

CPRR  
ML  
1  
.M178  
v. 48  
2011

M J R M E

MISSOURI JOURNAL  
OF  
RESEARCH  
IN  
MUSIC EDUCATION

Number 48  
2011

Published by the  
Missouri Music Educators Association

## **EDITOR**

JOSEPH PARISI  
University of Missouri-Kansas City

## **PAST EDITOR**

CAROL MCDOWELL  
Coverdell Elementary School

## **MANAGING EDITOR**

MATTHEW UDLAND

## **EDITORIAL COMMITTEE**

MATTHEW FREDERICKSON  
Rockwood School District

DANIEL HELLMAN  
Missouri State University

CHARLES ROBINSON  
University of Missouri-Kansas City

BRIAN SILVEY  
University of Missouri-Columbia

WENDY SIMS, MMEA Research Chair (Ex Officio)  
University of Missouri-Columbia

LINDSEY WILLIAMS  
University of Missouri-Kansas City

FRED WILLMAN  
University of Missouri-St. Louis

## **BUSINESS OFFICE**

Missouri Music Educators Association  
3140-K East Raynell  
Springfield, MO 65804

## **EDITORIAL OFFICE**

Conservatory of Music and Dance  
University of Missouri-Kansas City  
4949 Cherry  
Kansas City, MO 64110-1516

Copyright © 2011 by the Missouri Music Educators Association, ISSN 00085-350X. The *Missouri Journal of Research in Music Education* is published annually and is a publication of the Missouri Music Educators Association. Copies can be obtained by sending \$5.00 (cash, check, or money order, payable to Missouri Music Educators Association) to Joseph Parisi, Editor, *MJRME*, University of Missouri-Kansas City, Conservatory of Music, 5228 Charlotte, Kansas City, MO 64110-1516. Inquiries relating to the availability and cost of back issues should also be directed to the Editor Elect. The *MJRME* is being listed in the INTERNATIONAL INDEX OF MUSIC PERIODICALS, THE MUSIC INDEX, the RILM ABSTRACTS OF MUSIC LITERATURE.

---



---

## Missouri Journal of Research in Music Education

### CONTENTS

---

Number 48  
2011

### INVITED AUTHOR

- |            |   |                                                                                |
|------------|---|--------------------------------------------------------------------------------|
| Wendy Sims | 3 | Happy 50th Anniversary, <i>Missouri Journal of Research in Music Education</i> |
|------------|---|--------------------------------------------------------------------------------|

### FEATURE ARTICLES

- |                                        |    |                                                                                                                                                       |
|----------------------------------------|----|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cory Ganschow                          | 10 | Examining the Factors of Perceived Efficacy in Pre-service Conductors: A Pilot Study                                                                  |
| Sandra Howard                          | 28 | The Effect of Memorization and Eye Contact on Evaluation of Solo Vocal Performances                                                                   |
| Joseph Parisi<br>&<br>Charles Robinson | 42 | University Band and Choral Students' Self-evaluations of Rehearsal and Concert Performance Recordings using Online and Traditional Written Procedures |
| Alan Zabriskie                         | 58 | Effect of Reverberation and Dynamics on Musicians' Ratings of Choral Tone Quality and Intonation                                                      |

## MISSOURI STUDENT ABSTRACTS

<i>Katie Joanne Ford</i>	68	Formative Assessment Practices and Preparation for Music Festival
<i>Kiersten Fair</i>	69	The Effect of Color-Coded Notation on the Rhythm Reading Skills of First Grade Music Students
<i>Meghann Bell Elwood</i>	70	The Effectiveness of Curwen Hand Signs and Corresponding Hand Movements on the Vocal Accuracy of Second Grade Students as Measured by Rutkowski's Singing Voice Development Measure

## 2012 Missouri Music Educators Association State Conference Research Poster Presentations

<i>Faculty Research</i>	71
<i>Student Projects</i>	72

## 2013 Missouri Music Educators Association State Conference Research Poster Presentations

<i>Call for Papers</i>	73
------------------------	----



## Happy 50<sup>th</sup> Anniversary, Missouri Journal of Research in Music Education

Wendy L. Sims  
Research Chair, Missouri Music Educators Association  
University of Missouri-Columbia

---

The founders of the *Missouri Journal of Research in Music Education* (*MJRME*) would surely be gratified and proud to know that the vision they brought to fruition in 1962 is still making a valuable contribution to the profession, fifty years later. In fact, the *MJRME* is the oldest continuously published state journal devoted to music education research. Given this important milestone, it is an appropriate time to review some history of the journal and acknowledge individuals who have made significant contributions to its development and progress.

Initially, the *MJRME* was published under the sponsorship of the government agency that time called the Missouri State Department of Education. Lewis B. Hilton, a professor at Washington University in St. Louis, and Alfred W. Bleckschmidt, Supervisor of Fine Arts Education in the Missouri State Department of Education, served as the founding Editor and Director of the journal, respectively. Editorial committee members listed in the journals initially included three to five individuals representing faculty from secondary schools and institutions of higher education throughout the state. Hilton and Bleckschmidt worked together for the *MJRME*'s first decade, through the publication of the 1972 issue. Apparently, Bleckschmidt retired during that year, because in the Preface to the 1973 issue, he was described as "emeritus" and thanked for his "invaluable contribution to the success of this journal. . ." (p. 3). This was a turning point for the journal, because this was the first issue published by the Missouri Music Educators Association (MMEA), which remains the publisher to date. This transition was acknowledged in the preface with a statement of thanks: "We express our deep gratitude to the Missouri Music Educators Association, and to it's president, Dr. Wynn Harren [sic], for so generously shouldering the Journal's financial burden to make it possible to continue to publish the [*MJRME*]" (p. 3 – note that the correct name is Dr. Wynne Harrell, who continues to serve MMEA as Executive Secretary).

According to the preface of Volume 1 Number 1, the *MJRME* was "a publication devoted to the needs and interests of the school and college music teachers of Missouri and of the nation" (1962, p. 4.). During these early years, "reports of research or experimentation in progress or completed" (p. 4), abstracts of graduate theses, philosophical articles, and articles by teachers reporting on successful pedagogical strategies were designated for inclusion. Authors of articles in the first three issues were college faculty, schoolteachers,



college students on the undergraduate and graduate levels, and "pupils in the secondary schools of Missouri" (1962, p.3). The first three issues each contain papers written by a Missouri high school student "as an example of the quality of work which can be done in academic music by interested high school students with proper faculty leadership," according to an editor's note (1963, p. 56). (Beginning with the fourth issue, high school student work was no longer evident.). The contents in the first two decades were highly diverse, from a treatise about the French horn by a St. Louis symphony member, to music literature reviews, theoretical analyses, and topics of music history, to pedagogical practices and materials; relatively few of the articles in each issue would be considered "music education research" by today's values. By the early 1980s, the highly eclectic nature of the articles had diminished and those published fit what would be considered more traditional music education research paradigms. One of the more unique aspects of the *MJRME*, and consistent with its mission as a state journal, has been a commitment to disseminate the work of Missouri graduate students by publishing the abstracts of their completed theses and dissertations.

The pattern of editorial leadership for the *MJRME* evolved over the years. In 1976 (Vol. 3 No.5), Hilton included an *Editor's note* in which he stated, "Having served as founder and editor of this Journal, starting fifteen years ago, it has occurred, perhaps a bit belatedly, to this editor, that is an appropriate time for new blood" (p. 4). He reported that the MMEA president had approved Jack Stephenson to take over as editor beginning in 1977. Stephenson served as editor until shortly before the publication of the 1986-1987 issue (Vol. 5 No. 4), which included a note explaining that he had passed away in September 1987. Around 1988, a new plan for editorial succession was developed and approved by the MMEA board. This plan included a two-year term for editors, followed by two years of service on the board in the position of past editor. An associate editor also was to be appointed for a two-year term, to serve as editor elect. Associate editors were elected by the editorial committee from among the committee's membership, which by this time had expanded to about nine members, serving in a rotation of overlapping six-year terms. By 2000, the editorial committee recognized that two years was too short a time for the editor to serve, and extended editorial terms to the current four years. Lists of the highly respected Missouri music educators from across the state who served the profession as *MJRME* Editors and *MJRME* Editorial Committee members may be found in Appendices A and B, respectively.

The *MJRME* is available in institutional libraries throughout Missouri, the United States, and several foreign countries, and a number of individuals also purchase subscriptions. Initially, the journal was not copyrighted, and a statement in the preface made note of that and granted readers the right to reproduce articles or excerpts without securing permission, but with attribution to the journal. In 1988, the first copyright notice and ISBN number appeared.



The journal has been indexed in The Music Index, International Index of Music Periodicals, and the RILM Abstracts of Music Literature.

Scanned copies of all issues of the *MJRME* through 2000 are available as free .pdf downloads from ERIC - the Education Resources Information Center, which is sponsored by the Institute of Education Sciences (IES) of the U.S. Department of Education (See Appendix C for ERIC retrieval numbers). The remaining issues are being prepared for posting to the MMEA website ([www.mmea.net](http://www.mmea.net)), where they also will be freely accessible.

To conclude on a personal note: I joined the Editorial Committee of the *MJRME* in 1987, and have served since then in various roles, including an ex officio position as the MMEA Research Chair. It has been interesting to experience the changes in the editorial review process, from the time when committee members spent a day sitting around a large table in a room in Columbia, passing the submitted manuscripts around and discussing their potential for publication, to the initiation of a blind review process on paper via the mail, to the all-electronic process currently in place. What have remained unchanged over the years, however, are the hard work of the many dedicated, talented individuals who have served on the Editorial Committee or as Editor, and the unwavering, enthusiastic support of the MMEA leadership. Happy birthday to you, *MJRME*, and many, many more!

**Author's Note:** The author would like to thank Melissa Baughman for her research assistance.

James Burk	University of Missouri-Columbia	1973-75
Jack L. Burton	University of Missouri-Kansas City	1974-75
Douglas Turpe	Tulsa Public Schools	1973-95
Lewis B. Hume	Washington University	1977-78
John L. Jones	University of Missouri-Kansas City	1977-82
Tilford Brooks	Washington University	1979-86
Paul Wilkins	University of Missouri-St. Louis	1979-2011
James Middleton	University of Missouri-Columbia	1981-86
Frank Koch	Central Missouri State University	1981-82
Pat Graham	Washington University	1985-86
Randall G. Pembrock	University of Missouri-Kansas City	1987-2002
Wendy Sims	University of Missouri-Columbia	1987-2011
Robert A. Hyman	University of Missouri-St. Louis	1987-95

## Appendix A

Editors, *Missouri Journal of Research in Music Education*, 1962-2012

Years	Editor	Affiliation
1962-1977	Lewis B. Hilton	Washington University
1977-1987	Jack R. Stephenson	University of Missouri-Kansas City
1988-1990	Frank W. Koch	Central Missouri State University
1991-1992	Wendy L. Sims	University of Missouri-Columbia
1993-1994	Randall G. Pembroke	University of Missouri-Kansas City
1995-1996	John B. Hylton	University of Missouri-St. Louis
1997-1998	Martin J. Bergee	University of Missouri-Columbia
1999	Charles R. Robinson	University of Missouri-Kansas City
2000-2003	William E. Fredrickson	University of Missouri-Kansas City
2004-2007	Carol McDowell	Southeast Missouri State University
2008-2011	Joseph Parisi	University of Missouri-Kansas City
2012-2015	Daniel Hellman	Missouri State University



## Appendix B

Editorial Committee Members,  
*Missouri Journal of Research in Music Education*, 1962-2011

Name	Affiliation (as it was listed at the time of initial membership)	Year
Kenneth Dustman	Southeast Missouri State University	1962
Archie Jones	Conservatory of Music of the University of Kansas City	1962
Lansing Bulgin	Northeast Missouri State Teachers College	1962-63
Ralph Hart	Central Missouri State College	1962-63
Paul Mathews	University of Missouri-Columbia	1962-63
Leon Karel	Northeast Missouri State Teachers College	1964-72
M.O. Johnson	Independence Public Schools	1964-75
F. Bion McCurry	Southwest Missouri State University	1964-86
Charles Emmons	University of Missouri-Columbia	1964; 1973-80
Alex Zimmerman	University of Missouri-Columbia	1971-72
Jack Stephenson	University of Missouri-Kansas City	1971-87
James Burk	University of Missouri-Columbia	1973-76
Jack L. Ralston	University of Missouri-Kansas City	1975-78
Douglas Turpin	Parkway Public Schools	1975-95
Lewis B. Hilton	Washington University	1977-78
June T. Jetter	University of Missouri-Kansas City	1977-92
Tilford Brooks	Washington University	1979-86
Fred Willman	University of Missouri-St. Louis	1979- 2011
James Middleton	University of Missouri-Columbia	1981-86
Frank Koch	Central Missouri State University	1981-92
Pat Shehan	Washington University	1985-86
Randall G. Pembroke	University of Missouri-Kansas City	1987- 2003
Wendy Sims	University of Missouri-Columbia	1987- 2011
John B. Hylton	University of Missouri-St. Louis	1987-98

Martin Bergee	University of Missouri-Columbia	1987-99; 2002-07
Steven Miller	Springfield Public Schools	1991-94
Charles R. Robinson	University of Missouri-Kansas City	1992- 2001; 2004-11
William Fredrickson	University of Missouri-Kansas City	1994- 2005
Marilyn Gunn	Independence Public Schools	1994-99
Suzanne Rita Byrnes	Kansas City, Missouri	1995
Norma McClellan	Southwest Missouri State University	1996- 2011
William Richardson	University of Missouri-St. Louis	1996- 2001
Carol McDowell	Southeast Missouri State University	2000-11
Robert Groene	University of Missouri-Kansas City	2000-09
Paul Henley	Southwest Missouri State University	2002- 2003
Joseph Parisi	University of Missouri-Kansas City	2003- 2011
John Southall	University of Missouri-St. Louis	2004
Cathi Wilson	University of Missouri-Columbia	2006- 2007
Daniel Hellman	Missouri State University	2007- 2011
Lindsey Williams	University of Missouri-Kansas City	2008- 2011
Matthew Frederickson	Rockwood School District	2010- 2011
Brian Silvey	University of Missouri-Columbia	2010- 2011



## Appendix C

*Missouri Journal of Research in Music Education* Issues Available from ERIC - the Education Resources Information Center ([www.eric.ed.gov](http://www.eric.ed.gov))

Volumes/Numbers	Dates	Eric Retrieval Number
Volume 1, Numbers 1-5	1962-1966	ED459091
Volume 2, Numbers 1-5	1967-1971	ED459092
Volume 3, Numbers 1-5	1972-1976	ED459093
Volume 4, Numbers 1-5	1977-1981	ED459094
Volume 5, Numbers 1-5	1982-1988	ED459095
Numbers 26-31	1989-1994	ED459096
Numbers 32-37	1995-2000	ED459097

## Examining the Factors of Perceived Efficacy in Pre-service Conductors: A Pilot Study

Cory M. Ganschow  
University of Missouri-Kansas City

*The purpose of the current study was (1) to assess pre-service conductors' choral fundamental element hierarchies, and (2) to investigate perceived levels of conductor efficacy regarding conductor hierarchy and teaching behaviors. Participants (N=29) were singers from an intact concert choir at a large Midwestern university. The singers were asked to evaluate four pre-service conductors, each conducting an eight-minute rehearsal on an assigned piece. Each evaluation was based on conductor rehearsal focus, strengths, weaknesses, and level of efficacy. Results indicated that out of the seven fundamental choral elements listed as possible foci for the rehearsal: (a) rhythm, (b) pitch, (c) dynamics, (d) blend, (e) balance, (f) phrasing, and (g) diction, dynamics was perceived to be the element given the most focus by the conductors overall. Analysis of data delineated that in most cases, when the majority of singers perceived a conductor to have focused on the same specific choral fundamental element, the conductor was indicated as being more effective. Singers were also asked to make written comments about each conductor's strength and need for improvement. Results indicated that when singers were asked to comment on the strength of each conductor, the majority of comments were about demeanor; when asked to comment on the element that needed improvement, singers indicated weakness in gesture. Results may lead to more artistic leadership and effective rehearsal pedagogy from choral directors and better methods courses for pre-service conductors*

---

Extensive research literature is prevalent suggesting numerous approaches to conducting an effective choral rehearsal. A review of recent research reveals a focus on specific conductor behaviors and priorities that allow for effective rehearsals. Researchers have found that effective teaching is characterized by strong verbal and nonverbal communication skills (Buck & Van Lear, 2002), high intensity (Madsen & Geringer, 1989; Price & Winter, 1991), and verbal fluency (Madsen, Standley, & Cassidy, 1989; Madsen & Geringer, 1989; Price & Winter, 1991). The use of gesture as a communication is also important in a choral rehearsal. Bergee (1992) investigated conductor effectiveness regarding the relationship between gesture (nonverbal), rapport, and verbal instruction (verbal), and found that gesture directly correlated with rapport and instructional skills. Conversely, Price and Chang (2005) investigated the



interaction between conductor expressivity and subsequent ensemble expressivity. Their findings contradicted earlier research that found strong correlations between nonverbal behaviors and performances (Bergee, 1992; House, 2000). The results showed no significant relationships between expressivity of the conductor and expressivity of the ensemble.

In addition to teacher communication skills, it is imperative how teachers structure rehearsals. Although effective rehearsal pedagogy includes balanced pacing (Goolsby, 1996; Cox, 1989) instruction differentiation (Madsen and Geringer, 1983), and proper sequencing of activities to meet objectives (Jordan, 1997; Moore, 2008; Pfautsch, 1973), empirical research on effective prioritizing of fundamental choral elements and general approach to rehearsing music in a choral setting is lacking. This study aimed to explore pre-service conductor efficacy based on singers' perceptions of conductors' (1) pedagogical decisions concerning the prioritization of fundamental choral elements and (2) ability to deliver successful verbal and nonverbal instruction based on those intentional decisions.

### *Fundamental Choral Element Rehearsal Priorities*

Choral directors historically diverge in opinion when it comes to the factors that influence choral sound. Swan (1973) suggested that there are six fundamental choral elements that influence a choral sound: blend, rhythmic exactness, phrasing, balance, dynamics, and pronunciation. The degree of emphasis asserted on each of these elements in a choral setting has a profound effect on the resulting tone quality and choral sound. Ultimately, it is the conductor of the ensemble that is responsible for making artistic decisions about the way his/her choir rehearses and creates music. Researchers suggest that a relationship exists between vocal and choral element emphasis and the development of particular vocal attributes (Corbin, 1982; Overturf, 1995; Ulrich, 1993), intimating that the time spent in rehearsal on various elements is the determining factor.

