maiden Voyage: iii-IV-ii-V patterns 1 – 5.
- Focus on dorian only: “Canteloupe Island”
 - Listen first, play the tune. Play arpeggios (1-3-5-7-5-3-1, then 1-3-5-7-9-7-5-3-1).

Day 8: iii-VI-ii-V review and the minor pentatonic scale

- Review iii-IV-ii-V patterns, add numbers 6 and 7.

- Play “Cantaloupe Island”
 - Perform call and response over each chord, using the 1st five pitches of each scale only.
- Introduce f minor pentatonic. Relate to A-flat major pentatonic.
 - Learn by call and response: 1-3-1 | 1-3-4-3-1 | etc.
- Play “Cantaloupe Island” with soloists.
- Four-measure minor pentatonic composition.
 - Rules: Begin on 1st or 5th scale degree. End on 1. Must provide a name for your composition. Do not include rhythms of shorter duration than triplets.

Day 9: Share minor pentatonic compositions

- Play my f minor phrase. Listen to all others, with rhythm section repeating f minor (ala “Cantaloupe Island”)
- Write beneath that composition: Gmin7b5 | C7b9 | Fmin7
 - Play 1-5-1 in G minor. Now flat the fifth.
 - Play C mixolydian scale. Then play it with b9.
 - Scale choices: A-flat major | F harmonic minor
- Play the sample (major) ii – V – I phrase. Play chord roots, until the ninth bar. Add the sample phrase in measures nine to eleven.
- Write a major ii – V – I phrase in F (Gmin7 | C7 | F7 | F7).

Day 10: ii – V – I review: Major and minor

- Play student ii – V compositions. Model mine.
- Introduce sample minor ii – V in F.
 - Play the harmonic minor scales included with the sample.

- Transpose the phrase to C and play in the context of “Mr. P.C.”
- Note that rhythm change bar nine to Dmin7b5
- Begin F blues composition. Note the importance of chord tones (3rds and 7ths).
 - Listen “Now’s the Time”

F7 | Bb7 | F7 | F7 |
 Bb7 | Bb7 | F7 | Amin7 D7 |
 Gmin7 | C7 | F7 D7 | Gmin7 C7 ||

Day 11: Posttest/melody review

- Begin posttest recordings. These take place during day 11, 12 and one extra day during rehearsal.
- Review blues compositions: “Now’s the Time,” “Buchholz Blues,” and “Cantaloupe Island”

Day 12: Posttest/written questionnaire

- Round two of posttest recordings.
- Administer the written questionnaire.

APPENDIX E
JAZZ ARTICULATION LESSONS

Day 1: Aptitude – Administer Musical Sensitivity portion of Gordon’s *Musical Aptitude Profile*.

Day 2: Melodic embellishment in the blues

- Read the lead sheet for “Now’s the Time,” a twelve-bar blues in F.
- Explain and demonstrate melodic embellishment. Engage students in one-bar call and response phrases.
- Employ three volunteers to embellish the melody over four of the twelve measures.
- Rhythmic improvisation on the tonic pitch: Each participant takes a turn.
- Play the Mixolydian mode beginning with three pitches: F, B-flat and C (I, IV and V of a basic blues)

Day 3: Review/arpeggiate chords

- Review melody to “Now’s the Time” and the Mixolydian mode.
- Demonstrate blues improvisation using the Mixolydian mode.
- Read “Buchholz Blues” and learn Mixolydian scales in B-flat, E-flat and F.
- Perform arpeggios consisting of 1st, 3rd, 5th, and 7th scale degrees using call and response.
Play arpeggios in the context of the blues progression

Day 4: Pentatonic improvisation

- Review melody to “Buchholz Blues” and three mixolydian modes.
- Play 1-2-3-5 (pentatonic fragment) over each chord in succession.
- Demonstrate improvisation using major pentatonic scales.
- Read “Billie’s Bounce.” Sing the rhythm, and then play chord roots.
- Read “Mr. P.C.” Listen to recordings of “Billie’s Bounce and “Mr. P.C.”

Day 5: Blues review

- Review the mixolydian mode beginning on F, B-flat and C.
- Review “Buchholz Blues” and learn the bebop scale for each of the three chords.
- Demonstrate improvisation using the bebop scale.
- Employ three soloists, one for each four-measure phrase.
- Review 1-2-3-5 for each chord.

Day 6: Bebop scale review and the ii – V – I progression

- Review the three bebop scales learned.
- Engage students in call and response phrases using the bebop scale in the blues form.
- Divide students into three groups: Group 1 plays chord roots; Group 2 plays a simple bass line; Group 3 plays a background phrase with a given rhythm. Groups rotate while each individual solos.
- ii – V – I in B-flat major: Start the B-flat major scale on the proper scale degree. Arpeggiate each chord 1-3-5-7-5-3-1. Transpose to the key of F. Play the arpeggios and a sample ii – V – I phrase.

Day 7: Dorian mode review and the iii-IV-ii-V progression

- Play C, F and G dorian modes, as related to the corresponding major scale.
- Review the sample ii – V – I phrase in F. Play chords roots up to measure nine. Substitute the ii – V phrase for measures nine and ten.
- Jamey Aebersold(cite) Maiden Voyage: iii-IV-ii-V patterns 1 – 5.
- Focus on dorian only: “Canteloupe Island”
 - Listen first, play the tune. Play arpeggios (1-3-5-7-5-3-1, then 1-3-5-7-9-7-5-3-1).

Day 8: iii-VI-ii-V review and the minor pentatonic scale

- Review iii-IV-ii-V patterns, add numbers 6 and 7.

- Play “Cantaloupe Island”
 - Perform call and response over each chord, using the 1st five pitches of each scale only.
- Introduce f minor pentatonic. Relate to A-flat major pentatonic.
 - Learn by call and response: 1-3-1 | 1-3-4-3-1 | etc.
- Play “Cantaloupe Island” with soloists.
- Four-measure minor pentatonic composition.
 - Rules: Begin on 1st or 5th scale degree. End on 1. Must provide a name for your composition. Do not include rhythms of shorter duration than triplets.

Day 9: Share minor pentatonic compositions

- Play my f minor phrase. Listen to all others, with rhythm section repeating f minor (ala “Cantaloupe Island”)
- Write beneath that composition: Gmin7b5 | C7b9 | Fmin7
 - Play 1-5-1 in G minor. Now flat the fifth.
 - Play C mixolydian scale. Then play it with b9.
 - Scale choices: A-flat major | F harmonic minor
- Play the sample (major) ii – V – I phrase. Play chord roots, until the ninth bar. Add the sample phrase in measures nine to eleven.
- Write a major ii – V – I phrase in F (Gmin7 | C7 | F7 | F7).

Day 10: ii – V – I review: Major and minor

- Play student ii – V compositions. Model mine.
- Introduce sample minor ii – V in F.
 - Play the harmonic minor scales included with the sample.