Few researchers have studied rehearsal priorities concerning the musical elements. Some have identified that phrasing, dynamics, and rhythmic time were the most emphasized elements in rehearsal (Thurman, 1977), while tone color was emphasized the least (Thurman, 1977; Caldwell, 1980). Others have found that the element with the greatest importance was pitch (Caldwell, 1980). Similarly, Moore (1995) found pitch, timbre, and rhythm to be the fundamental choral elements with the highest priority. Moore interviewed 14 outstanding university choral conductors and found that thirteen of the fourteen conductors classified the following components of choral ensemble: tempo, phrasing, balance, timbre, breathing, pitch, and rhythm, as the technical components of choral ensemble. In as much, respondents noted melody, harmony, and text as expressive elements. Several indicated that it was difficult to separate the elements from one another while in a conducting context. Blend, an element



omitted from Moore's classification of technical and expressive components, is also generally considered to be another large fundamental component in determining a resulting choral sound (Collins, 1999). The current study utilized seven fundamental choral elements chosen by the researcher after reviewing previous research and discussing categories with colleagues: (a) rhythm, (b) pitch, (c) dynamics, (d) blend, (e) balance, (f) phrasing, and (g) diction.

### *Blend*

Blend is commonly a controversial factor in conductors' rationales toward achieving good tone. Conductors appear to have one of two schools of thought regarding choral tone and blend. Some believe that "it is possible to have a choir that sings with a vibrant, full tone, and yet sings as one voice" (Smith, 2003, p. 39). Jordan (1984) agreed with that sentiment and charged that the individual voice should be used freely in order for beautiful blend to occur. Conversely, other conductors believe that blend is an "ensemble sound in which individual voices are not specifically discernible to the listener" (Goodwin, 1980, p. 119).

Wyatt (1967) asked participants to respond to differing approaches of individual responsibility to choral blend and found that the majority of participants adhered to the principle of free vocal production. Robert Scholtz, conductor of the Viking Men's Chorus at St. Olaf, says that this preference is the mainstream of modern-day American choral singing. In his interviews with selected collegiate choral conductors, Knutson (1987) suggested that we might be moving away from a historically straight-tone approach and towards a more soloistic sound quality. Others remain authentic to the early 20<sup>th</sup> century a cappella tradition.

### *Dynamics*

Dynamics are one of the first fundamentals children experience in many elementary music curricula. The introduction of loud and soft comes very early in the primary grades (Chosky, 1998) and continues to expand and be regarded as an important element in music-making. As musicians progress, dynamics seem to remain an important element that adds nuance and character (Paine, 1989); by increasing the magnitude of dynamic range, a choir can appear more powerful to audiences (Wilson, 1959).

### *Rhythm*

Rhythmic Integrity is one of the most important facets of good choral singing (Shaw & Blocker, 2004). Many conductors seem to spend the majority of their time promoting precise rhythm from their singers. Anecdotal evidence suggests that conductors employ neutral syllables, clapping, tapping,



self-conducting, and metronomes to promote good rhythm in rehearsals as well. Interestingly, Davison (1971) said that rhythmic choral singing is not a separate entity. He alluded to the fact that rhythmic stability and exactness come from focusing on the six choral fundamental elements he adheres to: (a) tone, (b) breathing, (c) pronunciation, (d) phrasing, (e) variety in dynamics, and (f) impressiveness. Davison points out that rhythm is directly related to the other fundamentals. Pfautsch (1988) also linked rhythm with other fundamentals charging that diction problems are just a result of lazy rhythmic practices.

### *Diction*

Diction is imperative for choral success, yet it can be one of the most challenging aspects (Openshaw, 1995); in order to achieve great diction, conductors must know what extraneous factors affect it (Garretson, 1998). Diction is a combination of "accent, inflection, intonation, and speech-sound quality manifested by an individual [singer]" (Diction, 2010). Consistent attention to matched vowels and lucid consonants appears to be a way conductors reach good diction.

The main component that separates choral music from instrumental music is text which can be an important element for emotion and expression (Alderson, 1979).

### *Pitch*

Accurate pitch is paramount to good choral singing. Garretson (1993) refers to intonation from a historical perspective, mentioning that with the rise of the a cappella choral movement at the beginning of the twentieth century, perfect intonation and precise pitch almost became an obsession. The obsession and fixation on pitch and intonation in a rehearsal can often confuse and frustrate singers (Pfautsch, 1988, p. 102), although intonation is an extremely important factor in choral performance quality (Openshaw, 1995; Garretson, 1998).

James Marvin affirms:

"When a choir sings in tune, the listener is allowed to hear more clearly the music's structural components: harmony, melody, rhythm, and texture. Thus, singing in tune heightens the awareness of structure, which facilitates communication" (Paine, 1988, p. 29).

### *Balance*

Garretson (1998) asserts that attaining balance among sections is an imperative facet to creating a good ensemble sound. Preference for vocal balance differs among musicians. Some may prefer more or less of one voice part, or may prefer an equal balance of all parts (Swan, 1973). Killian (1985)



found that participants preferred significantly less bass when listening to four-part chorales, however factors such as acoustics, dynamic level, and singer placement affect the overall perception of balance within a choir.

### *Phrasing*

Paine (1988) explains that phrasing is created from the varying intensity and duration of pitches. Gabriellson (1987) expands this point, referring to musical phrasing as a construct of tempi and dynamics that are manipulated into an arch-like shape. Phrasing is consistently described as a vital part to achieving expression.

Charles Hirt, in an interview with McEwan (1961), emphasized that expressing the meaning of a piece of music is the most important goal. All of the fundamentals of choral technique such as rhythm, pitch, blend, diction, intonation, tone color are important in terms of producing a choral sound of great quality, but choral music must depend on expression to be complete (Moore, 1995).

### *Factors of Conductor Effectiveness*

Conductors convey the importance of communication between conductor and ensemble. As with any discipline, communication is often classified as verbal or nonverbal behaviors and are most often seen as "interacting streams of spontaneous and symbolic communication" respectively (Buck & VanLear, 2002, p. 1). Researchers have found that effective teaching was characterized by strong verbal and non-verbal communication skills, high intensity, and verbal fluency (Madsen, Standley, & Cassidy, 1989; Madsen & Geringer, 1989). Furthermore, Bergee (1992) investigated conductor effectiveness regarding the relationship between gesture (non-verbal), rapport, and verbal instruction (verbal), and found that gesture directly correlated with rapport and instructional skills.

### *Gesture*

Gesture and verbal instruction are symbiotic in nature, and may either enhance or damage instruction (Con, 2002).

Researchers suggest that size, shape and intensity of the gesture help depict what the conductor is trying to convey (Phillips, 1997; Cofer, 1998; Byo, 1990). Consistent with previous research regarding experience and evaluation (Hamann et. al., 2000; Standley & Madsen, 1991), Byo (1990) found that intensity of the gesture was recognized across all levels of experience, though those with more experience were more accurate in identifying the specific contrasts between intensity levels.



### *Non-gestural Nonverbal Behaviors*

Non-gestural nonverbal behaviors are often as important as verbal behaviors. Julian (1989) highlighted the significance of unintentional nonverbal behavior even before the conductor steps into the podium to conduct. Students' observations of a conductor's appearance can influence a conductor's overall perceived efficacy. Literature suggests that non-gestural nonverbal behaviors include: eye contact, posture, and facial expressions (Price & Winter, 1991; VanWeelden, 2002; Green, 1997, Phillips, 1997). Researchers have shown moderate correlations between all three of these factors and the conductor's performance rating (VanWeelden; Price & Winter; Green).

### *Verbal Instruction*

Dickey (1991) discusses that when more than gesture is necessary, there are two other viable options: modeling and verbal instruction. Research into this area suggested that students who were in classes receiving modeling performed significantly higher on ear-to-hand and kinesthetic tests than those who only received verbal instruction. However, there are differences regarding which strategy is more effective. Sparks (1984) suggested that teachers who observed students frequently and closely, had excellent pacing, and gave clear instruction were effective. Additionally, regardless of the academic content of a lesson, delivery of the content influences the interest level from students (Hamann et. al., 2000).

### *Purpose*

The purpose of the current study was to investigate conductor effectiveness and contributing factors by (1) assessing pre-service conductors' choral fundamental element hierarchies, and (2) to exploring perceived levels of conductor efficacy with respect to conductor hierarchy and teaching behaviors.

## **Method**

### *Sample*

Participants for this study were members from an intact concert choir at a large Midwestern university. Sixty college-age young adults were identified as possible participants for this study. Out of the sixty potential participants, only 29 participants completed all directions correctly, as instructed, and were employed in this study. The sample was composed of 12 male and 17 female participants, categorized as freshmen ( $N=12$ ), sophomores ( $N=8$ ), juniors ( $N=3$ ), seniors ( $N=5$ ), or graduate students ( $N=1$ ). Participants were also identified as



vocal music majors ( $N=17$ ), instrumental music majors ( $N=7$ ) and non-majors ( $N=5$ ). The 29 participants were asked to evaluate 16 pre-service conductors based on their perceived level of efficacy, area of strength, need for improvement, and rehearsal focus.

Pre-service conductors were enrolled in the undergraduate beginning conducting class Fall Semester 2011. Throughout the semester of the class, the 16 conductors in the class learned about conducting gesture, teaching behaviors, rehearsal pedagogy, and musicianship. Several weeks before the end of the semester, each conductor was assigned a different piece of repertoire (four conductors for each of the four pieces). He/she would prepare and plan an eight minute mini-rehearsal to conduct during one of four pre-determined rehearsals with the university's concert choir. The class instructor assigned standard repertoire pieces that had readable melodies and moderate tempi. The pieces included: (a) *Live-A-Humble*, arr. by Peter Bagley, (b) *April is in My Mistress' Face*, by Thomas Morley, (c) *Elohim Hashivenu*, by Salamon Rossi, and (d) *Early one morning*, arr. by Edward Higginbottom. One conductor for each piece was assigned for each day.

### *Procedure and Instrumentation*

At the beginning of each of the four rehearsals, participants received a packet containing a brief demographic survey (See Appendix A), four conductor evaluation forms (See Appendix B), and a packet of music. Participants were asked to evaluate four different undergraduate conductors in each rehearsal.

Conductors were asked to run the piece once (a specific set of measures was given to those students with longer pieces), rehearse a few minutes on musical elements/concepts of their choice, and run the piece again within an eight-minute time limit.

During the first session, the moderator gave instructions (See Appendix C for transcription) to the participants explaining the purpose, process and procedures. After instructions were given, the first conductor stepped onto the podium and conducted her rehearsal. The participants sang their respective voice parts and acted as the choir for each conductor.

After each conductor finished, the participants filled out an evaluation form (See Appendix B) about the conductor regarding his/her strengths, weaknesses, rehearsal focus, and level of efficacy.

Due to the lack of consistency in singer participation across the four consecutive days, the researcher used the conductor/singer data received on the first rehearsal day since the largest amount of acceptable responses were collected during that session.



## Results

The purpose of the current study was (1) to assess pre-service conductors' choral fundamental element hierarchies, and (2) to investigate perceived levels of conductor efficacy regarding conductor hierarchy and teaching behaviors.

### *Research purpose one: Pre-service conductors' choral fundamental element hierarchies*

Out of the seven fundamental choral elements listed: (a) rhythm, (b) pitch, (c) dynamics, (d) blend, (e) balance, (f) phrasing, and (g) diction, dynamics was perceived to be the element given the most focus by the conductors overall; Results are summarized in Table 1.

Table 1. *Reported number of overall responses regarding the choral fundamental elements given the most focus in rehearsal.*

Fundamental Choral Element	Number of Responses
Rhythm	11
Pitch	14
Dynamics	41
Blend	6
Balance	7
Phrasing	34
Diction	3

Analysis of choral fundamental element focus was calculated for each individual conductor (conductor A, conductor B, conductor C, and conductor D). Results are summarized in Tables 2, 3, 4, and 5 respectively.

Table 2. *Reported number of responses regarding the choral fundamental elements given the most focus in conductor A's rehearsal.*

Fundamental Choral Element	Number of Responses
Rhythm	7
Pitch	13
Dynamics	1
Blend	0
Balance	3
Phrasing	5
Diction	0

Table 3. *Reported number of responses regarding the choral fundamental elements given the most focus in conductor B's rehearsal.*

Fundamental Choral Element	Number of Responses
Rhythm	0
Pitch	0
Dynamics	21
Blend	1
Balance	1
Phrasing	3
Diction	3

Table 4. *Reported number of responses regarding the choral fundamental elements given the most focus in conductor C's rehearsal.*

Fundamental Choral Element	Number of Responses
Rhythm	4
Pitch	1
Dynamics	1
Blend	5
Balance	1
Phrasing	17
Diction	0

Table 5. *Reported number of responses regarding the choral fundamental elements given the most focus in conductor D's rehearsal.*

Fundamental Choral Element	Number of Responses
Rhythm	0
Pitch	0
Dynamics	18
Blend	0
Balance	2
Phrasing	9
Diction	0

*Research purpose two: Perceived levels of conductor efficacy regarding conductor hierarchy and teaching behaviors.*

Participants were asked to rate each conductor on a 5-point Likert-type scale (1=least effective; 5=most effective). Responses of a 1, 2, or 3 were categorized as "less effective," and a response of a 4 or 5 as "more effective." Three out of four conductors (A, B, and D) were seen as more effective; conductor C was seen as less effective. Frequencies are summarized in Table 6.



Table 6. *Reported frequencies of perceived effectiveness (1=least effective; 5= most effective) of the conductors.*

Effectiveness Score	1	2	3	4	5
Conductor A	0	2	9	14	4
Conductor B	0	0	2	13	14
Conductor C	1	1	17	9	1
Conductor D	0	0	2	7	20

In most cases, when the majority of singers perceived a conductor to have focused on the same specific choral fundamental element, the conductor was indicated as more effective.

Singers were asked to make written comments about each conductor's strength and need for improvement. The researcher coded each comment as addressing (1) gesture (for the purposes of this study, eye-contact was included as part of the gesture category), (2) teaching technique, (3) demeanor, or (4) musicianship. Coding was checked for reliability ( $r=.92$ ). When singers were asked to comment on the strength of each conductor, the majority of comments were about demeanor; when asked to comment on the element that needed improvement, singers indicated weakness in gesture. Frequencies of strengths and needs for improvement comment types are summarized in Tables 7 and 8 respectively.

Table 7. *Reported frequencies of comment types when participants were asked to comment on conductor strength.*

Conductor	Comment			
	Gesture	Teaching Technique	Demeanor	Musicianship
A	12	7	5	4
B	2	10	13	4
C	7	11	9	2
D	1	6	20	2
Overall	22	24	47	12

Table 8. *Reported frequencies of comment types when participants were asked to comment on conductor need for improvement.*

Conductor	Comment			
	Gesture	Teaching Technique	Demeanor	Musicianship
A	7	5	15	1
B	19	0	4	5
C	7	4	16	2
D	13	3	3	6
Overall	46	12	38	14

Crosstabs were run on data and no statistically significant differences were found between perceived effectiveness levels and type of comments made, however, important observations were made that warrant further research and are discussed.

### Discussion

Out of the seven fundamental choral elements listed on the response sheet: (a) rhythm, (b) pitch, (c) dynamics, (d) blend, (e) balance, (f) phrasing, and (g) diction, dynamics was perceived to be the element given the most focus by the conductors overall; these results reiterate findings by Thurman (1977). However, the results of the current study also seem to contradict findings in other similar studies. Though a direct comparison cannot be made, Caldwell (1980) found that in a time analysis of verbal behavior, conductors spent most of their time on pitch accuracy. Dynamics were only emphasized 13.4% of the rehearsal time. Likewise, Ganschow (2010) found that conductors ranked themselves as putting the least amount of emphasis on dynamics in rehearsal. Discrepancies may be attributed to the differences in data collection sources. What conductors perceive, singers perceive, and what actual time analysis may show could all produce incongruent responses stemming from the same rehearsal fragment. Further research investigating the relationships between conductor intention, conductor performance, and singer perception seemed warranted.

Blend and diction were perceived as having the least amount of attention from conductors. Moore (1995) interviewed fourteen outstanding university choral conductors about the important aspects of choral ensemble. Tempo, phrasing, balance, timbre, breathing, pitch, and rhythm were agreed upon by 13 of the conductors as being the technical components of choral ensemble; the same components, plus text, harmony, and melody, were also seen as the expressive components of choral ensemble" (p. 62). Blend was not one of the elements chosen. Caldwell (1980) and Thurman (1977) chose to exclude blend in their studies as well. Perhaps it is the abstract and subjective nature of blend that is difficult not only for conductors in general, but specifically pre-service conductors. Pfautsch (1973) suggests that blend is a natural product of the other fundamental elements when executed correctly and does not need to be addressed separately (p. 103). Depending on a conductor's choral background, working on blend in a specific context may or may not be in his/her vocabulary.

Due to the nature of the pre-set conducting class, the pieces assigned to the students were relatively, but not equally the same in tempo, range, style, or genre. This pilot study could be piloted again in a larger study incorporating conductors that all conduct the same piece of music to control for variances.

With regard to diction, Openshaw (1995) stated that diction is the "most challenging aspect of choral singing" (p. 33). Pre-service conductors may



have felt that, in an eight-minute rehearsal, proper diction might not have been achieved. Future explorations utilizing longer rehearsal time frames seem appropriate.

In the majority of cases, when the majority of singers perceived a conductor to have focused on the same specific choral fundamental element, the conductor was indicated as more effective. It may be that when a conductor is extremely clear with his/her intention and direction, levels of perceived efficacy increase. Several suggest that clear intention and direction are imperative in effective teaching (Green, 1996; Miller, 2008; Sparks, 1984).

After each conductor rehearsal, singers were asked to complete two open-ended questions about the conductor's most prominent strength and his/her need for improvement. When singers were asked to comment on the strength of each conductor, the majority of comments were about demeanor; when asked to comment on the element that needed improvement, singers indicated weakness in gesture. Singers frequently mentioned eye contact, a part of gesture, suggesting that it may be important for conductors to have good eye contact with their ensemble. These findings are concordant with existing literature (Green, 1997; Price & Winter, 1991; Madsen, Standley & Cassidy, 1989). In a similar trend to existing research, results suggest that gesture is an essential component in deciding conductor efficacy.

Several researchers that focused on demeanor and intensity of teaching presentation state that regardless of lesson content, teacher delivery skills enhance student engagement and interest (Hamann, Baker, McCallister, & Bauer, 2000; Madsen & Duke, 1993; Madsen, Standley, & Cassidy, 1989).

Though no statistically significant differences were found between demeanor and perceived levels of efficacy, it is important to note that the majority of those who found Conductor C less effective made a comment about demeanor when asked about conductor need for improvement. The lack of an engaging demeanor may correlate with lower efficacy levels. Further research utilizing a larger population is needed. All of the participants in the study were also the singers within the rehearsal. Continuing this research with the addition of participants watching the rehearsal from a video-recording and participants who were both more/less experienced non-musicians may produce vastly different results. Teachout (1997) found that both pre-service and experienced teachers placed teaching skills much higher than musical skills, however, participants who were not teachers were not included in the study.

Further implications for this research topic may lead to more artistic leadership and effective rehearsal pedagogy from choral directors and better methods courses for pre-service conductors.

### *Limitations*

Limitations of this study include a small sample, making it inappropriate to generalize these data to the larger population. Due to accessibility limitations,



the participants chosen were from an intact Concert Choir. Participants were also the singers used for the rehearsal. It seems reasonable to assume that accurate observation may have been compromised due to the multi-tasking nature of their participation. Additionally, since only the first day of data was utilized because of consistency issues regarding students following directions, this study should be replicated using all four days of data.

### References

- Alderson, R. (1979). *Complete handbook of voice training*. West Yack, NY: Parker Publishing Company, Inc.
- Bergee, M. J. (1992). A scale assessing music student teachers' rehearsal effectiveness. *Journal of Research in Music Education*, 40(1), 5-13.
- Buck, R. & VanLear, C. A. (2002). Verbal and nonverbal communication: Distinguishing symbolic, spontaneous, and pseudo-spontaneous nonverbal behavior. *Journal of Communication*, 52, 522-541.
- Byo, J. L. (1990). Recognition of intensity contrasts in the gestures of beginning conductors. *Journal of Research in Music Education*, 38(3), 157-163.
- Caldwell, W. (1980). *A time analysis of selected musical elements and leadership behaviors of successful high school choral conductors* (Doctoral dissertation). Retrieved from ProQuest. (AAT 802 0349)
- Chosky, L. (1998). *The Kodaly method I: Comprehensive music education* (3<sup>rd</sup> ed.). Edgewood Cliffs, NJ: Prentice-Hall.
- Cofer, R. S. (1998). Effects of conducting-gesture instruction on seventh-grade band students' performance response to conducting emblems. *Journal of Research in Music Education*, 46(3), 360-373.
- Collins, D. (1999). *Teaching choral music*. Edgewood Cliffs, NJ: Prentice-Hall.
- Con, A. J. (2002). *The life and philosophy of choral conductor Rodney Eichenberger, Including detailed analysis and application of his conductor-singer gestures* (Doctoral dissertation). The Florida State University, Tallahassee, FL.
- Cooksey, J. A. (1977). A facet-factorial approach to rating high school choral music performance. *Journal of Research in Music Education*, 25, 100-114.
- Corbin, L.A. (1982). *Vocal pedagogy in the choral rehearsal: The influence of selected concepts on choral tone quality, student understanding of the singing process, and student attitudes toward choir participation* (Doctoral dissertation). Retrieved from ProQuest. (AAT 8300226)
- Davison, A. (1971). *Choral Conducting* (13th edition). Cambridge, MA: Harvard University Press.
- Dickey, M. R. (1991). A comparison of verbal instruction and nonverbal teacher-student modeling in instrumental ensembles. *Journal of Research in Music Education*, 39(2), 132-142.
- Diction. (2010). *Dictionary.com*. Lexico Publishing Group. Retrieved from <http://www.dictionary.reference.com/browse/diction>



- Gabrielsson, A. (1987). Once again: The theme from Mozart's piano sonata in A major (K. 331) A comparison of five performances. In A. Gabrielsson (ed.), *Action and Perception in Rhythm and Music*, Stockholm: Royal Swedish Academy of Music, Publication No. 55, (pp. 81-103).
- Ganschow, C. M. (2010). *An analysis of high school directors' fundamental choral technique hierarchies regarding ideal choral sound and repertoire selection practices: A pilot study*. Unpublished manuscript.
- Garretson, R. L. (1993). *Choral music: History, style, and performance practice*. Edgewood Cliffs, NJ: Prentice Hall.
- Garretson, R. L. (1998). *Conducting choral music* (8<sup>th</sup> ed.). Upper Saddle River, NJ: Prentice Hall.
- Green, E. A. H. (1997). *The modern conductor* (6<sup>th</sup> ed.). Upper Saddle River, NJ: Prentice Hall.
- Hamann, D. L., Baker, D. S., McCallister, P. A., & Bauer, W. I. (2000). Factors affecting University music students' perceptions of lesson quality and teaching effectiveness. *Journal of Research in Music Education*, 48(2), 102-113.
- Jordan, J. (1984). False blend: A vocal pedagogy problem for the choral conductor. *Choral Journal*, 24(10), 25-27.
- Julian, F. D. (1989). Nonverbal communication: Its application to conducting. *Journal of Band Research*, 24(2), 49-54.
- Killian, J. (1985). Operant preference of vocal balance in four-voice chorales. *Journal of Research in Music Education*, 32, 55-67.
- Knutson, B. J. (1987). *Interviews with selected choral conductors concerning rationale and practices regarding choral blend* (Doctoral dissertation). Retrieved from ProQuest. (AAT 8802564)
- Madsen, C. K., and Duke, R. A. (1993). Selection and development of prospective music teachers. *Journal of Research in Music Education*, 3, 5-11.
- Madsen, C. K., & Geringer, J. M. (1983). Attending behavior as a function of in-class activity in university music classes. *Journal of Music Therapy*, 20, 30-38.
- Madsen, C. K., & Geringer, J. M. (1989). The relationship of teacher "on task" to intensity and effective teaching. *Canadian Music Educator*, 30, 87-94.
- Madsen, C. K., Standley, J. M., & Cassidy, J. W. (1989). Demonstration and recognition of high and low contrasts in teacher intensity. *Journal of Research in Music Education*, 37, 85-92.
- McEwen, D. R. (1961). *Music philosophies, choral concepts, and choral elements employed by selected choral conductors in southern California four-year colleges and universities* (Doctoral dissertation). Retrieved from ProQuest. (AAT 610 6905)
- Moore, R. H. (1995). *Aspects of choral ensemble: Definitions and applications of selected outstanding university choral conductors* (Doctoral dissertation). Retrieved from ProQuest. (AAT 961 8652)
- Openshaw, R. L. (1995). *The relationships among choral performance quality, choral student emotive and aesthetic perception, and audience reaction* (Doctoral dissertation). Retrieved from ProQuest. (AAT 953 1353)
- Overturf, M. S. (1985). *Implementing concepts of vocal sound: Rehearsal approaches of four outstanding high school choirs* (Doctoral dissertation). Retrieved from ProQuest. (AAT 860 5784)



- Paine, G. (Ed.). (1989). *Five centuries of choral music: Essays in honor of Howard Swan*. Stuyvesant, NY: Pendragon Press.
- Pfausch, L. (1973). The choral conductor and the rehearsal. In H. A. Decker & J. Herford (Eds.), *Choral conducting: A symposium* (pp. 66-111). New York, NY: Appleton-Century-Crofts.
- Phillips, K. H. (1997). *The basics of conducting*. New York, NY: Oxford Publishing.
- Price, H. E. (1983). The effect of conductor academic task presentation, conductor reinforcement, and ensemble practice on performers' musical achievement, attentiveness, and attitude. *Journal of Research in Music Education*, 31(4), 245-257.
- Price, H. E. & Winter, S. (1991). Effect of strict and expressive conducting on performance and opinions of eighth grade band students. *Journal of Band Research*, 27(1), 30-43.
- Shaw, R., & Blocker, R. (2004). *The Robert Shaw reader*. New Haven, CT: Yale University Press.
- Smith, P. (2003). Balance or blend? Two approaches to choral singing. *Choral Journal*, 43(5), 31-43.
- Sparks, G. M. (1984). Research on teacher effectiveness: What it all means. In J. Reinhartz (Ed.), *Perspectives on effective teaching and the cooperative classroom* (pp. 8-11). Washington, DC: National Education Association.
- Standley, J. M., & Madsen, C. K. (1991). An observation procedure to differentiate teaching experience and expertise in music education. *Journal of Research In Music Education*, 39, 5-11.
- Swan, H. (1973). The development of a choral instrument. In H. A. Decker & J. Herford (Eds.), *Choral conducting: A symposium* (pp. 4-55). New York, NY: Appleton-Century-Crofts.
- Tait, M. (1992). Teaching Strategies and Styles. In R. Colwell (Ed.), *Handbook of Research on Music Teaching and Learning*, (pp. 525-534). New York: Schirmer Books.
- Teachout, D. J. (1997). Preservice and experienced teachers' opinions of skills and behaviors important to successful teaching. *Journal of Research in Music Education*, 45, 41-50.
- Thurman, V. L. (1977). *A frequency and time description of selected rehearsal behaviors used by five choral directors* (Unpublished doctoral dissertation). University of Illinois, Champaign-Urbana, IL.
- Ulrich, J. (1993). Conductor's guide to successful rehearsals. *Music Educator's Journal*, 79(7), 34-68.
- Van Weelden, K. (2002). Relationships between perceptions of conductor effectiveness and ensemble performance. *Journal of Research in Music Education*, 50(2), 165-176.
- Wilson, R. H. (1959). *Artistic choral singing*. New York: G. Schirmer Co.
- Wyatt, L. (1967). Blend and choral sound factors related to its achievement-Vowels. *The Choral Journal*, 8(1), 15-18.



## Appendix A

## Demographic Survey

Name: \_\_\_\_\_

**Please circle the applicable answer:**

## A. Gender

0. Male

1. Female

## B. Year in School

1. Freshman

2. Sophomore

3. Junior

4. Senior

5. Graduate

## C. Major

1. Music Major-Instrumental Emphasis

2. Music Major-Vocal Emphasis

3. Major in a discipline outside music

4. Other

## D. Years of Choral Experience (beginning in 6th grade)

1. 0-3

2. 4-6

3. 7-9

4. 10 or above

**Please check the box applicable to you:**☐ I DO give consent to have my responses used in a composite report☐ I DO NOT give consent to have my responses used in a composite report

## Appendix B

## Conductor Evaluation Form

(NAME OF CONDUCTOR) \_\_\_\_\_

1. **Most prominent strength** in this conductor's overall presentation:
2. One suggestion to this conductor to help him/her become **more effective**:
3. Of these musical elements, which was given the most focus by this conductor?  
(Please circle)

Rhythm    Pitch    Dynamics    Blend    Balance    Phrasing    Diction

4. Please rate the overall effectiveness of this conductor (circle):

1                      2                      3                      4                      5

Least Effective

Most Effective



## Appendix C

## Transcription of Participant Instructions

\*Please note that names have been changed to protect conductor and moderator identity.

*Please make sure that you received a packet when you came in and that you got a packet of music. This packet here is what we will use to help us make sense of your comments and your thoughts along the way. Please make sure that your name is at the top of the sheet. Most of it is self-explanatory, but there is also a place on the sheet that you may indicate whether or not your thoughts may be used as a part of a composite report. All of these comments will be given to myself, they will be seen by Ms. Jane Jones, who is also working with the conducting class, and by each person, so she can learn from what it is that you are writing. You don't have to be super neat, but try to make the comments as clean and clear as you can so that it really benefits the conductors. Now, the other part is, if you check, 'sure, you can use my comments,' for the composite report, all that means is that we are going to try to make some group sense overall, like 'everybody, or most of the tenors seem to think that this was really good or this was a problem, or whatever.' So, we make group truth out of it. If you are comfortable letting us use your comments that way, check that. If you prefer that we not, check 'please don't do that,' and it's okay. Either way is fine, but we will share your comments with me, Ms. Jones, and with the conductors. All of the conductors' names are already on the sheet, and they are in conductor order. So, all you have to do is complete the form after the conductor works, then flip the sheet, turn it over, and do the next conductor. Each conductor will tell you the piece that they're working on, and they'll be very clear about 'I'd like to start at bar A, and here's what we're going to do.' That's part of what we've been working on. When you are done with that, at the end of the hour, if you will simply hand your whole packet, in-tact, to Ms. Jones, we'll be good to go, and you can leave all of the music on your chair. Any questions?*

## The Effect of Memorization and Eye Contact on Evaluation of Solo Vocal Performances

Sandra L. Howard

Keene State College Department of Music

*The purpose of this study was to examine the effect of the presence of a music stand and performer's eye contact on high school solo vocal performance quality ratings. Undergraduate music and non-music majors (N = 167) assigned ratings to three audiovisual recordings: memorized, non-memorized with eye contact to audience, and non-memorized without eye contact to audience. Significantly higher ratings ( $p < .05$ ) were assigned to the memorized presentation condition. A four-way ANOVA test revealed no main effects for DVD order, adjudicator gender, degree major, and academic level. Pearson  $r$  correlations indicated significant differences ( $p < .05$ ) between reported self-beliefs on the importance of nonmusical factors and the visual aspect during performance with assigned ratings.*

---

### Review of Literature

The evaluation of solo vocal performance occurs routinely in contemporary society, and may be related to academic or musical settings including solo contests, semester juries, selection for honor choirs, and admission to schools of music. Whybrew (1962) suggested that adjudicators form "generalized impressions in a haphazard manner" (p. 2) during music assessment and that these judgments are often based on subjective responses. Boyle and Radocy (1987) stated, "measurement of musical performance is inherently subjective. Music consists of sequential aural sensations and any judgment of musical performance is based on those sensations as they are processed by the judge's brain" (p. 171). According to Stanley, Brooker, and Gilbert (2002), evaluators of music performance may rely on a "gut reaction, an intuitive or emotional response which is basically one of enjoyment" (p. 47). While many festivals and institutions recommend that singers perform repertoire selections from memory during the audition process, it is unclear if memorization has an effect on adjudicator's assigned performance quality ratings.

Extant research suggests the manner in which a performance is presented can impact an evaluator's feedback, rating, or assessment of elements of a musical performance. Nonmusical factors that may impact assigned ratings include travel distance to audition site (Lien & Humphreys, 2001), order of performance (Flores & Ginsburgh, 1996), time of day and school size (Bergee & McWhirter, 2005). Assessment criteria (Jones, 1986; Pazitka-Munroe, 2002), musical material to be performed (Wiest-Parthun, 1998), number of adjudicators



present (Elliott, 1995b; Ryder, 1990), and mode of presentation (Forsythe & Kelly, 1989; Howard, 2009; Pitzer & Morrison, 2009) are examples of possible variables that influence performance evaluation.

In the United States, however, there appear to be inconsistent perceptions on the possible influence of visual aspects on ratings assigned to solo vocal performances during high school honor choir audition processes (Howard, 2008). One representative from each state's music educators association reported varying requirements for mode of presentation used in district and state festival auditions (24% = blind format; 58% = viewed format; 12% = teacher recommendation only or no district level festival; 6% = procedures varied within state). Some recent research supports including the visual aspect of performance as it may assist adjudicators in making more informed responses when assessing performance quality (Lehman & Davidson, 2002; Ryan & Costa-Giomi, 2004; Wapnick, Darrow, Kovacs, & Dalrymple, 1997; Wapnick, Mazza, & Darrow, 1998). In other cases, blind audition processes are used in an attempt to diminish the possible effect of visual biases on selection to the ensemble (Goldin & Rouse, 2000).

A number of nonmusical factors appear to influence adjudicators' perceptions and assigned performance ratings. Music research has focused on the impact of visual elements that can influence performance ratings: initial impressions (Robinson, 2000; VanWeelden, 2002), performers' attractiveness (Ryan & Costa-Giomi, 2004; Ryan, Wapnick, LaCaille, & Darrow, 2006; Wapnick et al., 1997; 1998; Wapnick, Mazza, & Darrow, 2000), facial expression (Mayne, 1992), age (McCrary, 1993), gender (Goldin & Rouse, 2000), and race (Cheek, 2007; Elliott, 1995a; Johnson & Stewart, 2005). Researchers have examined other social aspects of performance evaluation (Davidson, 1997), performance attire (Howard, 2009; Ryan et al., 2006; Wapnick et al., 1998, 2000), stage deportment (Davidson & da Costa-Coimbra, 2001; Howard, 2009), movement (Davidson, 1994), and memorization (Siddell-Strebel, 2007) as other possible influences on adjudicators' perceptions of performance quality.

Memorization of performance repertoire, in particular, has been investigated as a possible influence on adjudicator bias. Music professionals continue to explore the potential benefits of memorization and its role on internalizing a piece of music. Researchers advocate for the act of memorization to further develop motor skills (Reubart, 1985) and instill diligence in practice (Hallam, 1995; Noyle, 1987). Williamon (1999) investigated the value of performing from memory and found that memorized performances yielded higher performance quality ratings than non-memorized performances while Siddell-Strebel's (2007) study involving performance evaluation of cellists found no main effect for memorization.

Other research investigations examined the effect of adjudicator gender on performance evaluation where, in some cases, data found that female adjudicators assigned higher ratings to performances than their male



counterparts (Wapnick et al., 1997; 2000) while inconsistent findings on main effect for adjudicator gender have been reported (Davidson & da Costa Coimbra, 2001; Howard, 2009; Wapnick et al., 1998; Wapnick, Ryan, Lacaille & Darrow, 2004).

Adjudicators' level of music training or expertise yielded varying results from advocating for expert-only adjudicators (Ekholm, 1997; Johnson, 1997) to identifying less consistency in ratings from more experienced adjudicators (Kim, 2000). Adjudicators' proficiency level or area of expertise using brass versus non-brass (Fiske, 1975, 1977) and keyboard versus non-keyboard players (Roberts, 1975) revealed no significant difference between adjudicator groups. In addition, Banister's (1991) study found no main effect for an adjudicator's level of training on assigned ratings to performers at a state-level solo contest, yet, more recent research identified significant differences in performance ratings were attributed to adjudicator level of training (Bergee & Cecconi-Roberts, 2002; Howard, 2008; Wapnick et al., 2004).

The topic of possible bias in performance evaluation continues to interest investigators from many fields of study. Numerous research findings indicate that nonmusical factors have an effect on performance evaluation, evaluation is situational, and can be subjective. Further research is warranted to investigate the effects of nonmusical factors (i.e. adjudicator's gender, degree major, and performer's memorization) on adjudicators' ratings of high school solo vocal performances, and to identify possible areas of bias to expand the current body of research. The purpose of this study is to determine whether the presence of a music stand and differentiated eye contact (focused on music stand or to audience) during a high school solo vocalist's performances would affect adjudicators' ratings of the overall musical performance quality.

#### Method

*Adjudicators:* Undergraduate music ( $n = 40$ ) and non-music majors ( $n = 127$ ) enrolled at a liberal arts college in the eastern region of the United States served as adjudicators ( $N = 167$ ) for this investigation. Adjudicators (males = 83; females = 84) were freshmen, sophomores, juniors, and seniors enrolled in music major or general elective undergraduate music courses.