- Transpose the phrase to C and play in the context of “Mr. P.C.”
- Note that rhythm change bar nine to Dmin7b5
- Begin F blues composition. Note the importance of chord tones (3rds and 7ths).
 - Listen “Now’s the Time”

F7 | Bb7 | F7 | F7 |
 Bb7 | Bb7 | F7 | Amin7 D7 |
 Gmin7 | C7 | F7 D7 | Gmin7 C7 ||

Day 11: Posttest/melody review

- Begin posttest recordings. These take place during day 11, 12 and one extra day during rehearsal.
- Review blues compositions: “Now’s the Time,” “Buchholz Blues” and “Cantaloupe Island”

Day 12: Posttest/written questionnaire

- Round two of posttest recordings.
- Administer the written questionnaire.

APPENDIX F
ARTICULATION EXERCISES/PRACTICE SCHEDULE

JAZZ ARTICULATION EXERCISES

D. EDMUND

C
INSTRUMENTS

1. 

2. 

ALL TONGUED NOTES ARE LEGATO. PLAY SMOOTHLY AND BLOW THROUGH THE PHRASE.

3. 

ALL TONGUED NOTES ARE LEGATO. PLAY SMOOTHLY AND BLOW THROUGH THE PHRASE.

4. 

5. 

6. 

7. 

©2008

8. 

9. 

10. 

11. 

12. 

13. 

14. 

15. 

16. 

17. 

18. 

19. 

20. 

21. 

22. 

23. 

24. 

25. 

35.

36.

37.
C MIN7 F7 B^b MAJ7

38.
G MIN7 C7 G MAJ7

39.
D MIN7(b⁹) G7(b⁹) C MIN

40.

41.

G M7(b⁹)

D M7(b⁹)

JAZZ ARTICULATION PRACTICE SCHEDULE

Date	Practice Items	Time	Checkbox
Wed Nov 5	#1,2,3,4	10:00	
	#5,6,7,8		
	#26,27,28,29		
Th Nov 6	#3,4,7,11	15:00	
	#13,14,15,16		
	#26,27,28,29		
Fri Nov 7	#3,7,11	10:00	
	#20,21,22		
	#26,27,28,29		
Sun Nov 9	#1,2,5,6	15:00	
	#9,10,13,14,15,16		
	#20,21,22		
	#30,31,32,33		
Mon Nov 10	#13,14,15,16	15:00	
	#20,21,22		
	#30,31,32,33		
Tues Nov 11	#30,31,32,33	10:00	
	#37,23,24,25		
	#34,35,36		
Wed Nov 12	#23,24,25	10:00	
	#34,35,36,37		
	#30,31,32,33		
Thurs Nov 13	#1,2,3,4	15:00	
	#5,6,7,8		
	#23,24,25,26		
Sun Nov 16	#9,10,11,12,13	15:00	
	#14,15,16,20		
	#21,22,26,27		
	#28,29		
Mon Nov 17	#17,18,19,20,21	20:00	
	#22,23,24,25,26		
	#28,29,34,35,36		
	#37,38,39,40,41		

PRACTICE SCHEDULE (continued)

Tues Nov 18		All Exercises		20:00	
Wed Nov 19		All Exercises		15:00	

**When practicing, play
each repeated exercise
at least 3x.**

APPENDIX G
RESEARCH APPROVALS

UF Institutional Review Board
UNIVERSITY of FLORIDA

PO Box 112250
Gainesville, FL 32611-2250
352-392-0433 (Phone)
352-392-9234 (Fax)
irb2@ufl.edu

DATE: September 23, 2008

TO: David Edmund
PO Box 117900
Campus

FROM: Ira S. Fischler, PhD; Chair *ISF:dl*
University of Florida
Institutional Review Board 02

SUBJECT: Approval of Protocol #2008-U-0832

TITLE: The Effects of Articulation Studies on Stylistic Expression in Jazz Performance for High School Wind Musicians

SPONSOR: None

I am pleased to advise you that the University of Florida Institutional Review Board has recommended approval of this protocol. Based on its review, the UFIRB determined that this research presents no more than minimal risk to participants. Your protocol was approved as an expedited study under category 7: *Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.* Given your protocol, it is essential that you obtain signed documentation of informed consent from the parent or legal guardian of each participant. When it is feasible, you should obtain signatures from both parents. Enclosed is the dated, IRB-approved informed consent to be used when recruiting participants for the research.

It is essential that the parents/guardians of your minor participants sign a copy of your approved informed consent that bears the IRB approval stamp and expiration date.

If you wish to make any changes to this protocol, **including the need to increase the number of participants authorized**, you must disclose your plans before you implement them so that the Board can assess their impact on your protocol. In addition, you must report to the Board any unexpected complications that affect your participants.

If you have not completed this protocol by **September 22, 2009**, please telephone our office (392-0433), and we will discuss the renewal process with you. It is important that you keep your Department Chair informed about the status of this research protocol.

ISF:dl

An Equal Opportunity Institution

APPLICATION FOR RESEARCH IN ALACHUA COUNTY PUBLIC SCHOOLS

620 East University Avenue Gainesville, FL 32601 (352) 955-7699

Directions: Complete one application for each requested school. Attach IRB approval, if applicable, protocol and 1 copy of any instrument to be used. If research is to be grant-funded, please attach copy of grant. Turn in application to the Department of Research and Evaluation. You will be notified when action on this application has been completed.

Upon completion of your study, send one copy (or Word file) of Abstract to lucasme@sbac.edu.

Applicant David Edmund Phone (352) 376-6999 Date 9-10-08

Address of Applicant 6714 S.W. 46th Ave. Gainesville, FL 32608

Educational Affiliation University of Florida - School of Music

Applicant is: Faculty Doctoral Student Master's Other (specify) _____

Purpose of Research Ph.D. Dissertation (see attached)

Title of Research Proposal The Effects of Articulation Studies on Stylistic Expression in Jazz Performance

Brief summary of research proposal (see attached)

Population needs: # of subjects 18-20 Grade Level 9-12

Sex, age, race, ability level(s) All (sample includes jazz band students)

School requested [redacted] High Total time per teacher required 6-8 hours

Total time per student required 6-8 hours

Indicate additional school resources needed None

Dates applicant is to be in the school 9/22/08 - 10/9/08

Data needed (list tests, surveys, information needed) None - data will be collected by the researcher

If this application is approved, I agree to observe all legal requirements regarding the use of research and to submit an abstract or short summary of the research report to the School Board of Alachua County, Research and Evaluation Department.

Applicant Signature: David Edmund Date: 9-10-08

Advisor/Dept. Chair: Dr. Timothy Brophy Date: 9-10-08
(if applicant is student)

SBAC Research Director: [redacted] Date: 9/25/08

School use only.

This application for research is: Approved: Not Approved: Principal's Signature: [redacted] APC

Remarks

Contact person in school [redacted] Title Band Director

David Edmund
University of Florida
School of Music
101 Music Building
Gainesville, FL 32611
(352) 392-0223 x395
Email: edmund13@ufl.edu

Research Proposal Summary

Purpose of the study: To determine the effects of articulation practice on the stylistic interpretation of jazz melodies and improvisations for high school wind musicians.