*Preparation of DVD Recordings:* The performer for stimulus recordings was a Caucasian, high school female singer enrolled in private voice lessons. No other nonmusical factors or physical attributes were considered in the selection of the solo vocalist. The solo vocalist performed three consecutive performances of *Un Moto di Gioia* by W. A. Mozart with piano accompaniment during a single recording session and was instructed to sing each performance with as much consistency of vocal production and musical expressiveness as possible while other variables were manipulated across the performance recordings (i.e. presence of music stand; eye contact). The solo vocalist was instructed on specific behaviors to include in each of the three presentation conditions: memorized (no music stand, eye contact to audience);



non-memorized with eye contact (presence of music stand, eye contact to audience); non-memorized without eye contact (presence of music stand, little to no eye contact to audience).

Performances were recorded in a collegiate recital hall using a Canon ZR500 digital video camcorder. Each video recording showed a front angle; full-length view of the solo vocalist wearing a concert gown, standing in front of a grand piano, and performing the prepared piece. Digital footage was edited using iMovie 2009 software and three 50-second audiovisual performance excerpts were extracted (Robinson, 2000; Vasil, 1973; Winter, 1989). The researcher dubbed the audio recording from the memorized performance recording to be closely synchronized (within .1 second) with lip movement of the two other subsequent stimulus recordings and presentation conditions (Elliott, 1995a). A silent 5-second transition showing a black screen separated each performance excerpt on the stimulus DVD. In an effort to minimize order effect, audiovisual recordings were arranged in three unique and different presentation orders using iMovie 2009, iTunes 10, and iDVD version 7.0.4 software. The duration of each stimulus DVD was approximately three minutes.

*Procedure:* The researcher obtained IRB permission to conduct the investigation and obtained signed consent from the solo vocalist and guardian. Each undergraduate adjudicator received two copies of a consent form- one copy to be signed and submitted to the investigator prior to the collection of data, and the other for adjudicators' personal records. The researcher contacted music faculty by email to invite undergraduate student adjudicators to volunteer as a participant in this study.

Data collection was completed over a two-week period within the context of music major or general elective music courses with groups ranging from 4 to 45 adjudicators in university music classrooms. The researcher made no attempt to define "overall musical performance quality". Adjudicators were directed consider each performance as being "weak" or "strong" and assign a rating (Burnsed & King, 1987; Fiske, 1975, 1977; Mills, 1991; Wapnick, Flowers, Alegant, & Jasinskas, 1993) using a 6-point Likert type scale (1 = weak; 6 = strong) provided on the researcher-constructed Solo Vocal Performance Evaluation Form. The researcher asked adjudicators if they had any questions about the procedure, then started the stimulus recording that played continuously for three minutes as participants observed and marked their evaluation forms. Following the final performance excerpt, adjudicators responded to two questions using a provided Likert-type scale: (1) Although you were asked to rate the overall musical quality of each performance, how much do you think your ratings were influenced by the presence of the music stand? (1 = not at all influenced; 4 = very influenced), (2) In your opinion, how important is the visual aspect of a performance in the evaluation of the overall musical performance quality of solo vocalists? (1 = not very important; 4 = very important) (Wapnick et al., 2000). Adjudicators were also asked to indicate demographic information: gender, degree major (music or non-music major),



and academic level (undergraduate level- freshman, sophomore, junior, or senior). Directly following the collection of data, the researcher read a debriefing script to adjudicators and invited questions.

## Results

Student adjudicator responses on the Solo Vocal Performance Evaluation Form served as quantitative data for the study, and were analyzed using the Statistical Package for the Social Sciences 16.0 (SPSS). A four-way Analysis of Variance (ANOVA) was applied to examine adjudicators' assigned performance ratings as a function of: adjudicator gender, adjudicator degree major, adjudicator academic level, and performance excerpt order. Data revealed no order effect ( $F(2) = 1.334, p > .05$ ) for adjudicators' ratings as a function of performance excerpt order on the three randomly ordered stimulus DVD recordings.

A three-way Analysis of Variance (ANOVA) was applied to examine adjudicators' assigned performance ratings to the three presentation conditions: memorized, non-memorized with eye contact, non-memorized without eye contact. No main effects were identified for adjudicator gender ( $F(1) = .700, p > .05$ ), adjudicator degree major ( $F(1) = 1.590, p > .05$ ), or adjudicator academic level ( $F(3) = .862, p > .05$ ). However, results indicated significant differences for performance quality ratings assigned to differentiated presentation conditions ( $F(1) = 2035.621, p < .05, \eta^2 = .94$ ) with overall mean scores for memorized ( $M = 4.42, sd = 1.09$ ), non-memorized with eye contact ( $M = 4.13, sd = .88$ ), and non-memorized without eye contact ( $M = 3.87, sd = 1.14$ ) as shown in Table 1.

In addition, a three-way ANOVA examined adjudicators' stated beliefs regarding nonmusical influences on performance evaluation (i.e. presence of music stand, eye contact). Findings revealed main effects for adjudicators' gender ( $F(1) = 8.403, p < .05, \eta^2 = .05$ ) and degree major ( $F(1) = 22.281, p < .05, \eta^2 = .13$ ), yet adjudicator academic level did not yield significant results ( $F(3) = .998, p > .05$ ). In response to "Although you were asked to rate the overall musical quality of each performance, how much do you think your ratings were influenced by the presence of the music stand?" female adjudicators indicated greater influence on assigned performance ratings ( $M = 2.36, sd = 1.04$ ) than their male counterparts ( $M = 1.92, sd = .99$ ). Participants' responses to "In your opinion, how important is the visual aspect of a performance in the evaluation of the overall musical performance quality of solo vocalists?" indicated that female adjudicators reported a moderately high level of importance ( $M = 3.10, sd = .83$ ) while male adjudicators identified a moderate level of importance ( $M = 2.63, sd = .93$ ).

A series of Pearson  $r$  correlations were applied to examine possible relationships between participants' stated beliefs regarding the importance of selected variables (presence of music stand, eye contact) in performance



evaluation with actual assigned ratings for the three stimulus recording presentation conditions as shown in Table 2.

Table 1. *Mean Scores of Presentation Conditions Involving Memorized, Non-memorized with Eye Contact, Non-memorized without Eye Contact by Adjudicator Gender and Degree Major*

Type of Condition	Major	Gender	<i>M</i>	<i>SD</i>
Memorized	Music	Male	4.42	1.17
		Female	4.52	1.17
			<i>4.48</i>	<i>1.15</i>
	Non-music	Male	4.19	1.11
		Female	4.62	0.99
			<i>4.40</i>	<i>1.07</i>
Non-memorized w/ Eye Contact	All	Male	4.24	1.12
		Female	4.60	1.03
			<b>4.42</b>	<b>1.09</b>
	Music	Male	3.95	0.97
		Female	4.14	0.85
			<i>4.05</i>	<i>0.90</i>
Non-memorized w/o Eye Contact	Non-music	Male	4.00	0.89
		Female	4.32	0.82
			<i>4.16</i>	<i>0.87</i>
	All	Male	3.99	0.90
		Female	4.27	0.83
			<b>4.13</b>	<b>0.88</b>
Non-memorized w/o Eye Contact	Music	Male	3.37	1.12
		Female	3.29	1.06
			<i>3.32</i>	<i>1.07</i>
	Non-music	Male	3.91	1.14
		Female	4.17	1.07
			<i>4.04</i>	<i>1.11</i>
	All	Male	3.78	1.15
		Female	3.95	1.13
			<b>3.87</b>	<b>1.14</b>

Note: *Italic font indicates mean score by major. Bold font indicates overall mean score,  $F(1) = 2035.621, p < .05, \eta^2 = .94$*

Table 2. *Correlations for Stated Beliefs on Influence of Presence of Music Stand, Importance of Visual Aspect in Performance Evaluation, and Assigned Performance Ratings to Presentation Conditions by Adjudicator Gender*

	Gender	Memorized	Non-Memorized w/ Eye Contact	Non-Memorized w/o Eye Contact
How much were your ratings influenced by the music stand?	Male	.293*	-.010	-.081
	Female	.216*	-.003	-.325*
How important is the visual aspect in performance evaluation?	Male	.269*	.054	-.122
	Female	.081	.093	-.058

\*  $p < .05$ , two-tailed

A series of Pearson  $r$  correlations were applied to examine possible relationships between participants' stated beliefs regarding the importance of selected variables (presence of music stand, eye contact) in performance evaluation with actual assigned ratings for the three stimulus recording presentation conditions as shown in Table 2.

### Discussion

The purpose of this study was to examine the possible influence of a performer's memorization and eye contact to audience on adjudicator's assigned ratings to high school solo vocal performances. Mean scores of performance ratings support conventional opinion and recent findings (Siddell-Strebel, 2007) regarding the topic of solo vocal performances with or without music. The memorized performance yielded significantly higher ratings than those assigned to the non-memorized presentation conditions. Performance ratings were lower for the non-memorized with eye contact presentation condition, yet mean scores were still significantly higher than those assigned to the non-memorized without eye contact presentation condition. This suggests that for this small population of adjudicators ( $N = 167$ ), the presentation conditions were placed in a three-tier hierarchy of overall performance quality. Implications to the profession suggest that solo vocalists should perform memorized works to achieve the highest level of perceived performance quality, however presentations with non-memorized material may be able to maintain meaningful communication to the audience. Future research could replicate the methodology implemented in this study for possible application in a choral performance setting.

No main effect was found for adjudicator gender. However, as with



previous research (Howard, 2009; Wapnick et al., 1997; 2000), female adjudicators tended to rate all performances slightly higher than male adjudicators. In this investigation, undergraduate student adjudicators rated all performances similarly, a result which supports earlier research findings (Wapnick et al., 2004). These inconclusive findings merit further investigation and suggest the need for continued consistency in audition processes for acceptance to honors choir or admission to a school of music. Many state music educators associations use solo vocal adjudicators as their own control, which may increase reliability with performance ratings. Additional research could investigate ratings assigned by male and female adjudicators to solo vocal auditions comparing the overall outcome of singers selected for an honors chorus.

Examined data from this investigation also concluded no main effect for adjudicator's degree major, which supports previous research involving brass versus non-brass players (Fiske, 1975; 1977), keyboard versus non-keyboard players (Roberts, 1975), and various combinations of adjudicator experience levels with music when rating pianists (Ryan & Costa-Giomi, 2004) and cellists (Siddell-Strebel, 2007). Future replications of earlier research could involve comparing actual ratings from an honor choir audition with performance ratings assigned by evaluators of varying ages and music experience levels. Additional research may provide a more current perspective on the effect of an adjudicator's primary instrument or level of expertise on evaluating music performances. It is possible that non-music major adjudicators were unclear about the task to rate the overall performance quality for each excerpt due to less music experience and although no adjudicators asked questions prior to the start of the adjudication process when given the opportunity. In addition, the Solo Vocal Evaluation Form included rating scale reminders of "weak" and "strong" to aid adjudicators. The prevalence of televised music adjudication programs within pop culture may provide non-music majors with sufficient general knowledge in making overall judgments for performance quality and could serve as an interesting topic for study.

This investigation included freshman, sophomore, junior, and senior level undergraduate student adjudicators and the data revealed no main effect for academic level. Previous research investigated differences among the sophistication level of adjudicators (i.e. young children, high school, undergraduate, and graduate students, university faculty, retired individuals), which in many cases revealed higher performance ratings assigned by peer group adjudicators (Bergee, 1993; 1997) than those with additional training. These results seem to suggest that as a person receives more training beyond high school, one becomes more discriminating in issues of vocal production and performance quality. Further study might include other adjudicator groups beyond undergraduate students as it appears, for these adjudicators, the increase in proficiency level between grade levels does not provide enough of an change in sophistication or listening discrimination.



While attempts were made to minimize peer influence during the data collection process, it is possible that testing in small groups rather than individual appointments may have had an impact on adjudicators' ratings of performances. Different university music classrooms were used for testing and arranged in a similar manner, however, other variables such as classroom size, acoustical space, quality of visual image, and sound system may have affected performance ratings. In addition, data collection occurred at varying times of day and may have affected adjudicators' responses.

Audiovisual stimulus presentation conditions were determined in advance to represent specific combinations of characteristics including the presence of the music stand and differentiated eye contact to the audience. In an effort to control for consistency in vocal production across multiple recorded excerpts, one audio recording from the soloists' vocal performances was extracted and synchronized to match the performer's subsequent performance presentation conditions. Although participants did not report a perceived lack of performance authenticity, this may have affected performance ratings. It is unclear to the researcher whether adjudicators detected subtle timing differences (i.e. within .1 second) in the dubbed video excerpts. For this investigation, all adjudicators rated performance excerpts provided by a recorded stimulus DVD and it is possible that performance ratings may have differed if assigned within a live performance setting.

Correlations revealed mixed results between assigned performance ratings and adjudicators' self-beliefs of how much assigned ratings were influenced by the presence of the music stand. In this study, both male and female adjudicators indicated moderate influence due to the presence of the music stand. These reports support a weak positive correlation, which may suggest their self-awareness of influence by the presence of the music stand and supports their higher ratings on performance quality. While adjudicators acknowledged this influence, they may have been unaware of its greater impact on assigning performance ratings.

Reported self-beliefs for the non-memorized with eye contact presentation condition indicated nearly no correlation. These findings suggest a more neutral reaction to non-memorized performances that are able to communicate to the audience, which could indicate that these adjudicators perceived performing with sheet music as not a distraction or impetus to lower performance ratings, however their assigned ratings suggest otherwise. The weak negative correlation with the non-memorized without eye contact presentation condition could indicate that for this population of male adjudicators, they did not acknowledge or were unaware of the level of impact this presentation condition had on the lower ratings they assigned. Female adjudicators' self-beliefs revealed a moderate negative correlation with assigned performance ratings, which could indicate that as their declaration of influence increased, their performance ratings decreased for a singer whose performance was non-memorized with little to no eye contact to the audience. The mixed results



among self-beliefs and differentiated presentation conditions show some trending with influence of the music stand and its impact on performance ratings. It appears that adjudicators were influenced more by these nonmusical factors than they believed, which could indicate preferential bias toward memorization.

Adjudicators also responded to a second question, which asked about their self-beliefs of the importance of the visual aspect in evaluating solo vocal performances. While male adjudicators' self-beliefs resulted in a weak positive correlation, a comparison between performance ratings and self-beliefs by female adjudicators reported nearly no correlation. Given that performance ratings for the memorized presentation condition yielded significantly higher ratings than those assigned to non-memorized presentation conditions, it is possible in this case, that female adjudicators were unaware of the impact the visual aspect had in their performance evaluation. Both male and female adjudicators self-beliefs indicated nearly no correlation with the non-memorized with eye contact presentation condition and a little to weak negative correlation with the performance ratings assigned to the non-memorized without eye contact presentation condition. While it is possible the question was vague, these findings suggest that participants had an inaccurate sense of the role that the visual aspect had in their own perceptions of music performance quality. It is difficult to pinpoint biases that adjudicators bring to the task of performance evaluation. These findings support previous research that suggests adjudicators can have a lack of self-awareness of possible biases (i.e. performance attire, stage deportment) (Howard, 2009) and it is suggested that music educators encourage the students and model memorized performances to enhance the possible outcome of assigned performance ratings.

Results from this study provide music educators and adjudicators with additional considerations as they prepare singers for solo vocal auditions. Music educators are encouraged to discuss audition criteria with students prior to the audition process, conduct mock auditions using the audition-scoring rubric, and provide additional training on nonmusical factors in the performance setting. Through these results, it appears that when provided with a choice between performing memorized or non-memorized, it may be beneficial for solo vocalists to choose to perform from memory to obtain higher performance quality ratings. Continued discussion is encouraged on audition criteria to determine whether or not nonmusical factors (i.e. visual aspect, eye contact, level of memorization) should be included on evaluation forms, as it seems that these elements can impact overall performance ratings. Adjudicators are encouraged to seek additional training regarding the possible influence of nonmusical biases in performance evaluation. State music associations, schools of music, and others who administer auditions are encouraged to further define evaluation procedures and provide performers with access to audition rating criteria in advance to create a more equitable process.



## References

- Banister, S. (1991). How do OMEA adjudicators award superior ratings at solo contests? *Triad*, 59, 27.
- Bergee, M. J., & Cecconi-Roberts (2002). Effects of small-group peer interaction on self-evaluation of music performance. *Journal of Research in Music Education*, 50, 256-268. doi:10.2307/3345802
- Bergee, M., & McWhirter, J. L. (2005). Selected influences on solo and small-ensemble festival ratings: Replication and extension. *Journal of Research in Music Education*, 53, 177-190. doi:10.1177/002242940505300207
- Boyle, J., & Radocy, R. (1987). *Measurement and evaluation of musical experiences*. New York: Schirmer Books.
- Burnsed, V., & King, S. (1987). How reliable is your festival rating? *Update: Applications of Research in Music Education*, 5, 12-13.
- Cheek II, J. A. (2007). *The effect of race and racial perception on adjudicators' ratings of choral performances attributed to racially homogeneous and racially heterogeneous groups*. (Doctoral dissertation, University of North Carolina-Greensboro, 2007). Retrieved from <http://libres.uncg.edu/ir/uncg/listing.aspx?id=1099>
- Davidson, J. (1994). What type of information is conveyed in the body movements of solo musician performers? *Journal of Human Movement*, 6, 279-301.
- Davidson, J. (1997). The social in musical performance. In D. Hargreaves & A.A. North (Eds.), *The social psychology of music* (209-228). Oxford, UK: Oxford University Press.
- Davidson, J., & da Costa Coimbra, D. C. (2001). Investigating performance evaluation by assessors of singers in a music college setting. *Musicae Scientiae*, 5, 33-50.
- Eklholm, E. (1994). *The effect of guided listening on evaluation of solo vocal performance*. Unpublished masters thesis. McGill University, Montreal, Quebec.
- Elliott, C. A. (1995a). Race and gender as factors in judgments of musical performance. *Bulletin of the Council for Research in Music Education*, 127, 50-56.
- Elliott, C. A. (1995b). All-state band practices and procedures: A nation-wide survey. *Journal of Band Research*, 30(2), 87-94.
- Fiske Jr., H. E. (1975). Judge-group differences in the rating of secondary school trumpet performances. *Journal of Research in Music Education*, 23, 186-196. doi:10.2307/3344643
- Fiske Jr., H. E. (1977). Relationship of selected factors in trumpet performance adjudication reliability. *Journal of Research in Music Education*, 25, 256-263. doi:10.2307/3345266
- Flores, R. G., & Ginsburgh, V. A. (1996). The Queen Elisabeth musical competition: How fair is the final ranking?. *The Statistician*, 45, 97-104.