Research methods: High school jazz band students will participate. They will encounter a three-week clinical period consisting of jazz improvisation instruction. Instructional periods are thirty minutes per day / four days per week (total of six hours). These clinics (as well as performance assessments) will take place during jazz band class. Students will not miss any additional class time. They will learn about the manipulation of essential aspects of improvising, including rhythm, melody, harmony and style.

During the first week of the clinical period, students will perform a number of pre-test scales, two melodies and one improvisation on their instrument. The Musical Sensitivity portion of Edwin Gordon's *Musical Aptitude Profile* will be administered to each participant. Weeks two and three will involve improvisation and articulation instruction administered by the researcher. Instruction will include conceptual knowledge of scales, harmony, articulation and melodic interpretation.

During the pre and post tests, students will perform a scale with various articulations, two melodies and one blues improvisation. Improvisations will be accompanied by a *Jamey Aebersold* play-along CD. Each performance will be recorded using an audio mini-disc device. Only the student, researcher and two judges will have access to the audio recordings.

Participants will listen to their recorded performances for reflection. They will be asked basic questions involving their thought processes involved in performing melodies and improvising.

Data collection: Musical Sensitivity portion of Edwin Gordon's *Musical Aptitude Profile*; recordings of student performances described above; post-treatment interview to reflect upon the process of learning improvisation



THE SCHOOL DISTRICT
OF PALM BEACH COUNTY, FLORIDA

ANN KILLETS
CHIEF ACADEMIC OFFICER

ARTHUR C. JOHNSON, Ph.D.
SUPERINTENDENT OF SCHOOLS

Dean C. Stecker
Director of Research & Evaluation
3370 Forest Hill Boulevard, Suite B-228
West Palm Beach, FL 33406-58
Phone (561) 432-6376 Fax (561) 963-3842
www.palmbeach.k12.fl.us/9045

October 22, 2008

David Edmund
6714 S.W. 46th Avenue
Gainesville, FL 32608

Dear Mr. Edmund:

The Superintendent's Research Review Committee has approved your request to conduct research entitled *The Effects of Articulation Studies on Stylistic Expression in Jazz Performance* at [REDACTED] High School.

To conduct your study, you will:

- Send informed consent letters for parents to [REDACTED] the band director, for distribution to his jazz band students;
- Provide specific instruction in jazz articulation, melodic expression, and jazz improvisation to the students during jazz band rehearsal;
- Conduct the instruction for three consecutive weeks/four days per week/30 minutes per day beginning November 3 and ending on November 30;
- Administer a pre and post-test on the jazz interpretation measure. Cumulative scores for each group will be analyzed to determine the extent of articulation effects upon interpretation;
- Assign students a participant number and not include school name or teacher names so that all assessment data will be kept confidential.

As you conduct your research, please use the following guidelines:

- Obtain permission from the principal before beginning;
- Submit to this office, a signed Affidavit of Good Moral Character for any additional researchers before they begin (A blank affidavit form is enclosed.);
- If your research requires the use of additional resources in the future, you must first submit a written request to this office and then wait for a response before proceeding;
- One copy of the study results, with an executive summary, must be submitted to the Department of Research and Evaluation no later than one month after completion of the research;
- Your research activities at the school must not occur during the testing window of the Florida Comprehensive Assessment Test (FCAT). The FCAT testing window includes pre-test, administration, and post-test activities from January 28, 2009 through March 26, 2009.

According to our District's procedures, participation is voluntary. Thank you for your interest in our school district.

Sincerely,



Dean C. Stecker,
Director of Research and Evaluation

DS:jl

Attachments

c: [REDACTED] Principal
[REDACTED] Band Director

APPENDIX H
POST-TREATMENT QUESTIONNAIRES

Jazz Improvisation Questionnaire

Please do not write your name on this paper.

1. Circle your instrument:

A. Saxophone B. Trombone C. Trumpet D. Rhythm

2. Do you feel these improvisation lessons have benefitted you musically? If yes, in what way(s)?

4. What was the most effective part of the instruction?

5. What would you change about this approach to teaching jazz improvisation? (Ex. More call and response playing, more melodic embellishment, less focus on scales)

6. After having this experience, what do you think about when improvising over an F blues?

Jazz Style and Improvisation Questionnaire

Please do not write your name on this paper.

1. Circle your instrument:

A. Saxophone B. Trombone C. Trumpet D. Rhythm

2. Do you feel these improvisation lessons have benefitted you musically? If yes, in what way(s)?

3. Do you feel the articulation exercises benefitted you musically? If yes, in what way(s)?

4. What was the most effective part of the instruction?

5. What would you change about this approach to teaching jazz style? (Ex. More call and response playing, more melodic embellishment, less focus on scales)

6. After having this experience, what do you think about when improvising over an F blues?

7. In terms of style, what do you think about when playing jazz on your instrument, as opposed to playing other musical genres?

APPENDIX I
PARENT CONSENT/STUDENT ASSENT LETTERS

David Edmund
University of Florida
School of Music
101 Music Building
Gainesville, FL 32611
(352) 392-0223 x395
Email: edmund13@ufl.edu

Dear Parent(s)/Guardian(s),

I am a Ph.D. candidate in music education at the University of Florida. Before coming to Gainesville to work on this degree, I taught for nine years in the Hillsborough County Public Schools.

I am conducting a research study on jazz style and improvisation under the supervision of Dr. Timothy Brophy. The purpose of my study is to examine selected musical aspects of high school student jazz performance. Results of the study may help music educators in the development of jazz instructional methods. My study is supported by the University of Florida School of Music. With your permission, I would like to ask your child to volunteer for this research.

The study will involve twelve to sixteen visits to your child's school. During those visits, I will be conducting jazz clinics and working individually with select students. All work toward this study will take place during jazz band class. Students will not miss any additional class time.

Students selected to participate in the study will participate in an initial profile of musical preference. They will also perform a scale, two melodies and a blues improvisation on their instrument. Each performance will be audio-recorded for analysis. Student recordings will be identified by number. Only my supervising professor, two jazz educators and myself will have access to the audio recordings.

There will be a post-research interview, which will also be recorded (audio, not video). Each participant will be asked a few simple questions about their thought processes in performing the melodies and improvisation.

Though there will be no monetary compensation for participating, the study will be educationally beneficial for all involved. Because this is a jazz study involving instruction, the research will not interfere with the current jazz band curriculum. Rather, it will compliment the current curriculum and will include at least two of the current selections being rehearsed this term. Each participant will receive instruction on musical creativity at no cost. The only risk or discomfort to your child might be caused by shyness at being recorded or performing individually. Participants' identities will be kept confidential to the extent provided by law. To ensure confidentiality, your child's assigned identification number will be used in place of his/her name. Information obtained from this study will remain strictly confidential. All recordings will be

destroyed at the end of the study. Participation or non-participation in this study will not affect the student's grades or placement in any programs.