- Forsythe, J. L., & Kelly, M. M. (1989). Effects of visual-spatial added cues on fourth-graders' melodic discrimination. *Journal of Research in Music Education*, 37, 272-277. doi:10.2307/3344661
- Goldin, C., & Rouse, C. (2000). Orchestrating impartiality: The impact of "blind" auditions on female musicians. *The American Economic Review*, 90, 715-741. doi:10.1257/aer.90.4.715
- Hallam, S. (1995). Professional musicians' orientations to practice: Implications for teaching. *British Journal of Music Education*, 12(1), 3-20. doi:10.1017/S0265051700002357
- Howard, S. (2008). *A survey of blind versus non-blind audition procedures for high school honor choir festivals in the United States*. Unpublished manuscript. University of Missouri-Kansas City.
- Howard, S. (2009). *The effect of selected nonmusical factors on adjudicators' ratings of high school solo vocal performances*. Doctoral dissertation, University of Missouri-Kansas City.
- Johnson, C. M., & Stewart, E. E. (2005). Effect of sex and race identification on instrument assignment by music educators. *Journal of Research in Music Education*, 53, 348-357. doi:10.1177/002242940505300406
- Johnson, P. (1997). Performance as experience: The problem of assessment criteria. *British Journal of Music Education*, 14(3), 271-282. doi:10.1017/S0265051700001248
- Jones, H. (1986). *An application of the facet-factorial approach to scale construction in the development of a rating scale for high school vocal solo performance*. (Doctoral dissertation, The University of Oklahoma, 1986). Retrieved from Proquest Digital Dissertations. (AAT 8613727)
- Kim, S. (2000). Group differences in piano performance evaluation by experienced and inexperienced judges. *Contributions to Music Education*, 27(2), 23-26.
- Lehman, A. C., & Davidson, J. W. (2002). Taking an acquired skills perspective on music performance. In R. Colwell and C. Richardson (Eds.). *The New Handbook of Research on Music Teaching and Learning*. Oxford: Oxford University Press.
- Lien, J. L., & Humphreys, J. T. (2001). Relationships among selected variables in the South Dakota all-state band auditions. *Journal of Research in Music Education*, 49, 146-155. doi:10.2307/3345866
- Mayne, R. G. (1992). *An investigation of the use of facial expression in conjunction with musical conducting gestures and their interpretation by instrumental performers*. (Doctoral dissertation, The Ohio State University, 1992). Retrieved from Proquest Digital Dissertations. (AAT 9238229)
- McCrary, J. (1993). Effects of listeners' and performers' race on music preferences. *Journal of Research in Music Education*, 41, 200-211. doi:10.2307/3345325
- Mills, J. (1991). Assessing musical performance musically. *Educational Studies*, 17, 173-181.

- Noyle, L. (1987). *Pianists on playing: Interviews with twelve concert pianists*. Metuchen, NJ: Scarecrow Press.
- Pazitka-Munroe, W. (2002). *The construction and validation of an audition instrument to measure the vocal performance of college singers auditioning for choral ensembles*. (Doctoral dissertation, Indiana University, 2002). Retrieved from Proquest Digital Dissertations. (AAT 3061461)
- Pitzer, R. M., & Morrison, S. J. (2009). *The effects of audio-only and audio-visual presentations on jazz music on middle school students' analytic and affective responses*. Unpublished manuscript. University of Washington.
- Reubart, D. (1985). *Anxiety and musical performance: On playing the piano from memory*. New York, NY: Da Capo Press.
- Roberts, B. (1975). *Judge group differences in the rating of piano performances*. Unpublished masters thesis, University of Western Ontario.
- Robinson, C. R. (2000, March). *Choral students' assessments of novice choral conductors*. Poster session presented at the National Biennial In-Service Conference of MENC: The National Association for Music Education, Washington, DC.
- Ryan, C., & Costa-Giomi, E. (2004). Attractiveness bias in the evaluation of young pianists' performances. *Journal of Research in Music Education*, 52, 141-154. doi:10.2307/3345436
- Ryan, C., Wapnick, J., Lacaille, N., & Darrow, A. A. (2006). The effects of various physical characteristics of high-level performers on adjudicators' performance ratings. *Psychology of Music*, 34(4), 559-572. doi:10.1177/0305735606068106
- Ryder, J. E. (1990). *A survey of selected all-state chorus audition methods*. Unpublished masters thesis, University of Missouri-Kansas City.
- Siddell-Strebel, J. (2007). *The effects of non-musical components on the ratings of performance quality*. (Doctoral dissertation, McGill University, 2007). Retrieved from Proquest Digital Dissertations. (AAT NR32324)
- Stanley, M., Brooker, R., & Gilbert, R. (2002). Examiner perceptions of using criteria in music performance assessment. *Research Studies in Music Education*, 18, 43-52. doi:10.1177/1321103X020180010601
- VanWeelden, K. (2002). Relationships between perceptions of conducting effectiveness and ensemble performance. *Journal of Research in Music Education*, 50, 165-176. doi:10.2307/3345820
- Vasil, T. (1973). *The effects of systematically varying selected factors on music performing adjudication*. Unpublished doctoral dissertation. University of Connecticut.
- Wapnick, J., Darrow, A. A., Kovacs, J., & Dalrymple, L. (1997). Effects of physical attractiveness on evaluation of vocal performance. *Journal of Research in Music Education*, 45, 470-479. doi:10.2307/3345540
- Wapnick, J., Flowers, P., Alegant, M., & Jasinskis, L. (1993). Consistency in piano performance evaluation. *Journal of Research in Music Education*, 41, 282-292. doi:10.2307/3345504



- Wapnick J., Mazza, J. K., & Darrow, A. A. (1998). Effects of performer attractiveness, stage behavior, and dress on violin performance. *Journal of Research in Music Education*, 46, 510-521. doi:10.2307/3345347
- Wapnick, J., Mazza, J. K., & Darrow, A. A. (2000). Effects of performer attractiveness, stage behavior, and dress on the evaluation of children's piano performances. *Journal of Research in Music Education*, 48, 323-335. doi:10.2307/3345367
- Wapnick, J., Ryan, C., Lacaille, N., & Darrow, A. A. (2004). Selected variables on musicians' ratings of high-level piano performances. *International Journal of Music Education*, 22, 7-20. doi:10.1177/0255761404042371
- Wiest-Parthun, K. J. (1998). *The audition procedure of select community choral ensembles in the Greater Phoenix area*. (Doctoral dissertation, Arizona State University, 1998). Retrieved from Proquest Digital Dissertations. (AAT 9828226)
- Williamson, A. (1999). The value of performing from memory. *Psychology of Music*, 27 (1), 84 - 95. doi:10.1177/0305735699271008
- Whybrew, W. E. (1962). *Measurement and evaluation in music*. Iowa: William C. Brown Co.
- Winter, C. M. (1989). The effects of primacy/recency and excerpted versus full-length performance on large instrumental group adjudication. (Doctoral dissertation, The University of Alabama, 1989). Retrieved from Proquest Digital Dissertations. (AAT 9022279)

## University Band and Choral Students' Self-evaluations of Rehearsal and Concert Performance Recordings using Online and Traditional Written Procedures

Joseph Parisi and Charles Robinson  
University of Missouri-Kansas City

*The purpose of this study was to investigate university band and choral students' evaluations of rehearsal recordings and their combined final concert performance recording using both online and traditional written procedures. Collegiate music majors (N=100) participating in an undergraduate wind ensemble (n=40) and concert choir (n=60) completed regular online rehearsal evaluations and a post-concert written evaluation indicating progressive and final performance quality of their recorded performances of Howard Hanson's Song of Democracy. Areas examined included: (a) students' self-reported individual preparation time; (b) performance quality ratings across time for rehearsal and concert recordings; and (c) post hoc content analysis of comments (reflective versus anticipatory, and negative versus positive). Results indicated different patterns of self-reported individual preparation between ensembles. Results found no significant differences ( $p>.05$ ) in band versus choral students' assigned self-evaluation ratings for performance quality in rehearsal or concert recordings. Comments were more reflective than anticipatory across all rehearsal evaluations. Positive versus negative comment frequency was different between groups in initial rehearsals, with increasing congruity across time. Participants' assessments and comments regarding various aspects of this preparation process are reported and discussed with implications for future study.*

---

Collegiate ensembles frequently work within short periods of time to perfect music for performance, and current advances in technology may become increasingly important as tools in this process. The availability of reference recordings, online media, email correspondence, and Web-based course-management systems have provided numerous methods for enhanced instruction and communication. This technology can aid the presentation of model performance recordings, delivering rehearsal goals, defining rehearsal schedules, posting rehearsal recordings, and gathering student assessments and feedback. While some research is emerging in the use of technology for self-assessment in areas such as American history (Kornblith & Lasser, 2003), sociology (Wright and Lawson, 2005), and mathematics (Engelbrecht & Harding, 2005), research in music applications seems quite limited.

This technology can also enhance the shared musical experience within and across performance ensembles. The national standards adopted by the



Music Educators National Conference (MENC, 1994) encourage all music educators to have students perform (standards 1, 2), listen to (standard 6), and evaluate (standard 7) music. Tools that assist this process seem critical to teachers as they work to enrich students' musical knowledge, skill, understanding and independence in the musical experience. Collaborative efforts in the ensemble setting may enhance individual musical growth. In these settings, students may be actively engaged in the music-making process as well as becoming discriminating and reflective listeners. Ensemble experiences may be structured to help students develop diagnostic and self-evaluation skills that can result in being able to develop an individualized agenda for technical practice and overall musicianship.

It seems plausible that students in ensembles could benefit from increased listening, both to model performances and to rehearsal recordings. Geringer and Madsen (1995/1996) suggest listening to music seems prerequisite to all other musical pursuits. They suggest that focus of attention combined with developing a high level of aural discrimination seems to provide the basis for meaningful music listening. Whether we ask our students to listen to or perform music, we are constantly attempting to provide them with the tools needed for meaningful musical experiences. Another aspect of the ensemble experience that seems to deserve increased attention is the structure of preparation routines, as these seem to be central to performance achievement and performance outcomes. Kostka (2002) studied practice expectations and attitudes among college music professors and students. The studio music teachers in the study reported different expectations than those of music students, with teachers expecting more music practice time than students reported. Additionally, Kosta discovered that the reports of teachers and students regarding the structure of practice time and routines were not the same. Clarification of teacher expectations, and student follow through with practice in structured systems seem to be key issues.

Success with self-monitored practice requires various skills, and among these is the ability to self-assess. The process of self-evaluation has been used in formal and informal settings to encourage a sense of investment in the musical growth process that may lead to independence. The limited extant research in self-evaluation as a determinant in musical performance is somewhat inconclusive, and may be unreliable where less objective forms of observation were employed. In evaluations of brass jury performances, Bergee (1993, 1997) reported that students rated their videotaped performances lower than their peers or faculty. Bergee and Cecconi-Roberts (2002) found more closely matched student self-evaluations and faculty evaluations when students had the opportunity to listen to self-recordings and model recordings. Examination of self-assessment at various grade levels indicates maturation and training may result in more independent and accurate evaluations.

One way to achieve experience in self-assessment is to include this systematic process into a regular ensemble routine. Zurcher (1987) studied the



effects of three evaluation procedures on rehearsal achievement of eighth-grade band students and found achievement to be significantly higher when students recorded their own daily numerical grades than when grades were assigned by the teacher, and suggested structuring "task-specific grading systems" (p.58) for various settings. Hewitt (2002) investigated aspects of self-evaluation tendencies in junior high instrumentalists over time. The study found that students' self-evaluation scores increased across time, but did not indicate a significant effect of model-group condition, and there was no correlation found between student and expert evaluations of performance achievement. In a subsequent study (Hewitt, 2005), high school and middle school instrumentalists completed self-evaluations of rehearsal performances during a summer music program. Hewitt found that self-evaluation differences over time did differ as a function of grade level. Other research (Morrison, Montemayor & Wiltshire, 2004), reports that middle school and high school band students completed weekly self-evaluations assessing their individual progress and their ensemble's progress using both numerical and free-response formats. Students' free-response comments were coded as referring to one-self, the ensemble or both. This study found differences between the two groups of students in evaluation differences over time, and all students used more free comments to assess pieces where teachers had used model recordings. Similarly, college students enrolled in an advanced choral ensemble completed regular evaluations of rehearsal effectiveness over a six-week period (Robinson, 2002). Singers rated rehearsal effectiveness for self, section and entire ensemble, and cited what they believed to be the best and worst aspects of each rehearsal. Results indicated student ratings of rehearsal effectiveness were significantly different ( $p < .05$ ) across the twelve rehearsals. Ratings of rehearsal effectiveness prior to a public concert showed more variation, while those following the concert were more stable. Rehearsals across time earned increasingly positive effectiveness ratings from the participants.

In addition to intact school ensembles, students' reflective self-assessments have been studied in honor ensemble settings. High school choral singers' recorded expectations, reflections and preferences for repertoire across time during a three-day all-state choral experience (Robinson and Parisi, 2006). Students maintained journals with entries prior to the first rehearsal, just prior to the concert, and at the end of each rehearsal session. Results indicated significant pre-post increases in liking for all concert pieces ( $p < .05$ ). No significant differences were found in effectiveness ratings for each rehearsal session as a function of voice part; however, ratings were significantly different ( $p < .01$ ) among the various rehearsals. Students' written journal comments from the end of each rehearsal session were categorized as technical, emotional or social and results showed different frequency among these over time.

Robinson and Parisi (2007) replicated the previous study with a different all-state chorus and found similar results. No significant differences were found across assigned "quality of experience" ratings for each rehearsal session as a



function of voice part, years in school chorus or years in all-state chorus. Mean ratings showed differentiated responses across time. Subjects' written journal comments within each of the rehearsal sessions were coded and categorized as cognitive, affective, or other. Comments across time showed a slight decline in frequencies of cognitive comments, and gradual increases in frequency for affective comments such that proportions were approximately equal in final reflective comments.

Research in self-evaluation and reflective journaling suggests that we may be able to engage students more fully in the process of music preparation, and increase their capacity for independence. Further, available technology makes it possible to post rehearsal recordings and gather evaluative feedback from each student right away. In this regard, tracking the preparation process may be more informed and immediate than waiting until the next rehearsal and using time to play and evaluate the work. The present study was designed to expand on the extant research in self-assessment in individual practice and in group ensemble settings, as well as that regarding the use of current technology to enhance instruction. This study investigated university band and choral students' evaluations of recorded separate rehearsals and combined final concert performance using both online and traditional written procedures. Areas examined included: (a) students' self-reported individual preparation time; (b) performance quality ratings across time for rehearsal and concert recordings; (c) *post hoc* content analysis of comments (reflective versus anticipatory, and negative versus positive).

### Method

Collegiate music majors ( $N=100$ ) participating in an undergraduate wind ensemble ( $n=40$ ) and concert choir ( $n=60$ ) completed regular online evaluations and a post-concert evaluation indicating progressive and final performance quality of their recorded performances of Howard Hanson's *Song of Democracy*. These auditioned, entry-level undergraduate performance ensembles at a comprehensive music school in a Midwestern state university were involved in a six-week preparation process for a collaborative concert in which each would perform a set of pieces and then combine to perform *Song of Democracy*.

The regular schedule of rehearsals over the preparation period was maintained, and a 90-minute dress rehearsal immediately prior to the concert performance was the only time the two ensembles rehearsed together on the collaborative piece. Regular schedules were: wind ensemble - 3 rehearsals per week @ 90 minutes per rehearsal (270 minutes total), and concert choir - 4 rehearsals per week @ 50 minutes per rehearsal (200 minutes total). Conductors for each group determined rehearsal content and duration for the Hanson piece in the context of routine preparation of this and other pieces leading to the public concert performance. The collaborative piece was rehearsed at least in part during each rehearsal for both choral and instrumental



ensembles, but specific amounts of time per rehearsal were not calculated and reported.

The *Blackboard* system was a central procedural component of this study, both as an instructional delivery and data collection vehicle. It was used to post ensembles' rehearsal recordings and to administer students' self-evaluations of the recordings throughout the first four weeks of this study. *Blackboard* allows instructors to give students secure, password-controlled access to course materials via the Internet. The *Blackboard* system provides tools used for presenting course content and other materials online, and includes components for communicating with students, managing course grades, creating, and administering tests, and facilitating collaborative projects.

### *Week one*

One week prior to the first rehearsal sessions for each ensemble, instrumental parts and choral/vocal scores for *Song of Democracy* were distributed. Conductors instructed students to be prepared for their best possible performance in a complete reading and rehearsal recording of the piece during their scheduled rehearsals one week later. The conductors of each ensemble (who were also the investigators) encouraged students to prepare individually, and to listen to reference recordings of professional performances of the piece posted on the university's *Blackboard* online course management system. The two selected model recordings were concert performances by the Eastman-Rochester Orchestra and Chorus conducted by the composer (*Hanson conducts Hanson*, Mercury-Hybrid SACD, 2004), and the U.S. Air Force Band and Singing Sergeants conducted by Col. Dennis Layendecker (*American Heroes, Altissimo!*, 2007). No other instruction or information related to *Song of Democracy* was provided to students during the ensuing week, and no effort was made to monitor individual preparation including listening to the posted reference recordings.

### *Week two*

One week following distribution of parts and scores, each ensemble independently recorded a complete rehearsal run-through of the piece at performance tempo with no prior rehearsal. The wind ensemble rehearsal recording included no choral portions of the piece and the choral ensemble recorded the piano reduction of the instrumental parts. Audio recordings were made in the regular rehearsal spaces for each ensemble using a Zoom H2 Portable Digital Recorder. Recordings were posted the same evening on the ensemble's *Blackboard* site and notice to review and evaluate was sent immediately to ensemble members via email asking that evaluations be completed within 48 hours. To encourage honest evaluations, students completed online evaluations anonymously. The online system was configured



such that a student's participation could be noted, but specific evaluations could not be tracked to an individual.

### *Online evaluations of rehearsal recordings*

Students were instructed to go to the *Blackboard* site within 48 hours of recording the rehearsal run-through, listen to their own rehearsal recording, and complete the online evaluation. Online evaluations were the same for both instrumental and choral ensembles and content was modeled on traditional ensemble adjudication forms used in adjudicated ensemble performances. The evaluation called for numerical ratings (1=low to 5=high) for each of the following subcategories: Tone quality, Technique, Rhythm, Pitch, Dynamics, and Musicality and Overall Performance Quality. Comments for each subcategory and for Overall Performance were invited but not required. Additionally, the evaluation form asked the student to report the amount of time she/he spent in preparation for that week's recording session in one of three groupings (0-20 minutes, 21-40 minutes, 40 or more minutes). Each ensemble participant evaluated a rehearsal run-through once each week.

### *Weeks three, four, and five*

Over the three-week time following the initial rehearsal recording and online listening and evaluation, the same procedures were followed. At the end of each rehearsal week, the ensembles independently recorded a complete run-through of the piece at performance tempo with no stops followed by online evaluations. Between each weekly recording and online evaluation session, routine rehearsals occurred with instrumental and choral ensembles independently preparing *Song of Democracy* as well as other concert repertoire.

### *Final evaluation of concert performance and process*

The collaborative concert was presented in the university's performance hall and was professionally recorded. An audio recording of the combined groups' performance of *Song of Democracy* was played for each ensemble during the first rehearsal following the collaborative concert, and written final evaluations were administered in a group setting. The concert recording was played on quality playback equipment in the ensemble rehearsal space and students completed written evaluations immediately during that same session. The evaluation was a printed version of the online evaluation using the same format for assessing performance quality. The individual preparation time question used in the weekly evaluations was deleted, and new questions asking for reflective responses regarding the preparation process were added.

Students responded to the following using Likert scale responses (1=not helpful to 5=very helpful): "As you consider the past few weeks preparing



*Song of Democracy*, how helpful were the following procedures in contributing to your ensemble's preparation to perform?: Making weekly recordings of the piece, Listening to weekly recordings online, Evaluating weekly recordings online." Students were also asked to cite the "most important thing you learned in this preparation process" and to provide any additional comments they wished about the preparation process.

## Results

University band and choral students' responses in weekly online rehearsal evaluations and their written final concert performance evaluations and reflections served as data for the study in the following ways: (a) self-reported individual preparation time; (b) overall numerical ratings of performance quality in rehearsals and concert recordings; (c) reflective versus anticipatory focus of evaluative comments; (d) proportions of negative versus positive reflective evaluation comments; and (e) comments regarding the efficacy of this collaboration and the preparation process. Comparisons were made to investigate the possible differences between band and choral students and changes in the nature of evaluations across time.

As previously noted subjects completed their evaluations anonymously and were not able to be tracked specifically. Additionally, slight inconsistencies occurred in the total number of students from each ensemble completing any given online evaluation in the series of four across time. For these reasons, a series of independent *t*-tests and graphic representations has been used to report findings.

### *Self-reported individual preparation time*

A comparison of band versus choral students' reports of preparation outside ensemble rehearsals across the four evaluations are shown in Figure 1, and indicate pattern differences between the two groups. Choral ensemble reports were highly consistent, revealing that 70% of students spent 0-20 minutes, 25% of students spent 21-40 minutes, and 5% of students spent 40 minutes or more in individual preparation for each recording session. Wind ensemble student reports were more varied across time, with higher proportions of students spending more time at the beginning of the preparation process and then noticeably less prior to the final two recordings.



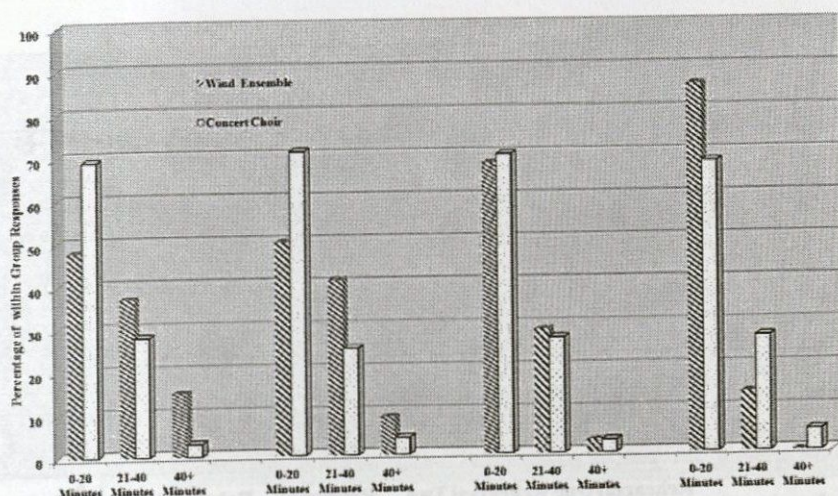


Figure 1. Self-reported individual preparation time by group across rehearsals.

### Overall performance quality ratings

Subjects' overall performance quality ratings were tabulated for each of the four evaluated rehearsals and for the final evaluation of the concert performance. Group means were calculated and wind ensemble-concert choir ratings were compared for each rehearsal evaluation and concert evaluation using a series of five independent *t* tests. Comparisons found no significant differences ( $p > .05$ ) between the two groups for any of the five evaluations. Performance quality ratings for each evaluation by group are depicted graphically in Figure 2. Both ensembles show a gradually more positive group mean rating across time, except in the choral students' concert evaluation rating which remains stable with their rehearsal four evaluation while the band students' concert evaluation continues a more positive trajectory. The range of ratings is noted in Table 1, showing the ensembles' standard deviations to be from .47 to .67 on a five-point scale. This indicates fairly consistent individual variation of ratings within ensembles that remained at about one half of one scale increment or slightly more across the five evaluations.

Table 1. Performance Quality Rating Standard Deviations for Evaluations

Evaluation	Wind Ensemble	Concert Choir
Rehearsal One	.60	.67
Rehearsal Two	.57	.54
Rehearsal Three	.63	.47
Rehearsal Four	.52	.49
Concert	.52	.63



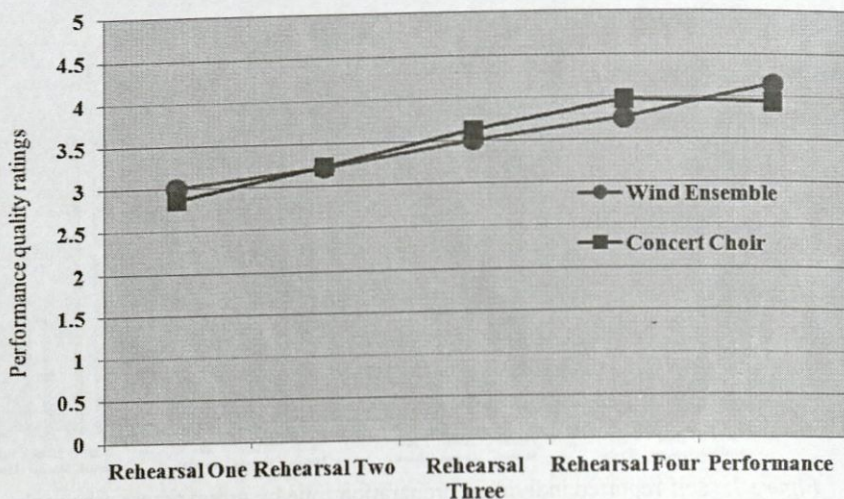


Figure 2. Performance quality ratings by group across time.

*Reflective versus anticipatory focus of evaluative comments*

Students' responses provided in the "overall performance" summary comments were analyzed, categorized and tabulated. The researchers read comments independently, and possible emerging themes were discussed. Ultimately, it was decided that the dichotomous categories of reflective or anticipatory would be applied in coding written comments. Reflective comments were those that were directed to what had happened in previous rehearsals or related to the rehearsal recording itself, and could be either positive or negative (e.g. "the tuning was still a problem overall" or "we're starting to get the essence of this piece"). Anticipatory comments were those that focused on an agenda for the future (e.g. "trumpets need to work a lot more on rhythm at letter D" or "if we keep at it, this is going to be a great concert"). Comments not clearly applicable to either of these categories or if there was no comment reported were coded as "other/no response". Reliability of categorical coding was examined prior to coding all online rehearsal evaluation comments. All comments from Rehearsal Evaluation One were used to establish coding reliability. The investigators coded comments independently, calculated mean inter-rater reliability using the agreements/disagreements plus agreements formula, and reliability was found to be .94. Subsequently, all comments were coded and assigned to one of three mutually exclusive categories: reflective, anticipatory or other/no response.



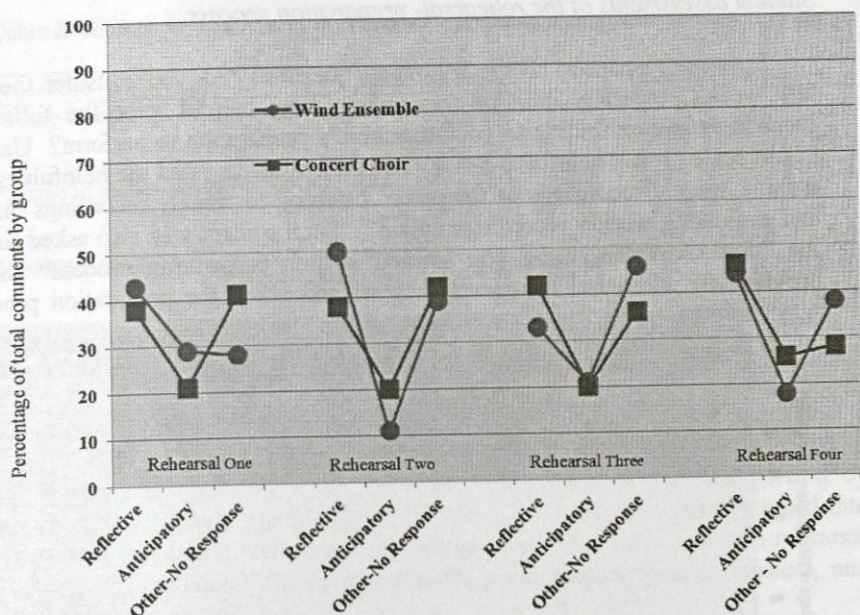


Figure 3. Focus of evaluative comments across rehearsals by group.

Visual inspection of the graphic depictions of categorized comments shown in Figure 3 reveals a similar trend for both ensembles indicating highest frequencies of reflective comments and lowest frequencies of anticipatory comments. Further, the concert choir proportions are stable until rehearsal four when they show a relative increase in reflective comments and decrease in other comments or no response. Wind ensemble proportions, by contrast, show lowest other comments or no response for rehearsal evaluation one and increasing for rehearsals three and four. Also, highest proportions of anticipatory comments are in rehearsal one for the wind ensemble and in rehearsal four for the concert choir.

#### *Positive versus negative focus of reflective comments*

All reflective comments were coded as either positive or negative using the same reliability process previously used. Positive versus negative comment frequency (Figure 4) shows clear differentiation between groups in rehearsals one and two with more congruity of shape in rehearsal three and strong similarity in rehearsal four. Concert choir evaluations show higher negative proportions in rehearsal one, while wind ensemble evaluations show higher negative proportions in rehearsal two. For rehearsals three and four, a general increase in the proportion of positive comments is evident in both groups.



### Student assessments of the rehearsal- preparation process

Students responded to the following question: "As you consider the past few weeks preparing *Song of Democracy*, how helpful were the following procedures in contributing to your ensemble's preparation to perform? Using a Likert scale (1=not helpful to 5=very helpful), students rated the helpfulness of: making weekly recordings of the piece; listening to weekly recordings online; and evaluating weekly recordings online." Each student was also asked to cite the "most important thing you learned in this preparation process" and to provide any additional comments they wished about the preparation process.

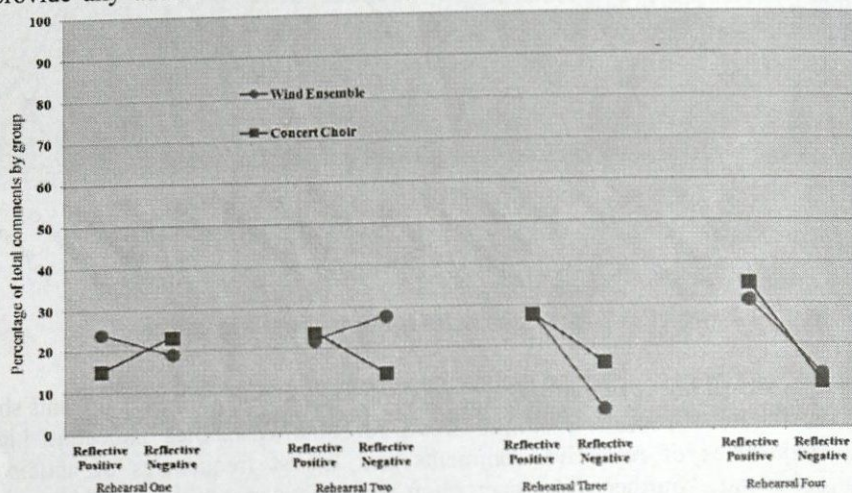


Figure 4. Positive versus negative focus in reflective evaluation comments.

Independent *t*-tests were applied to examine group mean responses to the questions of helpfulness in recording, listening and evaluating. Results showed significant differences between groups' reported helpfulness for each of these three aspects of the process. Wind ensemble students reported significantly higher ratings for the helpfulness of *making* the weekly rehearsal recordings ( $t=2.13$ ,  $df=98$ ,  $p=.04$ ), *listening* to the rehearsal recordings online ( $t=4.02$ ,  $df=98$ ,  $p=.0001$ ), and *evaluating* the weekly recordings online ( $t=2.99$ ,  $df=98$ ,  $p=.004$ ). Group mean helpfulness ratings are shown in Table 2, and show comparatively higher standard deviations in choral responses to making and listening to recordings.



Table 2. Ratings for helpfulness of rehearsal – preparation procedures.

Procedure	Wind Ensemble	Concert Choir
*Make recordings	$M=4.30$ $SD=.69$	$M=3.88$ $SD=1.11$
*Listen to recordings	$M=4.58$ $SD=.59$	$M=3.78$ $SD=1.16$
*Evaluate recordings	$M=3.78$ $SD=1.03$	$M=3.07$ $SD=1.23$

Note: 1=low to 5=high.

\*Significant difference ( $p < .05$ ) between groups.

### Final evaluations - Most important thing learned

Comments regarding most important thing learned were categorized by group and are shown graphically in Figure 5. Comments were grouped into categories including rehearsal recordings, online evaluations, in-rehearsal preparation, outside-rehearsal preparation, performance, general musical, and other/no response.

Band and choral groups' frequency distribution of comments were comparable in the inside- and outside-rehearsal categories, with preparation cited for about 40% of all comments for each group. Other aspects mentioned frequently were benefits of rehearsal recordings and general musical understandings. Benefits of both online evaluations and benefits directly related to the concert performance were mentioned infrequently.

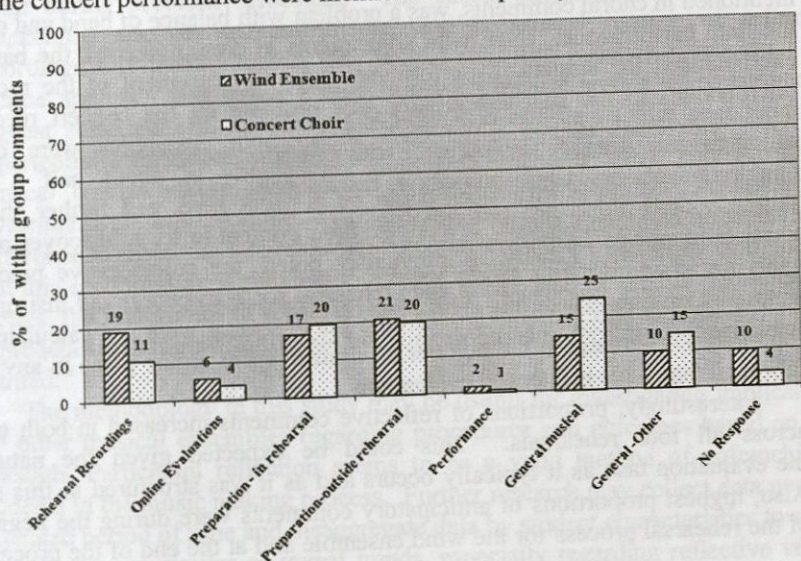


Figure 5. Self-reported most important thing learned during preparation process.



## Discussion

The purpose of this study was to investigate aspects of a collaborative concert preparation process with a university wind ensemble and concert choir. While both ensembles prepared other repertoire they performed separately on the shared concert, the combined piece, *Song of Democracy* was the focus of recordings and evaluations over four rehearsals and the concert.

Choral ensemble self-reports of preparation time were highly consistent across rehearsals and showed approximately 70% of this group spending 20 minutes or less to prepare for the weekly recording of the combined piece. Wind ensemble preparation time varied more, showing higher amounts of time spent toward the beginning of the rehearsal process and progressively less over time. This interesting difference may be idiosyncratic to the participating ensembles, but could also indicate a cultural contrast between bands and choirs in the preparation process. Additionally, there may be inherently different demands of the piece itself for each of the two ensembles, and this could account for some of the differences. The phenomenon seems to merit additional research.

The rating similarities as well as the gradual positive trend of performance quality evaluations across time was interesting, especially given that students were evaluating their own, independent rehearsal recordings of the same piece. Comments seemed to indicate that students in both groups sensed (and heard) the incremental improvement over time. The only differentiation (still not significantly different) was in the concert performance evaluation where the choral mean rating remained static while the band mean continued to increase. The most likely explanation for this, and that which was frequently mentioned in choral comments, was a problem with balance of band and choir in the final performance. Even with adjustments in dress rehearsal, the band still overbalanced the singers in performance and the placement of the recording microphones in the hall exacerbated this problem on the concert recording. Also, individual ratings differences within both ensembles were evident throughout, with standard deviations consistently at about half a rating increment. Multiple influences could be at work here, and further study of evaluation comments should investigate their content to try to discover reasons for this variation. Finally, as previously noted, the collaborative piece was rehearsed at least in part during each rehearsal for both choral and instrumental ensembles, but specific amounts of time per rehearsal were not calculated and reported. Differences in the number of minutes spent on the piece in any given rehearsal may have influenced evaluations.

Interestingly, proportions of reflective comments increased in both groups across all four rehearsals. This could be expected given the nature of the evaluation task as it typically occurs and as it was structured in this study. Also, highest proportions of anticipatory comments were during the beginning of the rehearsal process for the wind ensemble and at the end of the process for



the concert choir. It could be that these two groups "see into the future" differently and at different times in a preparation process. After the first rehearsal, many band students commented on their excitement about the concert collaboration, while more choral students mentioned this just prior to the concert. It could be interesting to investigate reflective versus anticipatory focus over a longer period of time or with different emphasis in the assessment tool to see whether a shift toward more agenda-oriented comments might emerge. In other words, would student evaluators consider the realities of the recording, but then state their future tasks in individual or group practice?