Participation in this study is completely voluntary. Participation or non-participation will have no effect on your child's grade or status in the music program. You and your child have the right to withdraw consent for your child's participation at any time without consequence. In order for your child to be considered for participation in this project, this consent form must be completed and returned to the child's music teacher no later than September 30th. Your child will also need to complete an assent form. Please return the forms marked "Mr. Edmund's copy."

If you have any questions about the study, please feel free to contact me at the e-mail or phone number listed above. You may also contact my supervising professor, Dr. Timothy Brophy at tbrophy@arts.ufl.edu or his office phone (352)273-3193. For questions about your rights as a research participant, contact the University of Florida IRB at 352-392-0433.

Musically Yours,

David Edmund

Parental Consent

Date: _____

I have read the procedure described above. I voluntarily give my consent for my child, _____, to participate in David Edmund's study of jazz performance.

Student's Date of Birth: _____

Parent's Signature: _____

David Edmund
University of Florida
School of Music
101 Music Building
Gainesville, FL 32611
(352) 871-1470
Email: edmund13@ufl.edu

Dear Student,

My name is Mr. Edmund and I am a jazz trumpet player. I am conducting a research study on jazz style and improvisation. I want to discover some of the special ways that students like you learn to play jazz. During the next few weeks I will be visiting your school to work with you on learning to play jazz.

Your parents have granted their permission for me to work with you. Some of you will be selected to participate in this research study. If you are chosen, I am going to ask you to do the following:

1. Take an initial "test" of musical preference. This is not a test of your ability. It is simply a test of your stylistic musical preference.
2. Perform a scale in three variations on your instrument.
3. Perform two written jazz melodies.
4. Perform a blues improvisation based upon one of the two melodies.
5. Answer a few questions about playing jazz style on your instrument.

Each performance will be audio recorded. Each session will take place during your jazz band class. You will not miss any additional class time. Participation in this study is strictly voluntary. Participation or non-participation will have no effect on your grades or status in the music program. If at any time, you choose not to participate, you may stop without any questions. Please indicate below if you are interested or not. Thank you very much. I look forward to meeting you and hearing your band perform!

Yours truly,

David Edmund

Would you like to participate in this jazz research study?

_____ Yes _____ No

_____ Please print first and last name

APPENDIX J
CONTENT VALIDITY DESCRIPTORS FOR A PANEL OF JAZZ EDUCATORS

Dear Jazz Educator,

I wish to sincerely thank you for participating in my study on jazz articulation, style and improvisation. In order to help establish validity of the ratings profile being used, I need your input on jazz assessment. Your input will occur in two forms:

1. Open responses regarding particular aspects of jazz performance (this document)
2. Your ratings of the measurement profile being used in the project (document #2)

For the following pages, please include only your highest-priority musical aspects to be considered. Do not list more than the number of aspects requested.

Please read and respond to the following questions:

1. Please list five musical aspects you would consider when assessing a student performance of the bebop scale shown below (ex. consistency of tempo, pitch/articulation accuracy).

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____



2. Please list five (or more) musical aspects you would consider when assessing a student performance of the blues melodies shown below.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

f. _____

g. _____



3. Please list five or more musical aspects you would consider when assessing a high school student performance of F blues improvisation (two choruses only).

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

4. When assessing instrumental technical proficiency for wind musicians, what are some of the musical aspects you would consider? (three to five responses please)

a. _____

b. _____

c. _____

d. _____

e. _____

5. When assessing rhythmic/time feel for student jazz wind musicians, what are some of the musical aspects you would consider? (three to five responses please)

a. _____

b. _____

c. _____

d. _____

e. _____

6. When assessing stylistic expression for student jazz wind musicians, what are some of the musical aspects you would consider? (five responses please)

a. _____

b. _____

c. _____

d. _____

e. _____

APPENDIX K
CONTENT VALIDITY RATING INDEX OF THE JAZZ INTERPRETATION PROFILE

Jazz Educator Assessment of the Edmund Jazz Interpretation Profile
ANSWER ONLY THE 1ST QUESTION AT THE TOP OF EACH PAGE (on a 10-point scale).

Please rate the validity of the following ratings assessment for Part I. (i.e. How accurately does it measure student scale performance in terms of technique?). 1 = lowest/10 = highest

1 2 3 4 5 6 7 8 9 10

Part I: Scales

Please listen to all three variations on the bebop scale. Rate the overall scale performance for the categories listed below:



Scale performance ratings

*Note: Each performer was given metronome clicks (quarter note=100) prior to playing. Each scale is repeated, though the repeat is not shown. Your rating pertains to the cumulative performance of all three scales. (1 = lowest and 5 = highest):

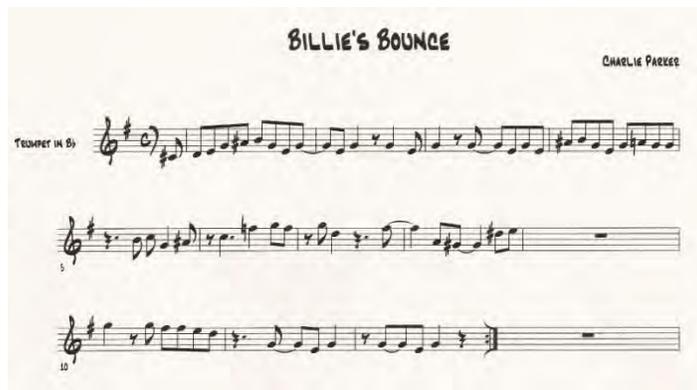
Time accuracy	1	2	3	4	5
steadiness of the beat					
plays the proper tempo					
Pitch accuracy	1	2	3	4	5
Plays notes without “clams”					
(NOT intonation)					
Consistency of tone/intonation	1	2	3	4	5
(not tone quality, which may be affected by the recording quality)					
Tonguing accuracy (articulation)	1	2	3	4	5

Please rate the validity of the following ratings assessment for Part II. (i.e. How accurately does it measure student melodic performance?). 1 = lowest/10 = highest

1 2 3 4 5 6 7 8 9 10

Part II: Melodies

Listen to CD track 2. Please rate the following melodic performance in the categories listed below. (1 = lowest and five = highest). Aspects to be considered are listed below each category.



Melody1 performance ratings: “Billie’s Bounce”

*Note: Each performer was given metronome clicks (quarter note=116) prior to playing. Performers consistently miss concert E-natural on the “and-of-four” in measure seven. A courtesy accidental should have been included, but was not.

Technical proficiency	1	2	3	4	5
Instrumental facility					
Overall accuracy					
Consistency of tone/intonation					
Pitch accuracy	1	2	3	4	5
Plays notes without “clams” (NOT intonation)					
Rhythm/time feel	1	2	3	4	5
Steadiness of beat					
Swing style					
Style/expression	1	2	3	4	5
Articulation					
Swing style					
Characteristic tone					

*When judging style, consider your other ratings. If you have trouble deciding, the style rating should fit somewhere in-between your lowest and highest ratings.