There was a clear differentiation between groups' proportions of positive to negative focus in the first two rehearsals with more similarity in the final two rehearsals. Concert choir evaluations show higher negative proportions in rehearsal one, while wind ensemble evaluations show higher negative proportions in rehearsal two. As mentioned before, there was a difference in reported individual preparation time between the groups at the outset, and this could account for some of the variance. Also, there is the possibility that these two groups (and/or their conductors) approached the rehearsal evaluations differently, or that these particular groups responded in this way. Replication over longer periods, using different pieces, and comparing various musical ensembles and age groups could yield interesting information.

While the incremental differences were not large, they indicated band students were significantly more favorable toward the process of routine recording, listening online and evaluating online. The wind ensemble was accustomed to this basic approach since their conductor had posted rehearsal recordings online and required students to listen and make general comments via email during previous semesters. The choral ensemble had only used the *Blackboard* site for announcements, and occasional posting of reference recordings and marked scores. For both groups, this somewhat structured and routine approach was new. Preparation time reports in this study seemed to suggest some cultural differences in ensemble culture. Other anecdotal and experiential information suggests that instrumental students may experience a musical culture where independent preparation and outside rehearsal time investments are more routine. If this is the case that could explain part of the difference in accepting this rehearsal-preparation method, and could also suggest that this acculturation is possible for choral students over time. Indeed, for both groups, the importance of rehearsal recordings and inside- and outside-rehearsal approaches was highly noticeable in their responses to the "most important thing learned."

The methodology in this study may be useful for investigating implications for other musical ensembles regarding procedures and outcomes based on this research. Participant reflection seems to be a valid method of enfranchising students in the music making process. Further research may collect data over an extended period of time and disaggregate data by student characteristics to see if the patterns are similar or reveal trends, especially regarding reflective versus



anticipatory aspects of music rehearsal and performance. Findings of the present study serve as a reminder that conductors should explore and refine their use of emerging technology to enhance the traditional rehearsal-preparation process. Ultimately, one primary goal of the ensemble should be to provide an experience that encourages individual musical growth and thoughtful independence. Further investigation of these and other non-traditional approaches to the rehearsal process seems warranted.

### References

- Bergee, M. J. (1993). A comparison of faculty, peer, and self-evaluation of applied brass jury performances. *Journal of Research in Music Education*, 41 (1), 19-27.
- Bergee, M. J. (1997). Relationships among faculty, peer, and self-evaluations of applied performances. *Journal of Research in Music Education*, 45 (4), 601-612.
- Bergee, M. J. & Cecconi-Roberts, L. (2002). Effects of small-group peer interaction on self-evaluation of music performance. *Journal of Research in Music Education*, 50 (3), 256-268.
- Kornblith, G. J. & Lasser, C. (2003). More than bells and whistles?: Using digital technology to teach American history. *The Journal of American History*, 89 (4), 1456-1457.
- Geringer, J. M., & Madsen, C. K. (1995/1996). A focus of attention model for meaningful listening. *Bulletin of the Council for Research in Music Education*, 127, 80-87.
- Engelbrecht, J. & Harding, A. (2005). Teaching undergraduate mathematics on the Internet: Attributes and possibilities. *Educational Studies in Mathematics*, 58, 253-276.
- Hewitt, M. P. (2002). Self-evaluation tendencies of junior high instrumentalists. *Journal of Research in Music Education*, 50(3), 215-226.
- Hewitt, M. P. (2005). Self-evaluation accuracy among high school and middle school instrumentalists. *Journal of Research in Music Education*, 53(2), 148-161.
- Kostka, M. J. (2002). Practice expectations and attitudes: a survey of college-level music teachers and students. *Journal of Research in Music Education*, 50(2), 145-154.
- Morrison, S.J. (1998). A comparison of preference responses of white and African-American students to musical versus musical/visual stimuli. *Journal of Research in Music Education*, 42(2), 208-222.
- Morrison, S.J., Montemayor, M. & Wiltshire, E.S., (2004). The effect of a recorded model on band students' performance self-evaluations, achievement, and attitude. *Journal of Research in Music Education*, 52(2), 116-129.
- Music Educators National Conference. (1994). *National Standards for Arts Education: What Every Young American Should Know and Be Able to Do in the Arts. Content and achievement standards for dance, music, theatre, and visual arts; grades K-12*. Reston, VA: MENC.



- Robinson, C. R. (2002, April). *Choral Singers' Self-Evaluations of Rehearsal Effectiveness*. Paper presented at the MENC National Biennial In-Service Conference, Nashville, TN.
- Robinson, C. R., & Parisi, J. (2006, March). *High School Singers' Technical, Emotional and Social Responses to an All-State Chorus Experience*. Paper presented at the MENC National Biennial In-Service Conference, Salt Lake City, UT.
- Robinson, C. R. & Parisi, J. (2007, March). *High School Singers' Reflective Responses to an All-State Chorus Experience*. Paper presented at the Seventeenth International Symposium for Research in Music Behavior, Baton Rouge, LA.
- Wright, E. R. & Lawson, A. H. (2005). Computer mediated communication and student learning in large introductory sociology classes. *Teaching Sociology*, 33, 122-135.
- Zurcher, W. (1987). The effect of three evaluation procedures on the rehearsal achievement of eighth-grade band students. In C. K. Madsen & C. A. Prickett (Eds.), *Applications of research in music behavior* (pp. 51-58). Tuscaloosa: University of Alabama Press.

## Effect of Reverberation and Dynamics on Musicians' Ratings of Choral Tone Quality and Intonation

Alan Zabriskie  
University of Central Missouri

*This study examined the effect of reverberation time and dynamics on musicians' ratings of choral tone quality and intonation. Undergraduate and graduate vocal students (N = 50) at a large southeastern university participated in the study. Participants listened to recordings of an ensemble comprised of vocal majors singing a 12-second excerpt of a choral piece with a consistent forte dynamic level throughout. The amplitude of the initial recording (forte stimulus) was decreased by 20 dB to create a stimulus with lower amplitude (piano stimulus) and .5 seconds of reverberation time was added to both, resulting in four stimuli (forte with reverb, forte without reverb, piano with reverb, piano without reverb). Participants listened to the stimuli and rated the tone quality and intonation on two 7-point Likert-scales. A repeated-measures MANOVA indicated that auditors preferred the forte and piano reverberant recordings over the forte and piano non-reverberant recordings. Results also indicated that auditors demonstrated a significant increase in preference for the intonation of the reverberant recordings over the non-reverberant recordings.*

---

Approach and preference regarding choral tone quality may differ among choral conductors. Nevertheless, good tone quality is a key factor in the perception of overall success in choral music performance. Pedagogical research has reported two main approaches to choral tone quality (Knutson, 1987). In one approach, singers yield many aspects of individual tone quality to match the rest of the ensemble (Swan, 1973). In the opposite approach, singers do not alter individual tone quality at all. Instead, an environment is fostered where singers sing as soloists with little or no yielding to the tone quality of the ensemble (Swan, 1973). Other approaches take a position between these two extremes, where the overall tone quality is malleable in order to be adjusted for the stylistic requirements of the music being sung, or to create a tone quality that is not too controlled, or too difficult to blend (Swan, 1973; Zabriskie, 2006).

Additionally, there may be conflicts between the views of choral conductors and voice teachers with regard to choral tone quality. Many solo voice teachers assert that singing in a choral ensemble inhibits the natural development of the solo voice (Slusher, 1991; Zabriskie, 2006). They further claim that singers may develop unhealthy vocal habits while singing in a choral ensemble. One possible reason for the voice teachers' concern includes the ensemble requirement to blend with other singers thus inhibiting vibrato, singer's formant, and other individualities of each singer's voice (Neufeld, 1999).



Resonance is a central element of both solo and choral singing. The sound begins at the glottal opening between the vocal folds (Goodwin, 1981; Fauls, 2008). The sound energy travels through and is modified by the vocal tract. The frequency ranges where the resonance partials are the strongest are referred to as formants. Trained soloists produce a cluster of strong partials between 2400 and 3200 Hz (Rossing, Sundberg, & Ternström, 1987; Ford, 1999, 2003). This area of partials is referred to as the singer's formant, and is found in those solo voices where the overall quality is judged as good (Bloothoft & Plomp, 1986).

In the voices of choral singers, however, the singer's formant may be much less pronounced. Goodwin (1981) found that university choral singers had stronger fundamental frequencies with fewer and weaker upper partials than when singing a solo. Conversely, in a separate study Reid, Davis, Oates, Cabrera, & Black (2007) compared timbre of opera singers when singing in choral mode versus solo mode. They concluded that singing in choral mode required no difference in vocal timbre than solo operatic singing. The contrasting findings of these two studies may have been the result of the types of singers used; Goodwin used university choral singers and Reid used professional opera singers.

An additional study (Simonson, 1987) demonstrated that the strength of the fundamental formant and the singer's formant can be increased by placing it in a harmonic relationship. These findings seem to suggest that simply by singing in an ensemble setting, a singer's formant resonances can be naturally strengthened; a phenomenon that may lead to a choral formant (Ternström & Kalin, 2007). Daugherty (1999) found that auditor and performer perception of choral tone quality was affected by the physical space between ensemble singers and the standing arrangement of the singers. Daugherty found that both auditors and performers preferred spread spacing. When singing in spread spacing, performers reported "better vocal production and improved hearing of oneself and the ensemble" (Daugherty, 1999, 236).

As findings in the above studies seem to suggest, the presence of singer's formant in choral singing is not a consistently understood and accepted phenomenon. Furthermore, other studies have shown that choral conductors' and auditors' preference for singer's formant in choral singing fluctuates depending on a variety of factors (Knutson, 1987; Ford, 1999, 2003). One study (Ford, 2003) investigated auditor preference with respect to choral sound that included a strong singer's formant as opposed to that which included a weaker singer's formant. Ford's results indicated that the more choral training a listener had, the stronger the preference for a weak singer's formant. This study included a recording of only eight individuals singing in an anechoic chamber. This was presumably done in order to eliminate all variables except for singer's formant.

This elimination of non-formant variables by using a non-reverberant recording space may have been the cause of the variation in overall preference. One possible explanation is that by eliminating the element of reverberation, the aspect of blend is greatly diminished or lost. Further, in absorbent rooms (such



as an anechoic chamber), singers may sing louder and increase the frequencies of the lower formants by 5-10% (Ternström, 1989); leading to the perception of a stronger singer's formant. When singing in a room where reverberation occurs, sound waves become superimposed over each other (Ternström, 1991). Reverberation may increase the perception of choral blend by averaging individual acoustical sounds over directions so that individual singers are not perceived by specific location.

Good intonation is also a major factor in the perception of choral performance success, but accurate intonation is difficult to perceive and is not always agreed upon by auditors (Madsen, Edmonson, & Madsen, 1969; Madsen & Geringer, 1981; Geringer & Madsen, 1981). Research regarding intonation perception has been extensive. Geringer and Madsen (1987) describe the research that had been conducted regarding the performance and perception of intonation prior to 1987. The main findings of this research indicate that auditors prefer sharp to flat tuning (Madsen & Geringer, 1976; Geringer, 1978; Geringer & Witt, 1985; Yarbrough, Morrison, & Karrick, 1997); experienced musicians discriminate flatness more accurately than sharpness (Madsen et al., 1969); intonation is most accurately judged with a reference (accompaniment) (Geringer, 1978); and listeners interchange tone quality judgments for intonation judgments (Madsen & Geringer, 1981; Geringer & Madsen, 1981).

Subsequent research has examined the effect of instrument type and timbre on intonation perception. Duke, Geringer, & Madsen (1988), Demany & Semal (1993), Wapnick (1998), and Worthy (2000) found that auditors perceive bright timbre as sharp and dark timbre as flat. In examining saxophone, clarinet, and flute players, Ely (1992) found that performers play more flat when trying to match the timbre of different instruments.

Research regarding performance and perception of intonation in singing has been limited to soloists, and is based solely on performance (Madsen, 1966; Yarbrough, Green, Benson, & Bowers, 1991; Yarbrough, Bowers, & Benson, 1992; Price, Yarbrough, Jones, & Moore, 1994; Geringer & Madsen, 1998). Madsen (1966) determined that, similar to the perception studies that found that auditors prefer sharp to flat tuning, performers sang sharp in scalar performance when asked to sing in tune. Yarbrough et al. (1992) found that the presence of vibrato negatively affected uncertain singers' ability to match pitch.

Reverberation has been defined as "the perceived phenomenon of multiple echoes mixing with the primary sound" (Wagner, 1994, p. 53). Increased reverberation may allow the echoes to mix with the primary choral sound creating an environment where aspects of soloistic singing deemed undesirable by some can be masked (Ternström, 1991). No research was found regarding the effect of reverberation on perception of intonation. Therefore, this article includes research that will help fill this void.

The purpose of this study was to investigate the effect of reverberation time and dynamics on auditor preference for soloistic singing and intonation in choral ensemble performance. Of interest was the comparison of auditors' preference



for soloistic choral singing and intonation using both soft and loud dynamic levels with a non-reverberant stimulus versus reverberant stimulus.

## Method

### *Participants*

Fifty undergraduate and graduate choral music students from a large southeastern university volunteered to participate in the study. All subjects were participants in either a graduate or undergraduate auditioned choral ensemble at the university and were majoring in choral music education, choral conducting, or vocal performance.

### *Preparation of the recorded stimuli*

A separate group of twenty-five graduate and undergraduate volunteer choral singers were formed as a four-part ensemble (soprano, alto, tenor, bass) for recording the stimulus. The ensemble was an ad hoc volunteer group, and not an intact performing ensemble. The ensemble recorded a twelve-second excerpt of *A Red, Red, Rose* by James Mulholland using piano accompaniment in order to provide a reference for intonation perception. When recording the excerpt, the singers were instructed to perform as soloists at a *forte* dynamic level. The ensemble was recorded in a choral rehearsal room with less than .70 seconds of reverberation time at all tested frequencies. The room was designed to eliminate reverberation time with acoustical panels and carpet installed on the four walls. Before the recordings were made, reverberation time was measured with the singers in the room using a Gold Line Reverb Time Meter. Table 1 indicates reverberation times at the various frequencies within the recording room. At 125 Hz (the lowest frequency measured), a reverberation radius was calculated to be 3.2 meters. Thus, singers were positioned farther than 3.2 meters from the microphone in order to allow for reverberation to occur naturally between the singers and the microphone.

Table 1. Reverberation times at given frequencies in recording room.

Frequency (Hz)	Reverb Time (seconds)
125	.20
250	.28
500	.42
1000	.58
2000	.68
4000	.62

The reverberation time of the signal of the original recording was increased by .5 seconds using WavePad software in order to simulate a room with longer



reverberation time. The amplitude of the resulting two *forte* recordings was then reduced by 20 dB in order to create two recordings with a *piano* dynamic level. This process yielded four recordings of the 12-second choral performance excerpt used in the study: *forte* no reverberation, *forte* with reverberation, *piano* no reverberation, *piano* with reverberation.

### Procedure

The listening phase of the study was conducted in the choral rehearsal room where the recordings were made, and participants were tested in four groups (N=50). Participants listened to the recordings through speakers, and were placed farther than 3.2 meters from the speakers in order for them to experience the natural reverberation in the room. Recordings of the four excerpts were randomized to create three different stimulus sets. One set was used as a practice for the auditors to rate the examples (set 1). In order to control for order effect, participants then heard both of the other two sets (sets 2 and 3) and rated the examples. Within each set, the participants listened to each 12-second excerpt once, and were given 5 seconds to rate the intonation and the tone quality of the performance. Participants rated each excerpt using two separate 7-point Likert-type scales: one rating tone quality and one rating intonation (1 = bad tone quality/intonation, 4 = neutral, 7 = good tone quality/intonation).

### Results

Raw data consisted of the listener participants' ratings of intonation and tone quality for the four recorded choral excerpts. Participants rated each excerpt twice following the practice set in order to establish reliability for the overall ratings of each excerpt. Correlation tests were conducted to establish reliability between the scores of set 2 and set 3. Results of the correlation test indicated significant correlations between the stimuli of each set indicating no order effect among excerpts. Mean tone quality ratings and standard deviations for each stimulus within experimental set 2 and Set 3 are included in Table 2. Mean intonation ratings and standard deviations are included in Table 3. Because no order effect was found, the ratings for each person were combined to form a single rating for each choral excerpt stimulus.

Table 2. Means and Standard Deviations of subjects' tone quality ratings for stimuli in sets 2 and 3.

Stimulus	Mean (SD)	Mean (SD)
	Set #1	Set #2
Forte-No Reverb	4.50 (1.08)	4.48 (0.96)
Forte-Reverb	5.00 (0.96)	5.14 (1.00)
Piano-No Reverb	4.56 (1.10)	4.88 (1.01)
Piano-Reverb	5.04 (1.13)	4.86 (1.10)



Table 3. Means and standard deviations of subjects' intonation ratings for stimuli in sets 2 and 3.

Stimulus	Mean (SD)	Mean (SD)
	Set #1	Set #2
Forte-No Reverb	4.40 (1.15)	4.28 (1.02)
Forte-Reverb	4.80 (0.89)	4.86 (1.13)
Piano-No Reverb	4.54 (1.02)	4.54 (1.10)
Piano-Reverb	4.88 (1.09)	4.94 (1.05)

Ratings for tone quality and intonation were analyzed using a one-way repeated measures MANOVA with the combinations of dynamic level and reverberation level as the independent variables and the ratings for tone quality and intonation as the variates. Mean combined ratings and standard deviations are presented in Table 4. The multivariate analysis indicated a significant difference between the participants' ratings for tone quality and intonation [ $F(6, 44) = 7.46, p < .001, \eta^2 p = .50$ ]. Follow-up univariate tests indicated significant differences between auditors' ratings for both tone quality [ $F(3, 147) = 14.60, p < .001, \eta^2 p = .23$ ] and intonation [ $F(3, 147) = 10.66, p < .001, \eta^2 p = .18$ ].

Table 4. Means and standard deviations of subjects' combined ratings for tone quality and intonation.

Stimulus	Mean (SD)	Mean (SD)
	Tone Quality	Intonation
Forte-No Reverb	8.98 (1.68)	8.68 (1.86)
Forte-Reverb	10.14 (1.55)	9.66 (1.71)
Piano-No Reverb	9.44 (1.75)	9.08 (1.72)
Piano-Reverb	9.90 (1.88)	9.82 (1.86)

Post hoc pair-wise comparisons were used to compare tone quality ratings between excerpts. Results showed that auditors assigned significantly higher ratings to the reverberant stimulus with the *forte* dynamic level, and the *piano* reverberant stimulus to the *forte* non-reverberant stimulus. No significant differences were found between ratings for the *piano* reverberant and non-reverberant stimuli. Comparisons of intonation ratings found that auditors assigned significantly higher ratings to the *forte* reverberant excerpt over the *forte* non-reverberant excerpt, and the *piano* reverberant over the *forte* and *piano* non-reverberant stimuli. There was no significant difference between auditors' ratings for the *forte* reverberant stimulus and the *piano* non-reverberant stimulus.