1 = Totally lacking in the category	2 = Several blatant errors (at or near 50% accuracy)	3 = Three or more blatant errors. Lacking overall consistency	4 = Plays consistently well. Two or fewer errors.	5 = Without errors, or only one minor flaw.
--	---	--	--	--

Please rate the validity of the following ratings assessment for Part III. (i.e. Does it accurately measure student improvisation performance?). 1 = lowest/10 = highest

1 2 3 4 5 6 7 8 9 10

Part III: Improvisation

Listen to CD track 4. Please rate the performance of the blues improvisation on a scale of one to five in each of the four categories. Aspects to be considered are listed below each category.

*Note: Participants played two choruses of F blues with Jamey Aebersold volume #54. Please do not judge participants based on the quality of the recording. The accompaniment volume is not consistent for each participant.

Rhythmic Accuracy	1	2	3	4	5
Steadiness of beat					
Rhythmic feel					
Steadiness of beat subdivisions (eighth notes, etc.)					

Technical Proficiency	1	2	3	4	5
Rhythmic complexity					
Instrumental facility					
Melodic range					

Melodic Structure	1	2	3	4	5
Variation of melodic shapes (steps/skips, etc.)					
Note accuracy/choices					
Use/development of motifs					
Establishes beginnings and endings of phrases					

Style	1	2	3	4	5
Tone quality					
Articulation					
Swing feel					
Use of dramatic devices					

Thank you very much for your participation!

Yours truly,

David Edmund

APPENDIX L
"BASIC BLUES," COMPOSED BY THE RESEARCHER AND USED TO DEMONSTRATE
MELODIC APPLICATIONS OF THE BEBOP SCALE

BUCCHOLZ BLUES

C INSTRUMENTS

D. EDMUNDO

The musical score for "Buccholz Blues" is written for C instruments in a key signature of two flats (B-flat and E-flat) and a common time signature (C). The score consists of three staves of music. The first staff begins with a treble clef and a common time signature. Above the staff, three chords are indicated: Bb7, Eb7, and Bb7. The second staff starts with a measure number '5' below the first note. Above the staff, two chords are indicated: Eb7 and Bb7. The third staff starts with a measure number '9' below the first note. Above the staff, three chords are indicated: F7, Eb7, and Bb7. The music features a mix of eighth and quarter notes, with some measures containing rests. The piece concludes with a double bar line.

APPENDIX M
TRANSCRIBED IMPROVISATION SAMPLES

F BLUES IMPROVISATION: PRE-TEST

PARTICIPANT A 14

PRE-TEST SCORE: 9 / 20

TROMBONE

CLAM

UNSTEADY RHYTHM

UNSTEADY RHYTHM..... CLAM

DRAGS THE RHYTHM UNSTEADY UNSTEADY

F BLUES IMPROVISATION: POST-TEST

PARTICIPANT A 14

POST-TEST SCORE: 14 / 20

TROMBONE

RHYTHM IS MUCH MORE ACCURATE / CLEARLY DEFINED.
PITCH IS MUCH MORE SIMPLE - RELIES UPON TONIC EXTENSIVELY.

F BLUES IMPROVISATION: PRE-TEST

PARTICIPANT B 10

PRE-TEST SCORE: 12 / 20

TROMBONE

5

CLAM

9

OUT OF TUNE

DOES NOT ESTABLISH TONALITY / SOUNDS LIKE KEY OF B-FLAT

F BLUES IMPROVISATION: POST-TEST

PARTICIPANT B 10

POST-TEST SCORE: 16 / 20

TROMBONE

5

5

9

ESTABLISHES TONALITY FROM THE BEGINNING. DELINEATES THE IV CHORD IN MEASURE 5 AND MAKES THE CHANGE BACK TO F7 IN MEASURE 7.

F BLUES IMPROVISATION: POST-TEST

PARTICIPANT A 9

POST-TEST SCORE: 17 / 20

TENOR SAXOPHONE

5

INFLECTION

9

INFLECTION

14

APPENDIX N
JAZZ IMPROVISATION RATING INSTRUMENT USED IN THE PILOT

David Edmund
Improvisation Rating Instrument

Dear colleague,

Thank you for your participation. Please rate the following recorded performances using the rating scales listed below. There are two participants and a total of eight recorded excerpts (four each). Recorded excerpts include the following:

- Middle School Participant (tracks 1 – 4)
 1. minor pentatonic scale
 2. melodic pattern (1-2-3-5 over a simple twelve bar blues progression)
 3. rhythmic improvisation (playing one pitch, with octaves, rhythmically)
 4. minor pentatonic improvisation

- High School Participant (tracks 5 – 8)
 1. minor pentatonic scale
 2. bebop scales (B-flat, E-flat, F) – by memory
 3. rhythmic improvisation
 4. minor pentatonic improvisation

You will rate the first two excerpts of each participant for technical proficiency only. Improvised excerpts will be rated in multiple categories. When determining scores for each category (ex. “Rhythmic Accuracy”), there are a number of considerations listed below that category. **Each consideration does not receive a particular point value.** They are there for your own clarification of what to listen for.

Please consider that the first participant is a middle school musician and should be rated in that context. Participants are not competing against each other. Rather, the purpose of the examination is to determine how selected characteristics differentiate at the middle and high school levels. Thank you very much for your time!

Middle School Participant:

Listen to CD track 1. **Please rate the performance of the minor pentatonic scale on a scale of one to five.** Please consider the following aspects of technical proficiency:

Technical Proficiency

Time accuracy (steadiness of the beat)

Pitch accuracy

Consistency of tone (not tone quality, which may be affected by the recording quality)

Tonguing (articulation) accuracy

Rating: 1 2 3 4 5

Listen to CD track 2. **Please rate the performance of the scale patterns on a scale of one to five.** While determining your score, please consider the same aspects as track 1.

Rating: 1 2 3 4 5

Listen to CD track 3. **Please rate the performance of the rhythmic improvisation on a scale of one to five in each of the two categories.** Aspects to be considered are listed below each category.

1. Rhythmic Accuracy

Steadiness of beat

Rhythmic feel

Steadiness of beat subdivisions (eighth notes, etc.)

Rating: 1 2 3 4 5

2. Style

Expression

Swing feel

Use of repetition

Feels the beginning and end of four measure phrases

Rating 1 2 3 4 5

Listen to CD track 4. **Please rate the performance of the minor pentatonic improvisation on a scale of one to five in each of the four categories.** Aspects to be considered are listed below each category.

2. Rhythmic Accuracy

Steadiness of beat

Rhythmic feel

Steadiness of beat subdivisions (eighth notes, etc.)

Rating 1 2 3 4 5

2. Style

Expression

Swing feel

Use of repetition

Feels the beginning and end of four measure phrases

Rating 1 2 3 4 5

3. Melodic Structure

Variation of melodic shapes (steps/skips, etc.)
Note accuracy
Use/development of motifs

Rating: 1 2 3 4 5

4. Technical Proficiency

Rhythmic complexity
Instrumental facility
Melodic range

Rating: 1 2 3 4 5

High School Participant:

Listen to CD track 5. **Please rate the performance of the minor pentatonic scale from one to five.** While determining your score, please consider the following aspects of technical proficiency:

Technical Proficiency

Time accuracy (steadiness of the beat)
Pitch accuracy
Consistency of tone (not tone quality, which may be affected by the recording quality)
Tonguing (articulation) accuracy

Rating: 1 2 3 4 5

Listen to CD track 6. **Please rate the performance of the scale patterns on a scale of one to five.** While determining your score, please consider the same aspects as track 1. Participants performed scales by memory.