## Discussion

Results of the study indicate that auditors assigned higher ratings to excerpts with *forte* dynamic and reverberation, and *piano* dynamic with reverberation. Lower ratings were assigned to excerpts with *forte* dynamic without reverberation. These findings regarding tone quality may offer insight into why the participants in Ford's (1999, 2003) studies preferred the weak singers formant. When singers are recorded in an anechoic chamber or a sound-proof room there is little or no reverberation. While this recording technique isolates the variable of the singer's formant, it does not allow the listener to experience the resonant singing found in a real-life situation.

Thus, from Ford's studies we may conclude that when no reverberation is present, auditors prefer non-resonant singing. However, results from the current study suggest that when auditors hear choral singing with reverberation, the preference for resonant, soloistic singing appears to increase.

Findings in the current study regarding intonation are consistent with extant literature. Although aspects of the recording were altered to add reverberation and to reduce amplitude, the intonation of the excerpts did not change. Nevertheless, even with the piano accompaniment as reference, auditors' ratings for the intonation quality of each excerpt increased as their ratings for tone quality increased. These findings continue to suggest that auditors are generally unable to separate perception of tone quality from intonation and vice versa. Additionally, it may be that added reverberation masked intonation errors, similar to the masking of individual aspects of each individual's voice.

The results of this study indicate that as reverberation time is increased, a soloistic choral tone quality at a *forte* dynamic level is rated more highly. This study was limited in scope, however, in that auditors were asked to rate stimuli that contained only soloistic singing. It may be that auditors prefer longer reverberation time regardless of the singing mode. Further research regarding reverberation time should be conducted that asks auditors to compare various singing modes paired with varying reverberation times. Additionally, this study utilized a choral excerpt that was strictly homophonic and legato with traditional, consonant triadic harmonies. Responses to varying reverberation times as well as singing mode and intonation may vary depending on musical texture, harmonic consonance, and overall articulation and other contextual variables.

Finally, while the study confirms previous literature regarding intonation perception, it may also indicate an effect of reverberation on intonation perception. Further research should isolate intonation as a dependent variable separate from tone quality in order to determine the effect that reverberation may have on listener perception.



## References

- Bloothoof, G., & Plomp, R. (1986). The sound level of the singer's formant in. *Journal of the Acoustical Society of America*, 79 (6), 2028-2033.
- Daugherty, J. F. (1999). Spacing, formation, and choral sound: preferences and perceptions of auditors and choristers. *Journal of Research in Music Education*, 47, 224-238.
- Demany, L. & Semal, C. (1993). Pitch versus brightness of timbre: Detecting combined shifts in fundamental and formant frequency. *Music Perception*, 11(1), 1-14.
- Duke, R. A., Geringer, J. M., & Madsen, C. K. (1988). Effect of tempo on pitch perception. *Journal of Research in Music Education*, 36(2), 108-125.
- Ely, M. C. (1992). Effects of timbre on college woodwind players' intonational performance and perception. *Journal of Research in Music Education*, 40(2), 158-167.
- Fauls, B. K. (2008). *A choral conductor's reference guide to acoustic choral music measurement: 1885 TO 2007*. Unpublished doctoral dissertation, The Florida State University.
- Ford, J. K. (1999). *The preference for strong or weak singer's formant resonance in choral tone quality*. Unpublished doctoral dissertation, The Florida State University.
- Ford, J. K. (2003). Preferences for strong or weak singer's formant resonances in choral tone quality. *International Journal of Research in Choral Singing*, 1 (1), 29-47.
- Geringer, J. M. (1978). Intonational performance and perception of ascending scales. *Journal of Research in Music Education*, 26(1), 32-40.
- Geringer, J.M. & Madsen, C.K. (1981). Verbal and operant discrimination/preference for tone quality and intonation. *Psychology of Music*, 9, 26-30.
- Geringer, J. M. & Madsen, C. K. (1987). Programmatic research in music; Perception and performance of intonation. In C. K. Madsen & C. A. Prickett (Eds.), *Application of Research in Music Behavior* (pp. 244-256). Tuscaloosa: The University of Alabama Press.
- Geringer, J. M. & Madsen, C. K. (1998). Musicians' ratings of good versus bad vocal and string performances. *Journal of Research in Music Education*, 46(4), 522-534.
- Geringer, J. M., & Witt, A. C. (1985). An investigation of tuning performance and perception of string instrumentalists. *Bulletin of the Council for Research in Music Education*, 85.
- Goodwin, A. W. (1981). An acoustical study of individual voices in choral blend. *Journal of Research in Music Education*, 28 (2), 119-128.
- Knutson, B. J. (1987). *Interviews with selected choral conductors concerning rationale and practices regarding choral blend*. Unpublished doctoral dissertation, The Florida State University.
- Madsen, C. K. (1966). The effect of scale direction on pitch acuity in solo vocal performance. *Journal of Research in Music Education*, 14(4), 266-275.



- Madsen, C. K., Edmonson, F. A. & Madsen, C. H. (1969). Modulated frequency discrimination in relationship to age and musical training. *Journal of the Acoustical Society of America*, 46, 1468-1472.
- Madsen, C. K. & Geringer, J. M. (1976). Preferences for trumpet tone quality versus intonation. *Bulletin of the Council for Research in Music Education*, 46.
- Madsen, C. K. & Geringer, J. M. (1981). Discrimination between tone quality and intonation in unaccompanied flute/oboe duets. *Journal of Research in Music Education*, 29(4), 305-313.
- Neufeld, C. W. (1999). *Relationships among choral tone and intensity and the spectra of bass singing voices*. Unpublished doctoral dissertation, Arizona State University.
- Price, H. E., Yarbrough, C., Jones, M., Moore, R. S. (1994). Effects of male timbre, falsetto, and sine-wave models on interval matching by inaccurate singers. *Journal of Research in Music Education*, 42(4), 269-284.
- Reid, K. L., Davis, P., Oates, J., Cabrera, D., Ternstrom, S., Black, M. (2007). The acoustic characteristics of professional opera singers performing in chorus versus solo mode. *Journal of Voice*, 21 (1), 35-45.
- Rossing, T. D., Sundberg, J., & Ternström, S. (1987). Acoustic comparison of soprano solo and choir singing. *Journal of the Acoustical Society of America*, 82 (3), 830-836.
- Simonson, D. R. (1987). *The relationship between the fundamental pitch, the first vowel formant and the singing formant: An acoustical experiment*, Unpublished major document, Northwestern University.
- Slusher, H. D. (1991). *A comparison of the perspectives of college choral directors, voice teachers, and voice students concerning solo and choral singing*. Unpublished doctoral dissertation, The Ohio State University.
- Swan, H. (1973). The Development of a Choral Instrument. In H. A. Decker, & J. Herford, *Choral Conducting: A Symposium* (pp. 4-55). New York: Appleton-Century-Crofts.
- Ternström, S. (1989). Long-time average spectrum characteristics of different choirs in different rooms. *Speech Transmission Laboratory--Quarterly Progress and Status Report (Royal Institute of Technology, Stockholm)*, 3, 15-31.
- Ternström, S. (1991). Physical and acoustic factors that interact with the singer to produce the choral sound. *Journal of Voice*, 5 (2), 128-143.
- Ternström, S., & Kalin, G. (2007). Formant frequency adjustment in barbershop. *International Congress on Acoustics, September 2007*, pp. 1-6. Madrid.
- Wagner, M. J. (1994). *Introductory Musical Acoustics*. Raleigh: Contemporary Publishing Company of Raleigh, Inc.
- Wapnick, J. & Freeman, P. (1980). Effects of dark-bright timbral variation on the perception of flatness and sharpness. *Journal of Research in Music Education*, 28(3), 176-184.
- Worthy, M. D. (2000). Effects of tone-quality conditions on perception and performance of pitch among selected wind instrumentalists. *Journal of Research in Music Education*, 48(3), 222-236.



- Yarbrough, C., Bowers, J., Benson, W. (1992). The Effect of Vibrato on the Pitch-Matching Accuracy of Certain and Uncertain Singers. *Journal of Research in Music Education*, 40(1), 30-38.
- Yarbrough, C., Green, G., Benson, W., Bowers, J. (1991). Inaccurate singers: An exploratory study of variables affecting pitch-matching. *Bulletin of the Council for Research in Music Education*, 107, 23-34.
- Yarbrough, C., Morrison, S. J., Karrick, B. (1997). The effect of experience, private instruction, and knowledge of directional mistuning on the tuning performance and perception of high school wind players. *Bulletin of the Council for Research in Music Education*, 134, 31-42.
- Zabriskie, A. N. (2006). *Achieving blend within a full, rich, and vibrant conception of choral sound: A teaching approach for singers of varied vocal abilities*. Unpublished master's thesis, Brigham Young University.



## **Formative Assessment Practices and Preparation for Music Festival**

**Katie Joanne Ford**

**Missouri State University**

**August 2011**

**Committee Chairperson: Daniel Hellman**

### **Thesis Abstract:**

The purpose of this study was to explore how instrumental music teachers of performance-based ensembles use formative assessment as a tool to prepare for music festival. A researcher-designed survey was distributed to directors via email and in person at various music festivals. Sixty middle school and high school instrumental music directors completed the survey. Results revealed that music educators in this study (a) used non-graded observational assessment and self-assessment daily during the month prior to participation in an evaluative music festival, (b) facilitated discussion on performance criteria and performance quality, and (c) perceived graded playing tests to be effective for improving achievement. Additionally, directors who received professional development on formative assessment were more likely to report the use non-graded observational assessment as a strategy than those who did not receive this type of professional development training. The application of formative assessment and professional development to the needs of instrumental music teachers is discussed.

## **The Effect of Color-Coded Notation on the Rhythm Reading Skills of First Grade Music Students**

**Kiersten Fair**

**Missouri State University**

**May 2011**

**Committee Chairperson: Daniel Hellman**

### **Thesis Abstract:**

One of the most fundamental goals for music students is learning to read musical notation. Many teachers struggle with teaching rhythm reading. The use of color-coding has been widely studied in other fields outside music education, with contradictory results. In this present study, research was conducted to investigate the effectiveness of color-coding instructional materials in first grade music students when tested using color-coded notation, modified color-coded notation, and black and white notation. Research was also conducted to determine the students' overall notation preference. In order to do so, the researcher divided several first grade music classes into two groups (experimental and control). The experimental group received the color-coded treatment for four weeks, while the control group receive black and white notation for four weeks. A researcher-created post-test was used to test each group's rhythm reading skills using color-coded notation, modified color-coded, and traditional notation. A post-test survey was given to determine which notation the students preferred to read. Results showed that color-coded materials did not significantly affect the rhythm-reading skills of first-grade students under any test notation format. The preference survey revealed a significant preference for color-coded materials among the subjects.



**The Effectiveness of Curwen Hand Signs and Corresponding Hand Movements on the Vocal Accuracy of Second Grade Students as Measured by Rutkowski's Singing Voice Development Measure**

**Meghann Bell Elwood**  
**Missouri State University**  
**May 2011**

**Committee Chairperson: Daniel Hellman**

**Thesis Abstract:**

The use of Curwen hand signs is an accepted part of elementary music pedagogy; however, there is little research comparing their effectiveness with corresponding hand movements. The purpose of this study was to examine the effectiveness of both Curwen hand signs and corresponding kinesthetic movements on the vocal accuracy of second-grade students, as measured by the Singing Voice Development Measure. Fifty-six second grade students from geographically adjacent elementary schools participated in the study. Classes were assigned to one of three instructional conditions: hand signs, corresponding hand levels or no use of hands. The study lasted eight weeks and followed a pre-post design. The results did not present a clear indication as to which teaching method, if any, was the most effective for improving vocal accuracy. Interestingly, students taught via hand levels and the control group improved on both the taught pattern and song, and students taught with Curwen hand signs improved on the song but not the pattern. Results are discussed in terms of classroom practice.

**Missouri Music Educators Association State Conference  
Research Poster Presentations  
January 2012  
Osage Beach, MO**

**Faculty Research**

*"Letters Home": An Analysis of an Internship "Distance" Course*  
Robert Groene, University of Missouri-Kansas City

*Effect of Teacher Work Samples on Ratings and Evaluations of Student Teachers by  
University Supervisors, Cooperating Teachers, and Student Teachers*  
Daniel Hellman, Missouri State University

*Cry Until You Get It: AP Music Dictation Strategies*  
Andrew Paney, University of Mississippi & Nathan Buonviri, Temple University

*Musical Self-Concept and Music Career Aspirations of Honor Band Participants*  
Joseph Parisi, Charles Robinson, Jennifer Moder & Rebecca Penerosa, University of  
Missouri-Kansas City

*East Meets West: A Descriptive Analysis of Music Therapy Applications Implemented by  
U.S. and Thai Students*  
Dena M. Register, University of Kansas, Lindsey R. Williams & Xavier R. Fleming,  
University of Missouri-Kansas City

*The Swinney Conservatory of Music: The Luther T. Spayde Years (1952-1972)*  
David W. Samson, Chestnut Hill College, Philadelphia, PA

*Undergraduate Music Education Majors' Perceptions of their Development as  
Conductors: Insights from a Basic Conducting Course*  
Brian A. Silvey, Marci M. Major, University of Missouri-Columbia

*Transmission of the MENC Publication/Presentation Code of Ethics to Future Music  
Education Researchers*  
Wendy L. Sims, University of Missouri-Columbia



## Student Projects

*The Origin of Music Student Teaching in the United States*

Eric C. Bonds, University of Mississippi

*The Effect of Applied Piano Lessons on Student Subsequent Practice Sessions*

Fen-Fang Chen, University of Mississippi

*Amount of Teacher Talk and its Effect on Student Attentiveness*

Charlotte Hester, University of Mississippi

*The Effects of Familiarity with the Language of Song Lyrics on Music Preference Responses*

Pei-Ying Lin, University of Missouri-Columbia

*The Development of Secondary Level Music Teacher Education in Jamaica*

Garnet Mowatt, University of Mississippi

*The Effect of Wind band Conducting Workshops on Conducting Participants Using Pre- and Post-Video Peer-Assessment*

Brandon Robinson, University of Mississippi

*Cross-Curricular Applications in Music: Attitudes and Practices (Revised)*

Karen Stafford, University of Kansas

*Teacher Preference in Choral Formations and Spacing*

Phillip Stockton, University of Mississippi

*A History of Music Education in Jamaica*

Randy Tillmuth, University of Mississippi

*Accompanists in the Choral Classroom: A Survey*

Nathan Trahan, University of Mississippi

*Musical Concepts Employed by Artist-Level Jazz Performers Playing an Improvised Solo*

Jonathan Whitmire, University of Mississippi

*The Effects of Music on Parkinson's Patients and the Implications for Music Education*

Cynthia A. Williams, University of Missouri-Columbia

## **Call for Papers**

### **2013 Missouri Music Educators Association State Conference Research Poster Presentations**

Missouri has one of the most successful research sessions of any state conference. The poster format allows for a number of researchers to present their work in an informal setting, where participants can engage in conversation with the researcher. Researchers whose reports are chosen for presentation will prepare a poster describing their research and be available during the presentation session to discuss their work. Participants will bring 30 copies of their abstract for distribution at the session, and respond to inquiries about their work that could include requests for the complete paper, or information about how to obtain it in the case of theses and dissertations.

Those who wish to submit a report for consideration should comply with the following guidelines:

1) There will be three kinds of research accepted for presentation:  
a) completed master's theses or doctoral dissertations; b) reports of original research studies, and c) student non-degree projects.

2) a) To submit completed master's or doctoral research, it only is necessary to submit a copy of the abstract, a copy of the document's title page, and a copy of the signature page which indicates that the paper was accepted in partial fulfillment of degree requirements. The name of the degree-granting institution should appear on one of these pages, or must be included with the submission, as well as the author's full name and e-mail. If all of the above-mentioned items are included, the completed thesis or dissertation will be guaranteed acceptance for presentation. These may be sent by e-mail to the address on the next page.

b) To submit a report of an original research project, e-mail a copy of the complete paper, including an abstract, in Word document format. The project should demonstrate sound research practices and writing style and should be complete. Small scale studies, including action research, are appropriate for this forum. The author's name, address, e-mail, and current school affiliation should appear only on a separate page/file from the abstract and/or manuscript.

c) Students may present non-degree projects that are submitted by faculty at Missouri colleges and Universities. Faculty members should contact Wendy Sims at the address below for further information.



3) Papers presented at conferences other than previous MMEA state conferences *will* be permitted as long as this is clearly indicated in a statement included with the submission.

4) Authors will be apprised of the results of the selection process by e-mail. A hard copy of acceptance letters will be provided upon request.

5) Submissions must arrive at the address below by December 12, 2012. Authors will receive notification of acceptance by the end of December. Address submissions (or questions) to:

Wendy Sims, University of Missouri-Columbia  
SimsW@missouri.edu

We will look forward to a large number of submissions and to another interesting and lively research session.

## INFORMATION TO CONTRIBUTORS

The Missouri Journal of Research in Music Education is a publication devoted to the needs and interests of the school and college music teachers of Missouri and of the nation.

The editorial committee welcomes contributions of a philosophical, historical, or scientific nature, which report the results of research pertinent in any way to instruction in music.

Manuscripts must be submitted through email to the editor, Daniel Hellman, at [DanielHellman@MissouriState.edu](mailto:DanielHellman@MissouriState.edu). The manuscript must conform with the most recent style requirements set forth in the PUBLICATIONS MANUAL for the American Psychological Association (APA, Sixth edition). For historical or philosophical papers, Chicago (Turabian) style is also acceptable. An abstract of 150-200 words should accompany the manuscript. All figures and tables should be submitted camera ready.

Manuscripts are reviewed by the editorial board in a blind review process. To assure anonymity during the review process, the author's name and affiliation should appear on a separate cover page only. Authors are also requested to remove all identifying personal data from submitted articles. The collective recommendations of the reviewers determine whether a manuscript will be accepted for publication. Manuscripts submitted for review must not have been published nor be under consideration for publication elsewhere.

The editorial committee subscribes to the **Research Publication/Presentation Code of Ethics** of the Music Education Research Council of MENC: The National Association for Music Education and the National Research Committee of the American Music Therapy Association.



Missouri journal of research  
in music education.  
Received on: 04-30-12  
University of Missouri -  
Columbia

M J R M E

The oldest continuously published state journal  
dedicated to music education research