Rating: 1 2 3 4 5

Listen to CD track 7. **Please rate the performance of the rhythmic improvisation on a scale of one to five in each of the two categories.** Aspects to be considered are listed below each category.

3. Rhythmic Accuracy

Steadiness of beat
Rhythmic feel
Steadiness of beat subdivisions (eighth notes, etc.)

Rating: 1 2 3 4 5

2. Style

Expression
Swing feel
Use of repetition
Feels the beginning and end of four measure phrases

Rating: 1 2 3 4 5

Listen to CD track 8. **Please rate the performance of the minor pentatonic improvisation on a scale of one to five in each of the four categories.** Aspects to be considered are listed below each category.

4. Rhythmic Accuracy

Steadiness of beat
Rhythmic feel
Steadiness of beat subdivisions (eighth notes, etc.)

Rating 1 2 3 4 5

2. Style

Expression
Swing feel
Use of repetition
Feels the beginning and end of four measure phrases

Rating 1 2 3 4 5

3. Melodic Structure

Variation of melodic shapes (steps/skips, etc.)
Note accuracy
Use/development of motifs

Rating 1 2 3 4 5

4. Technical Proficiency

Rhythmic complexity
Instrumental facility
Melodic range

Rating 1 2 3 4 5

Thank you very much for your participation!

Yours truly,

David Edmund

LIST OF REFERENCES

- Aebersold, J. (1978). *Charlie Parker omnibook*. Hollywood, CA: Atlantic Music.
- Aebersold, J. (1992). *Maiden voyage: Fourteen easy-to-play jazz tunes, Volume 54*. New Albany, IN: Jamey Aebersol Jazz, Inc.
- Aebersold, J. (2000). Articulations: How to better express yourself. Retrieved October 27, 2008, from http://www.aebersold.com/FQ/27_articulations.pdf.
- Azzara, C. (1993). Audiation-based improvisation techniques and elementary instrumental students' music achievement. *Journal of Research in Music Education*, 41(4), 328—342.
- Babad, B. (1999). *Jazz under construction: Blueprints for building interesting and expressive solos*. Master's Thesis, California State University, Long Beach. Retrieved December 31, 2008 from: <http://proquest.umi.com.lp.hscl.ufl.edu/pqdweb?did=734303641&sid=1&Fmt=2&clientI=20179&RQT=309&VName=PQD>
- Baker, D. (1983). *Jazz improvisation: A comprehensive method of study for all players*. Bloomington, IN: Frangipani Press.
- Bash, L. (1983). *The effectiveness of three instructional methods on the acquisition of jazz improvisation skills*. Doctoral Dissertation, University of New York, Buffalo. Retrieved January 3rd, 2008 from: <http://proquest.umi.com.lp.hscl.ufl.edu/pqdweb?index=0&did=748542461&SrchMode=2&sid=1&Fmt=6&VInst=PROD&VType=PQD&RQT=309&VName=PQD&TS=1238033014&clientId=20179>
- Bash, L. (1984). The relationships among musical aptitude, musical achievement, psychosocial maturity, sex, age, preliminary improvisation performances, and the acquisition of improvisation performance skill. In *Jazz research papers*, Manhattan, KS: NAJE Publications, pp. 6—12.
- Bash, L. (1991). Improving improvisation: Watch for the flags. *Music Educators Journal*, 78(2), 44—48.
- Bash, L., & Kuzmich, J. (1989). *Complete guide to instrumental instruction*. Los Angeles: Alfred Publishing Co., Inc.
- Beach, D., & Jarvis, J. (2002). *The jazz educator's handbook*. Delevan, NY: Kendor Music, Inc.
- Benward, B., & Wildman, J. (1977). *Jazz improvisation in theory and practice*. Dubuque, IA: Wm. C. Brown Publishers.
- Berg, S. (2002). Teaching resources-Three excerpts: 'Chopmonster.' *Jazz Education Journal*, 35(1), 43—45. Retrieved December 8, 2008 from: <http://iimp.chadwyck.com/journals/displayItemFromId.do?ItemID=JID07309791&QueryType=journals&DurUrl=Yes#issue30>

- Berliner, P. (1994). *Thinking in jazz: The infinite art of improvisation*. Chicago: University of Chicago Press.
- Bessom, M., Forcucci, S., & Tatarunis, A. (1980). *Teaching music in today's secondary schools*. New York: Holt, Rinehart and Winston.
- Bowman, W. (1988). Doctoral research in jazz improvisation pedagogy: An overview. *Bulletin of the Council for Research in Music Education*, 96, 47—76.
- Boyle, J. D., & Radocy, R. E. (1987). *Measurement and evaluation of musical experiences*. New York: Schirmer Books.
- Brisucuo, J. (1972). *A study of ability in spontaneous and prepared jazz improvisation among students who possess different levels of musical aptitude*. Doctoral dissertation, University of Iowa, Iowa City. Retrieved July 14th, 2008 from: <http://proquest.umi.com.lp.hscl.ufl.edu/pqdweb?index=0&did=760719041&SrchMode=2&sid=1&Fmt=6&VInst=PROD&VType=PQD&RQT=309&VName=PQD&TS=1237684196&clientId=20179>
- Brophy, T. (1998). *The melodic improvisations of children ages six through twelve: A developmental Perspective*. Doctoral dissertation, University of Kentucky, Lexington.
- Brophy, T. (2005). A Longitudinal study of selected characteristics of children's melodic improvisations. *Journal of Research in Music Education*, 53(2), 120—133.
- Burnsed, C. V. (1978). *The development and evaluation of an introductory jazz improvisation sequence for intermediate band students*. Doctoral dissertation, University of Miami, Coral Gables. Retrieved February 15th, 2008 from: <http://proquest.umi.com.lp.hscl.ufl.edu/pqdweb?index=2&did=755930511&SrchMode=2&sid=1&Fmt=6&VInst=PROD&VType=PQD&RQT=309&VName=PQD&TS=1238020649&clientId=20179>
- Burnsed, V., & Price, H. (1984). Improvisation and evaluation. In *Jazz research papers*. Manhattan, KS: NAJE Publications. pp. 35—42.
- Byo, S. J. (1999). Classroom teachers' and music specialists' perceived ability to implement the National Standards for Music Education. *Journal of Research in Music Education*, 47(2), 111—123.
- Campbell, G., Casale, J., Coker, J., & Greene, J. (1970). *Patterns for jazz*. Lebanon, IN: Studio Publications Recordings.
- Caramia, T., Collins, A., Dunscomb, M., Finkel, M., Roth, D., Salmon, J., et al. (2001). *Jazz studies guide*. Cincinnati, OH: Music Teachers National Association, Inc. & Manhattan, KS: International Association of Jazz Education.
- Chappell, J. (2007). General music: Using jazz to teach improvisation. *Teaching Music*, 15(3), 48.
- Clarke, H. L. (1984). *Technical studies for the cornet*. New York: Carl Fischer, Inc.

- Coggiola, J. (2004). The effect of conceptual advancement in jazz music selections and jazz experience on musicians' aesthetic response. *Journal of Research in Music Education*, 52(1), 29—42.
- Coker, J. (1970). *Patterns for jazz*. Lebanon, IN: Studio PR, Inc.
- Collier, J. (1993). *Jazz: The American theme song*. New York: Oxford University Press.
- Consortium of National Arts Education Associations. (1994). *National standards for arts education: What every young American should know and be able to do in the arts*. Reston, VA: MENC, The National Association for Music Education.
- Coughlin, K. (2005). *Beginning jazz clarinet studies volume I*. USA: SkyLeap music.
- Coughlin, K. (2006). *Beginning jazz clarinet studies volume II*. USA: SkyLeap music.
- Csikszentmihalyi, M. (1996). *Creativity: Flow and the psychology of discovery and invention*. New York: HarperCollins Publishers.
- Cutietta, R. & Stauffer, S. (2005). Listening Reconsidered. In D. Elliott (Ed.), *Praxial music education* (pp. 123—141). New York: Oxford University Press.
- Dobbins, B. (1988). Jazz and academia: Street music in the ivory tower. *Bulletin of the Council for Research in Music Education*, 96, 30—41.
- Droe, K., Geringer, J., Madsen, C., & MacLeod, R. (2006). The effect of articulation style on perception of modulated tempo. *Journal of Research in Music Education*, 54(4), 324—336.
- Dunscomb, R., & Hill, W. (2002). *Jazz pedagogy: The jazz educator's handbook and resource guide*. Miami: Warner Brothers Publications.
- Edwards, B., Griffin, F., & O'Meally, R. (2004). Introductory notes. In B. Edwards, F. Griffin, & R. O'Meally (Eds.), *Uptown conversation: The new jazz studies* (pp. 1—6). New York: Columbia University Press.
- Elliott, D. (1983). *Descriptive, philosophical and practical bases for jazz education: A Canadian perspective*. Doctoral dissertation, Cleveland, OH, Case Western Reserve University.
- Elliott, D. (1986). Jazz education as aesthetic education. *Journal of Aesthetic Education*, 20(1), 41—53.
- Elliott, D. (1995). *Music matters: a new philosophy of music education*. New York: Oxford University Press.
- Ferguson, L. (2004). Putting it together: Integrating jazz education in the elementary general music classroom. *Music Educators Journal*, 90(3), 28—33.

- Fischer, L. (2003). A typical master's jazz program in the United States [Electronic version]. *Jazz Education Journal*, article 133. Retrieved February 17, 2008 from <http://www.iaje.org/article.asp?ArticleID=133>
- Gabbard, K. (1995). Introduction: The jazz canon and its consequences. In Gabbard (Ed.), *Jazz among the discourses*, (pp. 1—28). Durham, NC: Duke University Press.
- Garber, F. (1995). Fabulating jazz. In K. Gabbard (Ed.), *Representing jazz* (pp. 70—103). Durham, NC: Duke University Press.
- Gleason, R. (Producer). (1995). *Jazz casual: Instrumentals volume I* [Motion Picture]. Los Angeles: Jazz Casual Productions, Inc and Rhino Home Videos.
- Goins, W. E. (2003). *The jazz band director's handbook: A guide to success*. Lewiston, NY: The Edwin Mellen Press.
- Gordon, E. (1965). *Musical aptitude profile manual*. Boston: Houghton Mifflin Company.
- Gordon, E. (1986). *Manual for the primary measures of music audiation and the intermediate measures of music audiation*. Chicago: G.I.A. Publications.
- Gould, C., & Keaton, K. (2000). The essential role of improvisation in musical performance. *Journal of Aesthetics and Art Criticism*, 58(2), 143—148.
- Gudmundson, J. (2006). It ain't what you say, but the way you say it: Jazz articulation for horns in the big band [Electronic version]. *Teaching Music*, 14(3), 38—42.
- Haerle, D. (1980). *The jazz language: A theory text for jazz composition and improvisation*. Miami: Warner Bros. Publication.
- Haerle, D. (1989). *The jazz sound: A guide to tune analysis and chord/scale choices for improvisation*. Milwaukee, WI: Hal Leonard.
- Hazell, E., Porter, L., & Ullman, M. (1993). *Jazz: From its origins to the present*. Englewood Cliffs, NJ: Prentice Hall.
- Hinton, P. R. (2004). *Statistics explained*. New York: Routledge.
- Hores, R. (1977). *A comparative study of visual and aural-oriented approaches to jazz improvisation with implications for instruction*. Doctoral dissertation, Indiana University, Bloomington.
- Horowitz, R. (1995). *The development of a rating scale for jazz guitar improvisation performance*. Doctoral dissertation, Columbia University Teachers College, New York.
- Humphreys, J., May, W., & Nelson, D. (2002). Research on music ensembles. In R. Colwell (Ed.), *New handbook of research on music teaching and learning*, (pp. 651—668). New York: Schirmer Books.

- Johnson-Laird, P. (1988). Reasoning, imagining and creating. *Bulletin of the Council for Research in Music Education*, 95(1), 71—87.
- Koopman, C. (2005). The nature of music and musical works. In D. Elliott (Ed.), *Praxial music education*, (pp. 79—97). New York: Oxford University Press.
- Laughlin, J. E. (2001). *The use of notated and aural exercises as pedagogical procedures intended to develop harmonic accuracy among beginning jazz improvisers*. Doctoral Dissertation, University of North Texas, Denton. Retrieved December 10, 2008 from: <http://proquest.umi.com.lp.hscl.ufl.edu/pqdweb?RQT=512&querySyntax=PQ&searchInterface=1&SrchMode=2&TS=1228939641&moreOptState=OPEN&clientId=20179>
- Lawn, R. (1995). *The jazz ensemble director's manual: A handbook of practical methods and materials for the educator*. Oskaloosa, IA: C. L. Barnhouse Company.
- Lehman, P. (1999, September 23-26). How can the skills called for in the national standards best be taught? *Vision 2020: The Housewright Symposium on the future of music education*. Retrieved October 12, 2006 from: <http://www.menc.org/publication/vision2020/pdfs.html>
- Madura, P. (1996). Relationships among vocal jazz improvisation achievement, jazz theory knowledge, imitative ability, musical experience, creativity and gender. *Journal of Research in Music Education*, 44(3), 252—267.
- Marcus, A. (2004). *The role of transcription in jazz improvisation: Examining the aural-imitative approach in jazz pedagogy*. Doctoral Dissertation, Ball State University, Muncie, IN. Retrieved December 22, 2008 from: <http://proquest.umi.com.lp.hscl.ufl.edu/pqdweb?did=765363681&sid=1&Fmt=2&clientId=20179&RQT=309&VName=PQD>
- Mark, M. (1987). The acceptance of jazz in the music education curriculum: A model for interpreting a historical process. *Bulletin of the Council for Research in Music Education*, 92, 15—22.
- Mark, M. (1996). *Contemporary music education*. Belmont, CA: Schirmer.
- May, L. (1998). *Relationships among jazz theory achievement, jazz aural skills, aural imitation, and achievement in instrumental jazz improvisation*. Unpublished doctoral dissertation, Indiana University, Bloomington.
- May, L. (2003). Factors and abilities influencing achievement in instrumental jazz improvisation. *Journal of Research in Music Education*, 51(3), 245—258.
- Meadows, E. (1995). *Jazz research and performance materials: A select annotated bibliography*. New York: Garland Publishing, Inc.
- Meadows, E. (2006). *Jazz scholarship and pedagogy: A research and information guide*. New York: Routledge Taylor & Francis Group.

- Meyer, L. (1989). *Style and music: Theory, history and ideology*. Philadelphia: University of Pennsylvania Press.
- McDaniel, W. (1974) *Differences in music achievement, musical experience, and background between jazz-improvising musicians and non-improvising musicians at the freshman and sophomore college levels*. Unpublished doctoral dissertation, University of Iowa, Iowa City.
- McNeil, J. (1999). *The Art of jazz trumpet*. Brooklyn: Gerard & Sarzin Publishing Co.
- McKeage, K. (2004). Gender and participation in high school and college instrumental jazz ensembles. *Journal of Research in Music Education*, 52(4), 343–356.
- McPherson, G. (1993). Evaluating improvisational ability of high school instrumentalists. *Bulletin of the Council of Research in Music Education*, 119, 11–20.
- Milkowski, B. (2001). The evolution of jazz education. *Jazz Education Guide*. Silver Springs, MD: Jazz Times, Inc.
- Partchey, K. (1973). *The effects of feedback, models and repetition on the ability to improvise Melodies*. Doctoral dissertation, Penn State University, College Station. Retrieved July 15th, 2008 from: <http://proquest.umi.com.lp.hscl.ufl.edu/pqdweb?index=1&did=759170901&SrchMode=2&sid=1&Fmt=6&VInst=PROD&VType=PQD&RQT=309&VName=PQD&TS=1237690551&clientId=20179>
- Paulson, J.C. (1985). *The development of an imitative instructional approach to Improvising effective melodic statements in jazz solos* Unpublished doctoral dissertation, University of Washington, Seattle.
- Pfenninger. (1990). *The development and validation of three rating scales for the objective measurement of jazz improvisation achievement*. Doctoral dissertation, Temple University, Philadelphia, PA. Retrieved October 17th, 2007 from: <http://proquest.umi.com.lp.hscl.ufl.edu/pqdweb?index=3&did=744331101&SrchMode=2&sid=1&Fmt=6&VInst=PROD&VType=PQD&RQT=309&VName=PQD&TS=1238033970&clientId=20179>
- Poulter, Z. (2008). *Teaching improvisation in your jazz ensemble: A complete guide for music educators*. Reston, VA: MENC.
- Pressing, J. (1987). The micro- and macrostructural design of improvised music. *Music Perception*, 5(2), 133–172.
- Reeves, S. (1989). *Creative jazz improvisation*. Englewood Cliffs, NJ: Prentice Hall.
- Regelski, T. (2005). Curriculum: Implications of aesthetic versus paraxial philosophies. In D. Elliott (Ed.), *Praxial music education*, (pp. 79–97). New York: Oxford University Press.
- Reimer, B. (2004). Reconceiving the standards and the school music program. *Music Educators Journal*, 91(11), 33–37.

- Rose, R. (1985). Eight elements of jazz improvisation. *Music Educators Journal*, 71(9), 6—47.
- Rowher, D. (2001). Instrumental music students' cognitive and performance understanding of musical expression. *Journal of Band Research*, 37(1), 17—28.
- Sawyer, R. (1999). Improvised conversations: Music, collaboration, and development. *Psychology of Music*, 27, 192—205.
- Sawyer, K. (2000). The Essential Role of Improvisation in Musical Performance. *The Journal of Aesthetics and Art Criticism*, 58(2), 149—161.
- Schilling, R. (1987). The feasibility of objective diagnostic measurement of jazz improvisation achievement. In *Jazz research papers*, 7, 160—169. Manhattan, KS: NAJE Publications.
- Sloboda, J. (1985). *The musical mind: The cognitive psychology of music*. New York: Oxford University Press.
- Taylor, B. (1986). Jazz: America's classical music. *Black Perspectives in Music*, 14(1), 21—25.
- Tumlinson, C. (1991). *Theoretical constructs of jazz improvisation performance*. Doctoral dissertation, University of North Texas, Denton. Retrieved December 26, 2008, from: <http://proquest.umi.com.lp.hscl.ufl.edu/pqdweb?did=745680411&sid=1&Fmt=2&clientId=20179&RQT=309&VName=PQD>
- Watkins, J.G. & Farnum, S.W. (1954). *The Watkins-Farnum performance scale*. Winona, MN: Hal Leonard.
- Webster, P. (1987). Conceptual bases for creative thinking in music. In Draper, T., Peery, I., & Peery, J. (Eds.), *Music and child development*, (pp. 158—176). New York: Springer-Verlag.
- Webster, P. (1990). Creativity as creative thinking. *Music Educators Journal*, 76(9), 22—28.
- Wehr-Flowers, E. (2006). Differences between male and female students' confidence, anxiety, and attitude toward learning jazz improvisation. *Journal of Research in Music Education*, 54(4), 337—349.
- Whyton, T. (2006). Birth of the school: Discursive methodologies in jazz education. *Music Education Research*, 8(1), 65—81.
- Wilson, S. (2002). *The jazz director's tool kit*. Efrain, UT: Jazz-studies.com.
- Zentz, D. (n.d.). Swing style interpretation. Retrieved October 25, 2008, from <http://www.zentz.org/swing.html>

BIOGRAPHICAL SKETCH

David Edmund earned his bachelor's degree in music education at the University of Florida. He earned his master's degree in music education with jazz studies emphasis at the University of North Texas. At North Texas, Edmund performed, toured, and recorded with the renowned One o' Clock Lab Band. Prior to pursuing his Ph.D., Edmund taught elementary music in Ruskin, Florida. At Ruskin, Edmund was elected 2001 Teacher of the Year. He initiated an afterschool elementary band program, which became a part of the core curriculum, meeting during the regular school day.

Edmund was awarded a Presidential Fellowship to pursue the Ph.D. in music education at the University of Florida. As a teaching assistant, he earned a university-wide Graduate Student Teaching Award. He is an in-demand lecturer in the areas of jazz history and jazz improvisation. His research emphasis is in musical style, popular music genres, and tonal musical language. Edmund has presented research at the University of Florida School of Linguistics, The University of North Texas 2007 Graduate Student Research Symposium, and the spring 2008 College Music Society regional conference at Louisiana State University. He has performed as a freelance trumpet player and taught privately throughout the state of Florida for more than thirteen years.